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HENRY FORD HEALTH

Henry Ford Health Publication List – November 2024

This bibliography aims to recognize the scholarly activity and provide ease of access to journal articles, meeting abstracts, book chapters, books and other works published by Henry Ford Health personnel. Searches were conducted in PubMed, Embase, Web of Science, CINAHL, and PsycINFO during the month, and then imported into EndNote for formatting. There are 136 unique citations listed this month, including 103 articles and 33 conference abstracts.

Articles are listed first, followed by conference abstracts. Because of various limitations, this does not represent an exhaustive list of all published works by Henry Ford Health authors.

Click the "Full Text" link to view the articles to which Sladen Library provides access. If the full-text of the article is not available, you may request it through ILLiad by clicking on "Request Article," or calling us at (313) 916-2550. If you would like to be added to the monthly email distribution list to automatically receive a PDF of this bibliography, or you have any questions or comments, please contact smoore31@hfhs.org. If your published work has been missed, please use this form to notify us for inclusion on next month's list. All articles and abstracts listed here are deposited into Scholarly Commons, the Henry Ford Health institutional repository.

Articles

Administration
Anesthesiology
Behavioral Health Services/Psychiatry/Neuropsychology
Cardiology/Cardiovascular Research
Center for Health Policy and Health Services Research
Dermatology
Diagnostic Radiology
Emergency Medicine
Endocrinology and Metabolism
Gastroenterology
Hematology-Oncology
Hospital Medicine
Infectious Diseases
Internal Medicine
Neurology
Neurosurgery
Obstetrics, Gynecology and Women's Health Services
Ophthalmology and Eye Care Services
Orthopedics/Bone and Joint Center
Otolaryngology – Head and Neck Surgery
Pathology and Laboratory Medicine
Pediatrics
Pharmacy
Plastic Surgery
Public Health Sciences
Pulmonary and Critical Care Medicine
Radiation Oncology
Rehabilitation Services/Physical Therapy/Occupational Health
Sleep Medicine
Surgery
Urology

Conference Abstracts

Cardiology/Cardiovascular Research
Hematology-Oncology
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Internal Medicine
Nephrology
Neurosurgery
Obstetrics, Gynecology and Women's Health Services
Otolaryngology – Head and Neck Surgery
Pathology and Laboratory Medicine
Pulmonary and Critical Care Medicine
Radiation Oncology
Sleep Medicine
Surgery
Urology

Articles

Administration

Herrgott GA, **Snyder JM**, **She R**, **Malta TM**, **Sabedot TS**, **Lee IY**, **Pawloski J**, Podolsky-Gondim GG, **Asmaro KP**, **Zhang J**, **Cannella CE**, **Nelson K**, **Thomas B**, **deCarvalho AC**, **Hasselbach LA**, **Tundo KM**, **Newaz R**, **Transou A**, **Morosini N**, **Francisco V**, **Poisson LM**, **Chitale D**, **Mukherjee A**, **Mosella MS**, **Robin AM**, **Walbert T**, **Rosenblum M**, **Mikkelsen T**, **Kalkanis S**, Tirapelli DPC, Weisenberger DJ, Carlotti CG, Jr., **Rock J**, **Castro AV**, and **Noushmehr H**. Detection of diagnostic and prognostic methylation-based signatures in liquid biopsy specimens from patients with meningiomas. *Nat Commun* 2023; 14(1):5669. PMID: 37704607. Full Text

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Recurrence of meningiomas is unpredictable by current invasive methods based on surgically removed specimens. Identification of patients likely to recur using noninvasive approaches could inform treatment strategy, whether intervention or monitoring. In this study, we analyze the DNA methylation levels in blood (serum and plasma) and tissue samples from 155 meningioma patients, compared to other central nervous system tumor and non-tumor entities. We discover DNA methylation markers unique to meningiomas and use artificial intelligence to create accurate and universal models for identifying and predicting meningioma recurrence, using either blood or tissue samples. Here we show that liquid biopsy is a potential noninvasive and reliable tool for diagnosing and predicting outcomes in meningioma patients. This approach can improve personalized management strategies for these patients.

Administration

Udumula MP, **Rashid F**, **Singh H**, Pardee T, Luther S, **Bhardwaj T**, **Anjaly K**, **Piloni S**, **Hijaz M**, Gogoi R, **Philip PA**, **Munkarah AR**, **Giri S**, and **Rattan R**. Targeting mitochondrial metabolism with CPI-613 in chemoresistant ovarian tumors. *J Ovarian Res* 2024; 17(1):226. PMID: 39543742. Full Text

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BACKGROUND: There is evidence indicating that chemoresistance in tumor cells is mediated by the reconfiguration of the tricarboxylic acid cycle, leading to heightened mitochondrial activity and oxidative phosphorylation (OXPHOS). Previously, we have shown that ovarian cancer cells that are resistant to chemotherapy display increased OXPHOS, mitochondrial function, and metabolic flexibility. To exploit this weakness in chemoresistant ovarian cancer cells, we examined the effectiveness of the mitochondrial inhibitor CPI-613 in treating preclinical ovarian cancer. METHODS: Chemosensitive OVCAR3, and chemoresistant CAOV3 and F2 ovarian cancer cells lines and their xenografts in nude mice were used. Functional metabolic studies were performed using Seahorse instrument. Metabolite quantification was performed using LC/MS/MS. RESULTS: Mice treated with CPI-613 exhibited a notable increase in overall survival and a reduction in tumor development and burden in OVCAR3, F2, and CAOV3 xenografts. CPI-613 suppressed the activity of pyruvate dehydrogenase and alpha-ketoglutarate dehydrogenase complex, which are two of its targets. This led to a reduction in OXPHOS and tricarboxylic acid cycle activity in all 3 xenografts. The addition of CPI-613 enhanced the responsiveness of chemotherapy in the chemoresistant F2 and CAOV3 tumors, resulting in a notable improvement in survival rates and a reduction in tumor size as compared to using chemotherapy alone. CPI-613 reduced the chemotherapy-induced OXPHOS in chemoresistant tumors. The study revealed that the mechanism by which CPI-613 inhibits tumor growth is through mitochondrial collapse. This is evidenced by an increase in superoxide production within the mitochondria, a decrease in ATP generation, and the release of cytochrome C, which triggers mitochondria-induced apoptosis. CONCLUSION: Our study demonstrates the translational potential of CPI-613 against chemoresistant ovarian tumors.

Anesthesiology
Cata JP, Guerra-Londono JJ, Ramirez MF, Chen LL, Warner MA, Guzman LFC, Lobo F, **Uribe-Marquez S**, Huang J, Ruscic KJ, Chew STH, and Lanigan M. The Association Between Perioperative Red Blood Cell Transfusions and 1-Year Mortality After Major Cancer Surgery: An International Multicenter Observational Study. *Anesth Analg* 2024; Epub ahead of print. PMID: 39504267. Full Text

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BACKGROUND: Packed red blood cell (pRBC) transfusions in patients undergoing surgery for cancer are given to treat anemia or acute hemorrhage. Evidence indicates that pRBC transfusions are associated with poor perioperative and oncological outcomes. The ARCA-1 (Perioperative Care in the Cancer Patient-1) study was designed to test the association between perioperative pRBC transfusions and postoperative morbidity and mortality in patients undergoing cancer surgery. The primary hypothesis of our study was that perioperative pRBC transfusions have a negative impact on postoperative morbidity

and 1-year mortality. METHODS: ARCA-1 was an international multicenter prospective observational cohort study. Participating centers enrolled a minimum of 30 consecutive adult patients with cancer who underwent surgery with curative intent. The primary end point was all-cause mortality 1 year after major cancer surgery. Secondary end points were rates of perioperative blood product use, 1-year cancer-specific mortality, overall survival, and 30-day morbidity and mortality. We performed a propensity score matching analysis to adjust for selection bias. A multivariable logistic regression model was fitted to estimate the effects of significant covariates on 1-year mortality, cancer-related mortality, and overall survival. RESULTS: A total of 1079 patients were included in the study. The rate of perioperative pRBC transfusions was 21.1%. Preoperative comorbidities, including anemia, American Society of Anesthesiologists (ASA) score of III to IV, a history of coronavirus disease 2019 (COVID-19), myocardial infarction, stroke, need for dialysis, history of blood transfusions, and metastatic disease were statistically significantly more frequent in transfused patients compared to nontransfused patients. The 1-year mortality rate was higher in transfused patients before (19.7% vs 6.5%; P < .0001) and after (17.4% vs 13.2%; P = .29) propensity score matching. 1-year mortality was 1.97 times higher in transfused than in no-transfused patients (odd ratio [OR], 1.97; 95% confidence interval [CI], 1.13-3.41). The odds of 1-year cancer mortality for patients who had perioperative pRBCs was 1.82 times higher (OR, 1.82; 95% CI, 0.97-3.43) compared to those who did not receive perioperative pRBC transfusion. The effect of perioperative pRBC transfusion on overall survival was also significant (hazard ratio [HR], 1.85; 95% CI, 1.15-2.99). Transfused patients also had a higher rate of 30-day postoperative mortality before (3.5% vs 0.7%; P = .0009) and after propensity score matching (4.2% vs 1.8%; P = .34). CONCLUSIONS: This international, multicenter observational study showed that perioperative pRBC transfusion was associated with an increased mortality risk.

Behavioral Health Services/Psychiatry/Neuropsychology
Bulkley MB, **Oberdorfer K**, and **Maan RR**. A Case of Clozapine-Induced Hepatotoxicity: Management Considerations and Future Direction. *Cureus* 2024; 16(10):e70788. PMID: 39493089. Request Article

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Clozapine is an atypical antipsychotic used for treatment-resistant schizophrenia. Its use is often limited due to its well-known association with a variety of side effects. Hepatotoxicity is a less common side effect and has been infrequently reported. Here, we present the case of a patient who developed abdominal discomfort and right upper quadrant pain after clozapine was initiated. Liver transaminases were found to be elevated and continued to rise despite cessation of another psychiatric medication more commonly associated with hepatotoxicity. Discontinuation of clozapine resulted in relief of symptoms and normalization of liver enzymes without any complications.

Behavioral Health Services/Psychiatry/Neuropsychology
Meresh ES, Shkundin A, **Tobin ET**, Piletz J, and Halaris A. Non-cardiac chest pain: psychopathology, pathophysiology, and response to escitalopram. *Gen Hosp Psychiatry* 2024; Epub ahead of print. PMID: 39490333. Full Text

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Behavioral Health Services/Psychiatry/Neuropsychology

Ni T, Sun Y, Li Z, Tan T, Han W, Li M, Zhu L, Xiao J, Wang H, Zhang W, Ma Y, Wang B, Wen D, Chen T, Tubbs J, Zeng X, Yan J, **Gui H**, Sham P, and Guan F. Integrated Transcriptome Analysis Reveals Novel Molecular Signatures for Schizophrenia Characterization. *Adv Sci (Weinh)* 2024; e2407628. Epub ahead of print. PMID: 39564883. Full Text

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Schizophrenia (SCZ) is a complex psychiatric disorder presenting challenges for characterization. The current study aimed to identify and evaluate disease-responsive essential genes (DREGs) to enhance the molecular characterization of SCZ. RNA-sequencing data from PsychENCODE (536 SCZ patients, 832 controls) and peripheral blood transcriptome data from 144 recruited subjects (59 SCZ patients, 6 non-SCZ psychiatric patients, 79 controls) are analyzed. Shared differential expression genes are obtained using three algorithms. Support vector machine (SVM)-based recursive feature elimination is employed to identify DREGs. The biological relevance of these DREGs is examined through protein-protein interaction network, pathway enrichment, polygenic scoring, and brain tissue expression. Key DREGs are validated in SCZ animal models. A DREGs-based machine-learning model for SCZ characterization is developed and its performance is assessed using multiple datasets. The analysis identified 184 DREGs forming an interconnected network involved in synaptic plasticity, inflammation, neuronal development, and neurotransmission. DREGs exhibited distinct expression in SCZ-related brain regions and animal models. Their genetic contributions are comparable to genome-wide polygenic risk scores. The DREG-based SVM model demonstrated high performance (AUC 85% for SCZ characterization, 79% for specificity). These findings provide new insights into the molecular mechanisms underlying SCZ and emphasize the potential of DREGs in improving SCZ characterization.

Behavioral Health Services/Psychiatry/Neuropsychology

Tobin ET, **Mooney JT**, **DePascale E**, **Maxwell S**, **Willens DE**, **Braciszewski JM**, and **Miller-Matero LR**. Implementing a pain psychology screening process in primary care. *Fam Syst Health* 2024; Epub ahead of print. PMID: 39556349. Request Article

Henry Ford Health.
Behavioral Health Services, Henry Ford Health.
Center for Health Policy and Health Services Research, Henry Ford Health.

BACKGROUND: Integrating pain psychology in primary care has the potential to improve symptom burden; however, identifying those who may benefit is a challenge. The purpose of this study was to gather feedback from a multidisciplinary team to optimize digital screening and referral for psychological treatment of chronic pain distress within primary care. METHOD: Team members in a primary care clinic were introduced to the proposed screening process and offered the opportunity to complete a feedback survey. The proposed workflow involved the customer service representative providing patients with digital screeners on an iPad, results transferring to the electronic health record, and a medical assistant (MA) returning the iPad. Positive screens would alert the MA to start the referral process in the electronic health record then signaling the physician to discuss the referral to the psychology team with the patient. RESULTS: Sixty-eight percent of individuals agreed or strongly agreed that screening for chronic pain and distress is important. Sixty six percent of the respondents selected the customer service representatives as the ideal team member to give the iPad to patients and 84% responded that MAs should be responsible for returning the iPad to the front desk. Some thought a positive screen should directly alert physicians (58%) whereas 40% indicated a preference for signaling the MAs to start the referral process. DISCUSSION: Team members had favorable opinions about integrating digital chronic pain distress screening. The logistics of the screening and referral process were finalized based on this feedback and will be integrated into the clinic. (PsycInfo Database Record (c) 2024 APA, all rights reserved).

Cardiology/Cardiovascular Research

Abdallah N, Mohamoud A, Ismayl M, **Aronow HD**, Abdallah M, and Goldsweig AM. Outcomes of ST-Segment Elevation Myocardial Infarction in Patients With Adrenal Insufficiency. *J Endocr Soc* 2024; 8(12):bvae186. PMID: 39569135. Full Text

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CONTEXT: Patients with adrenal insufficiency (AI) have both increased risk of cardiovascular disease and adverse outcomes with many medical emergencies. However, limited data exist specifically regarding ST-segment elevation myocardial infarction (STEMI) in the context of AI. OBJECTIVE: To evaluate associations between AI and in-hospital outcomes of patients with STEMI. METHODS: Admissions for STEMI were identified in the 2016-2019 National Inpatient Sample. In-hospital outcomes were compared between patients with and without AI. The primary outcome was in-hospital mortality. Secondary outcomes included percutaneous coronary intervention (PCI), coronary artery bypass graft (CABG), intervention, acute kidney injury (AKI), vasopressor use, mechanical circulatory support (MCS), mechanical ventilation, ventricular tachycardia (VT), hospital length of stay (LOS), and total charges. Multivariable regression models were used to adjust for potential confounders. RESULTS: Among 690 430 STEMI hospitalizations, 1382 (0.2%) had a diagnosis of AI. AI was associated with higher odds of in-hospital mortality (adjusted OR [aOR] 1.51, 95% CI 1.03-2.2), lower odds of PCI (aOR 0.73, 95% CI 0.55-0.98), higher odds of CABG (aOR 2.8, 95% CI 1.89-4.2) and, AKI (aOR 2.38, 95% CI 1.72-3.3), VT (aOR 1.55, 95% CI 1.1-2.2), need for vasopressors (aOR 2.34, 95% CI 1.33-4.1), mechanical ventilation (aOR 2.11, 95% CI 1.54-2.89), and MCS (aOR 2.18, 95% CI 1.57-3.03). Patients with AI also had a longer LOS (10 days vs 4.2 days, P < .001) and higher charges ($258 475 vs $115 505, P < .001). CONCLUSION: Patients with AI admitted for STEMI had higher in-hospital mortality, nonfatal adverse outcomes, and resource utilization than patients without AI.

Cardiology/Cardiovascular Research

Abraham B, Suppah M, Farina J, Botros M, Fath A, Kaldas S, **Megaly M**, Chao CJ, Arsanjani R, Ayoub C, Fortuin FD, Sweeney J, Pellikka P, Nkomo V, Alkhouli M, Holmes D, Jr., Badr A, and Alsidawi S. Impact of Moderate or Severe Mitral and Tricuspid Valves Regurgitation after Transcatheter Aortic Valve Replacement. *Am Heart J* 2024; Epub ahead of print. PMID: 39542233. Full Text

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BACKGROUND: Tricuspid regurgitation (TR) and mitral regurgitation (MR) are common valvular conditions encountered in patients undergoing transcatheter aortic valve replacement (TAVR). This retrospective study investigates the impact of moderate or severe TR and MR on all-cause mortality in one-year post-TAVR patients. METHODS: Consecutive patients who underwent TAVR at the 3 academic tertiary care centers in our health system between 2012 and 2018 were identified. Patients were stratified into 2 groups based on valvular regurgitation severity: moderate/severe MR vs. no/mild MR, and moderate/severe TR vs. no/mild TR. Primary outcome was all-cause mortality at 1-year and 5-year follow up, and secondary outcome was in-hospital death. Logistic regression analysis was conducted to assess the relationship between moderate/severe MR or TR and all-cause mortality at 1-year and 5-year follow-up. RESULTS: We included a total of 1,071 patients who underwent TAVR with mean age 80.9 ± 8.6 years, 97% white, and 58.3% males. Moderate or severe MR group included 52 (4.88%) patients while mild or no MR group included 1,015 (95.12%) patients. There was no significant difference between both groups in TAVR procedure success rate (100% vs. 97.83%, p=0.283), in-hospital mortality (0 vs. 1.08%, p=0.450), or mortality at 1-year follow up (15.38% vs. 14.09%, p=0.794). At 5-year follow up, moderate/severe MR group had higher mortality (61.4% vs. 49.5%, p=0.046). In multivariable logistic regression analysis, moderate or severe MR did not show significant correlation with all-cause mortality at 1-year and 5-year follow up. Moderate or severe TR group included 86 (8.03%) patients while mild or no TR group included 985 (91.97%) patients. There was no difference between both groups in TAVR procedure success (98.8% vs. 97.9%, p=0.54) or in-hospital mortality (0% vs. 1.1%, p=0.33). At 1-year follow up, patients with moderate or severe TR had higher mortality (26.7% vs. 13.2%, p=0.001) compared to patients with mild or no TR. Same finding was noted with extended follow up at 5-years (68.3% vs. 48.7%, p<0.001). In multivariable cox regression analysis, moderate/severe TR was associated with higher all-cause mortality at 1-year (OR 1.94, 95% CI [01.09, 3.44], p=0.0.023) and at 5-year (OR 1.46, 95% CI [1.092, 1.952], p=0.0.011) follow up. Patients with combined moderate/severe MR and TR have even higher mortality compared to either moderate/severe valve regurgitation alone or mild/no valve regurgitation at 5-year follow up. CONCLUSION: At long term follow up, moderate/severe TR, but not MR, is associated with higher mortality in patients underwent TAVR. Combined moderate/severe TR and MR had even worse mortality. Careful assessment of multi-valvular heart disease prior to the procedure is warranted.

Cardiology/Cardiovascular Research

Almajed MR, **Fadel RA**, **Parsons A**, Jabri A, **Ayyad A**, **Shelters R**, **Tanaka D**, **Cowger J**, **Grafton G**, **Alqarqaz M**, **Villablanca P**, **Koenig G**, and **Basir MB**. Incidence and risk factors associated with stroke when utilizing peripheral VA-ECMO. *Cardiovasc Revasc Med* 2024; Epub ahead of print. PMID: 39500701. Full Text

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BACKGROUND: Mechanical circulatory support with veno-arterial extracorporeal membrane oxygenation (VA-ECMO) has brought forward a paradigm shift in the management of cardiogenic shock. Neurological complications associated with VA-ECMO represent a significant source of morbidity and mortality and serve as a limiting factor in its application and duration of use. METHODS: We performed a single-center retrospective case-control study of patients who developed stroke while managed with peripheral VA-

ECMO from January 2018 to September 2022 at a quaternary center. We included consecutive patients above the age of 18 who were admitted to the cardiac intensive care unit and were managed with peripheral VA-ECMO. All patients who developed a stroke while on VA-ECMO were included in the case cohort, and compared to those who did not suffer stroke. Multivariable logistic regression was performed to identify risk factors associated with stroke on VA-ECMO. In-hospital outcomes were assessed out to 30 days. RESULTS: A total 244 patients were included in the final analysis, 36 (14.7 %) of whom developed stroke on VA-ECMO. Ischemic stroke was seen in 20 patients (55.6 %) whereas hemorrhagic stroke was seen in 16 patients (44.4 %). The use of P2Y(12) antagonists (aOR 2.70, p = 0.019), limb ischemia (aOR 4.41, p = 0.002), and blood transfusion requirement (aOR 8.55, p = 0.041) were independently associated with development of stroke on VA-ECMO. Female sex trended towards statistical significance (aOR 2.19, p = 0.053) while age was not independently associated with development of stroke on VA-ECMO. There was no significant association between stroke development and outcomes of VA-ECMO duration, hospital length of stay, and all-cause mortality out to 30-days. CONCLUSIONS: VA-ECMO carried a considerable risk of neurological complications. Mortality and duration of hemodynamic support was not associated with stroke risk. Awareness regarding stroke risk is imperative in facilitating early identification and management of ischemic and hemorrhagic stroke. Research involving clinical trials and multicenter studies are necessary to empower centers in mitigating this source of significant morbidity and mortality in patients on mechanical circulatory support.

Cardiology/Cardiovascular Research
Arnautovic JZ, Ya'Qoub L, **Wajid Z**, **Jacob C**, Murlidhar M, Damlakhy A, and **Walji M**. Outcomes and Complications of Mitral and Tricuspid Transcatheter Edge-to-edge Repair. *Interv Cardiol* 2024; 19:e20. PMID: 39569385. Full Text

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In the realm of innovative medical procedures, TEER (transcatheter edge-to-edge repair) has emerged as a promising field, showcasing significant growth and advancements. Mitral TEER has been performed for the last two decades; in contrast, tricuspid TEER is newer, with long-term outcomes pending. This article aims to provide a comprehensive review of the current literature, with a primary focus on outcomes and potential complications associated with both procedures. Both procedures carry a low risk of complications when done by experienced providers. A team approach involving specialists in cardiology, cardiothoracic surgery, cardiac imaging and heart failure ensures comprehensive care. A unified approach encompassing preprocedural workup, risk assessment, and standardised care throughout the procedure and recovery contributes to successful outcomes.

Cardiology/Cardiovascular Research
Berry R, and Sorace P. Sudden Coronary Artery Dissection: From the Hospital to Returning to Physical Activity. *Acsms Health & Fitness Journal* 2024; 28(6):51-52. PMID: Not assigned. Full Text

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Cardiology/Cardiovascular Research
Elkaryoni A, Hyder O, Saad M, Darki A, Elgendy IY, Mamdani ST, Bunte MC, **Aronow HD**, Soukas PA, and Abbott JD. Trends in Transcatheter Mechanical Thrombectomy for Management of Acute Pulmonary Embolism. *Circ Cardiovasc Qual Outcomes* 2024; 17(11):e011038. PMID: 39492716. Full Text

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Cardiology/Cardiovascular Research

Jain R, Kransdorf EP, **Cowger J**, Jeevanandam V, and Kobashigawa JA. Donor Selection for Heart Transplantation in 2024. *JACC Heart Fail* 2024; Epub ahead of print. PMID: 39570235. Full Text

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The number of candidates on the waiting list for heart transplantation (HT) continues to far outweigh the number of available organs, and the donor heart nonuse rate in the United States remains significantly higher than that of other regions such as Europe. Although predicting outcomes in HT remains challenging, our overall understanding of the factors that play a role in post-HT outcomes continues to grow. We observe that many donor risk factors that are deemed "high-risk" do not necessarily always adversely affect post-HT outcomes, but are in fact nuanced and interact with other donor and recipient risk factors. The field of HT continues to evolve, with ongoing development of technologies for organ preservation during transport, expansion of the practice of donation after circulatory death, and proposed changes to organ allocation policy. As such, the field must continue to refine its processes for donor selection and risk prediction in HT.

Cardiology/Cardiovascular Research

Krittanawong C, **Qadeer YK**, Ang SP, Wang Z, Alam M, Sharma S, and Jneid H. Incidence and in-hospital mortality among women with acute myocardial infarction with or without SCAD. *Curr Probl Cardiol* 2024; 50(1):102921. PMID: 39528124. Full Text

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BACKGROUND: Spontaneous coronary artery dissection (SCAD) has been increasingly recognized in the past decades. SCAD patients can present with acute myocardial infarction (AMI), particularly in young healthy women without conventional risk factors. However, data on the outcomes of SCAD patients presenting with AMI or benefit of PCI for SCAD in the setting of AMI is inconclusive. METHODS: We evaluated the prevalence, recent trends, the incidence and in-hospital mortality among women with acute myocardial infarction (AMI) who presented with or without SCAD, and to evaluate the impact of PCI on in-hospital mortality from a population-based analysis, using the National Inpatient Sample (NIS) database between 2016 and 2019. RESULTS: From 2016-2019, there were 1,527,555 cases of females presenting

with AMI. Of that number, there were 12,125 cases of SCAD. Mortality trends in the SCAD and non-SCAD group were comparable. There was a gradual increase in incidence each year for SCAD-STEMI. CONCLUSION: Mortality did not differ from 2016-2019 in patients with MI found to have SCAD or not. However, it seems that the SCAD-MI cases are gradually increasing each year. More research needs to be performed to better elucidate treatment outcomes in these patients.

Cardiology/Cardiovascular Research
Kumar S, Al-Ogaili A, Hall A, Azzalini L, **Alaswad K**, Rinfret S, Kerrigan J, Wollmuth J, Milkas A, Banerjee S, Sandoval Y, and Brilakis ES. Update on the diagnosis and treatment of coronary complications of percutaneous coronary interventions. *J Invasive Cardiol* 2024; Epub ahead of print. PMID: 39565942. Request Article

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Prevention, prompt diagnosis, and rapid treatment are crucial for improving outcomes of complications that occur during percutaneous coronary intervention (PCI). The authors summarize studies on PCI complications published between January 1, 2023, and May 1, 2024, including coronary dissection, no reflow, perforation, and equipment loss/entrapment.

Cardiology/Cardiovascular Research
Mutlu D, Simsek B, Rempakos A, Alexandrou M, Al-Ogaili A, Azzalini L, Rinfret S, Khatri JJ, **Alaswad K**, Jaffer FA, Jaber W, **Basir MB**, Goktekin O, Gorgulu S, Krestyaninov O, Khelimskii D, Davies R, Frizzel J, Choi JW, Chandwaney RH, Potluri S, Poommipanit P, Uretsky B, Ybarra LF, Murad B, Rangan BV, Mastrodemos OC, Sandoval Y, Burke MN, and Brilakis ES. Validation of the coronary artery specific chronic total occlusion percutaneous coronary intervention angiographic difficulty scores in the PROGRESS-CTO registry. *Cardiovasc Revasc Med* 2024; Epub ahead of print. PMID: 39488482. Full Text

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BACKGROUND: The J-CTO investigators recently developed angiographic difficulty scores for each of the three major coronary arteries in patients undergoing first-attempt chronic total occlusion (CTO) percutaneous coronary intervention (PCI) in de novo occlusions. METHODS: We examined the performance of the individual J-CTO scores in a large multicenter registry. RESULTS: The CTO lesion location was as follows: right coronary artery (RCA) 3,805 (54%), left anterior descending artery (LAD) 2,303 (33%), and left circumflex (LCX) 935 (13%). Patients in the PROGRESS-CTO registry were younger, more likely to be female, and had higher J-CTO scores compared with the J-CTO registry. Increasing difficulty scores were associated with lower technical success in the PROGRESS-CTO registry (score 0: 94.4 % - score ≥3: 82.6% for the RCA difficulty score; score 0: 96.4% - score ≥3: 86.1 for the LAD difficulty score; and score 0: 95.4% - score ≥3: 81.2% for the LCX difficulty score). The C-statistic of the coronary artery specific J-CTO scores in the PROGRESS-CTO registry were: LAD 0.69 (95% confidence intervals [CI], 0.64-0.73), LCX 0.63 (95% CI, 0.57-0.69), and RCA 0.61 (95-% CI, 0.58-0.64) with good calibration (Hosmer-Lemeshow p-value >0.05 for all). The AUC of the classic J-CTO score for LAD lesions was similar with the LAD J-CTO score (p-for-difference = 0.26), but worse for LCX (p-for-difference = 0.04) and RCA lesions (p-for-difference = 0.04). CONCLUSION: In the PROGRESS-CTO registry, the coronary artery specific J-CTO scores did not improve prediction of the technical success of CTO-PCI compared with the classic J-CTO score.

Cardiology/Cardiovascular Research

Pegues JN, Fawaz RM, Kimfon KM, Hou H, Noly PE, Cascino TM, Hawkins RB, Stewart Ii JW, Aaronson K, **Cowger J**, Pagani FD, and Likosky DS. Advancing Patient-Centered Metrics for Heart Transplantation: The Role of Days Alive and Outside the Hospital. *J Heart Lung Transplant* 2024; Epub ahead of print. PMID: 39551172. Full Text

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BACKGROUND: Heart transplantation (HT) survival and waitlist times are established outcome metrics. Patient-centered HT outcomes are insufficiently characterized. This study evaluates the role of days alive and outside the hospital (DAOH) as a candidate patient-centered HT performance measure. METHODS: The study cohort included Medicare beneficiaries undergoing HT (July 2008-December 2017). The percent of days outside of hospital (%DOH) six months before (%DOH-BF) and percent of days alive outside of hospital 12 months after HT (%DAOH-AF) were evaluated along with adverse events (AEs, early: ≤3 months; late: 4-12 months). Patients were stratified by patient %DAOH-AF terciles. Risk-adjusted %DAOH was evaluated across hospitals. RESULTS: A total of 5,104 beneficiaries underwent HT across 108 hospitals. Median [IQR] age was 62 [53-67] years, 23.9% were female, and 21.4% were African-American. The overall median %DOAH-AF was 92.9% [83.8%, 95.9%], varying by tercile: low: 71.8% [4.9%, 83.6%], intermediate; 92.9% [91%, 94%]; high 96.4% [95.9%, 97.3%]. The lowest (versus highest) tercile %DAOH-AF had a lower median %DOH-BF (88% [73%-97%] versus 92% [81%-98%]) and longer post-HT inpatient stay (54 [36-81] versus 13 [10-15] days). After HT, the lowest versus highest tercile had greater AEs burden in the early [allograft failure (16.1% versus 1.6%), stroke (12.1% versus

2.3%)], and late [stroke (5.1% versus 1.9%), sternal wound infection (5.0% versus 0.8%)] phases post-HT. Mean hospital %DAOH(adj) was 80.5% (min:max 57.7%-96.7%). CONCLUSIONS: Post-HT %DAOH varies across beneficiaries and hospitals and is associated with AEs. Further research is warranted to assess the role and validity of %DAOH as a HT quality metric.

Cardiology/Cardiovascular Research
Sánchez-Sánchez I, Cerrato E, Bollati M, Espejo-Paeres C, Nombela-Franco L, Alfonso-Rodríguez E, Camacho-Freire SJ, **Villablanca PA**, Amat-Santos IJ, De la Torre Hernández JM, Pascual I, Liebetrau C, Camacho B, Pavani M, Albistur J, Latini RA, Varbella F, Jiménez Díaz VA, Piraino D, Mancone M, Alfonso F, Linares JA, Rodríguez-Olivares R, Jiménez-Mazuecos JM, Palazuelos Molinero J, Sánchez-Grande Flecha A, Gomez-Hospital JA, Ielasi A, Lozano Í, Omedè P, Feltes G, Ugo F, Medda M, Ramakrishna H, Kala P, Bautista D, Alkhouli M, Fernández-Ortiz A, and Núñez-Gil IJ. Long-Term Prognosis of Coronary Aneurysms: Insights of CAAR, an International Registry. *JACC Cardiovasc Interv* 2024; 17(22):2681-2691. PMID: Not assigned. Full Text

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Background: Limited data are available to guide the management of coronary artery aneurysms (CAAs). Objectives: The authors sought to define the clinical characteristics, identify variables that predict outcomes, and provide long-term data on CAAs. Methods: We describe outcomes from 1,729 consecutive patients with CAAs included in an ambispective international registry (CAAR [Coronary Artery Aneurysm Registry]; NCT02563626) involving 33 hospitals across 9 countries in America and Europe. Results: Patients were predominantly male (78.6%; 1,359/1,729) with a mean age of 66 years. Classic cardiovascular risk factors were common, as well as coronary artery disease (85.8%; 1,484/1,729), peripheral vascular disease (10.9%; 188/1,729), and chronic kidney disease (8.0%; 138/1,729). The median number of aneurysms per patient was 1.0 (Q1-Q3: 1.0-1.0), with the most affected territory being the left anterior descending artery (49.6%; 857/1,729). The majority underwent any revascularization procedure (68.5%; 1,184/1,729), mainly percutaneous coronary intervention (50.7%; 877/1,729), and were discharged on dual antiplatelet therapy (65.6%; 1,134/1,729). After a median follow-up of 44.8 months (Q1-Q3: 14.9-88.1), 379 died (21.9%), and 641 (37.1%) developed a major adverse cardiovascular event (MACE) (all-cause death, heart failure, unstable angina, and reinfarction). In a multivariable analysis, age (HR: 1.03; 95% CI: 1.02-1.04; P < 0.001), diabetes mellitus (HR: 1.47; 95% CI: 1.23-1.75; P < 0.001), renal insufficiency (HR: 1.53; 95% CI: 1.19-1.96; P = 0.010), peripheral vessel disease (HR: 1.43; 95% CI: 1.13-1.82; P = 0.003), reduced left ventricular ejection fraction (HR: 0.98; 95% CI: 0.98-0.99; P < 0.001), acute indication for the index coronary angiography (HR: 1.30; 95% CI: 1.08-1.55; P = 0.005), and the number of coronary vessels presenting severe stenosis (HR: 1.11; 95% CI: 1.02-1.20; P = 0.015) were independent predictors of MACEs. Remarkably, only 37 patients presented with local aneurysm complications during follow-up. Conclusions: The long-term prognosis of CAAs is not favorable, with MACEs associated with the underlying risk factor profile for atherosclerotic heart disease.

Cardiology/Cardiovascular Research
Sedhom R, Khedr M, Beshai R, Brilakis ES, **Basir MB**, **Alaswad K**, Stoletniy L, Abramov D, Bharadwaj A, and Megaly M. Characteristics and outcomes of myocardial infarction among burn patients: A nationwide analysis. *Burns* 2024; 51(1):107313. PMID: 39561551. Full Text

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PURPOSE: To examine the characteristics and outcomes of myocardial infarction (MI) among burn patients. MATERIALS AND METHODS: The Nationwide Readmissions Database was utilized to identify hospitalizations of patients with burns from 2016 to 2020. The main outcome was the difference in all-cause in-hospital mortality between burn patients with and without MI. RESULTS: Of 200,130 hospitalizations with burns, 1997 (1 %) developed acute MI. Burn patients with MI were older, more likely to be men, and had a higher prevalence of cardiovascular risk factors. Only burns affecting the trunk and respiratory tract, and those affecting > 20 % of body surface area (BSA), were associated with an increased risk of MI. All-cause in-hospital mortality was higher among patients with MI (18.7 % vs. 3 %, adjusted odds ratio (aOR) 4.59, 95 % confidence interval (CI) 3.66, 5.76). Cardiogenic shock, ventricular tachycardia, and stroke rates were higher among patients with MI. Revascularization was associated with lower in-hospital mortality (aOR 0.33, 95 % CI 0.17, 0.64) CONCLUSIONS: The incidence of MI in burn patients is low but is associated with high mortality and morbidity. Burns involving the trunk and respiratory tract, and those affecting > 20 % BSA, were associated with an increased risk of MI. Revascularization was associated with lower in-hospital mortality.

Cardiology/Cardiovascular Research

Smati H, **Qadeer YK**, Rodriguez M, Moras E, Fonarow GC, Isaacs SD, Marwick TH, and Krittanawong C. Diabetic Cardiomyopathy: What Clinicians Should Know. *Am J Med* 2024; Epub ahead of print. PMID: 39505128. Full Text

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Diabetes has classically been associated with atherosclerotic cardiovascular disease. However, heart failure is now increasingly recognized as a prevalent and often first cardiovascular complication among patients with diabetes. Investigation of this epidemiological relationship has led to recognition of diabetic cardiomyopathy, or structural heart disease that develops in patients with diabetes and may lead to progressive heart failure independently of coronary artery disease or conventional cardiovascular risk factors such as hypertension. Despite increased awareness, clinical management of this common cardiovascular complication remains challenging, with no consensus on its diagnosis or treatment. The lack of specific therapy has been recognized as an unmet clinical need. In this review, we summarize current understanding of the hallmark metabolic and structural changes of diabetic cardiomyopathy, appraise current tools for diagnosis and staging among patients, and describe the emerging but still preclinical data on therapeutic options.

Cardiology/Cardiovascular Research

Strepkos D, Alexandrou M, Mutlu D, Carvalho PEP, Choi JW, Gorgulu S, Jaffer FA, Chandwaney R, **Alaswad K**, **Basir MB**, Azzalini L, Mastrodemos OC, Rangan BV, Voudris K, Jalli S, Burke MN, Sandoval Y, and Brilakis ES. Outcomes of Left Main Chronic Total Occlusion Percutaneous Coronary Interventions. *Catheter Cardiovasc Interv* 2024; Epub ahead of print. PMID: 39543076. Full Text

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BACKGROUND: Percutaneous coronary intervention (PCI) of left main (LM) chronic total occlusions (CTO) has received limited study. METHODS: We compared the clinical and procedural characteristics and outcomes of patients who underwent LM versus non-LM CTO PCI at 41 US and non-US centers between 2012 and 2024. RESULTS: During the study period 85 of 15,254 CTO PCIs (0.6%) performed in 14,969 patients were LM CTO PCIs. LM CTO PCI patients were older, had higher rates of dyslipidemia and heart failure and most (88.8%) had prior coronary artery bypass graft surgery (CABG). They were more likely to have moderately or severely calcified lesions (80.7% vs. 45.7%, $p < 0.001$) and had higher J-CTO (2.76 ± 1.17 vs. 2.37 ± 1.26, $p = 0.008$), PROGRESS-CTO MACE (3.56 vs. 2.57, $p < 0.001$), Mortality (2.45 vs. 1.68, $p < 0.001$), Pericardiocentesis (2.74 vs. 1.87, $p < 0.001$), Acute MI (1.72 vs. 0.89, $p < 0.001$) and Perforation (3.21 vs. 2.19, $p < 0.001$) scores. There was no difference in technical success (80.5% vs. 87.2%, $p = 0.086$) or major cardiovascular adverse events (MACE) (2.4% vs. 2.0%, $p = 0.700$). LM CTO PCI patients with and without prior CABG surgery had similar technical success and MACE. The retrograde approach in prior CABG patients was more likely to be performed through saphenous vein grafts. CONCLUSIONS: LM CTO PCI is infrequently performed, is associated with high comorbidity burden and angiographic complexity but can be performed with high success and acceptable complication rates.

Cardiology/Cardiovascular Research

Villablanca P, Jabri A, Alhuneafat L, Maligireddy A, Rasheed W, Kapcin K, Manalo K, Latib A, **Gustino G**, **Fadel R**, Al Abdouh A, Mhanna M, Amoroso N, **Wang DD**, **O'Neill B**, Bagur R, Madanat L, Renard B, **Aggarwal V**, **Alqarqaz M**, So K, Genereux P, Hanson ID, Abbas AE, and **O'Neill WW**. Trends in surgical and transcatheter interventions for tricuspid regurgitation: A national inpatient sample analysis from 2011 to 2020. *Cardiovasc Revasc Med* 2024; Epub ahead of print. PMID: 39550306. Full Text

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BACKGROUND: Tricuspid regurgitation (TR) poses a significant health burden, with severe disease linked to poor long-term outcomes, including intractable right heart failure. Despite guidelines advocating intervention, surgical options have historically been limited due to high mortality rates. Advancements in transcatheter valve interventions (TTVI) have renewed interest in less invasive treatments. METHODS: Utilizing data from the National Inpatient Sample (NIS) spanning 2011 to 2020, this study analyzed trends, factors influencing procedure selection, and outcomes of surgical and transcatheter tricuspid valve interventions across the United States. The analysis included 98,202 interventions, examining demographic and clinical disparities among patients undergoing TTVI, surgical tricuspid valve repair

(STVr), and surgical tricuspid valve replacement (STVR). RESULTS: Between 2011 and 2020, 98,202 TV interventions were analyzed. Over time, total TV interventions increased, with TTVI peaking in 2020 (4.8 %). STVr declined from 78.20 % (2011) to 76.80 % (2020), while STVR decreased from 21.80 % to 18.40 %. Factors influencing procedure selection included age, race, hospital size, teaching status, and comorbidities. STVR accounted for the highest proportion of TV procedure-related deaths, followed by STVr and TTVI. STVR-related deaths declined over time, while STVr-related deaths increased. CONCLUSION: This study provides a helpful visual representation of mortality trends and can inform healthcare professionals about the changing landscape of TV procedure outcomes. Further analysis would be necessary to understand the underlying causes of these trends, such as changes in patient demographics, procedural volume, technology, and clinical practices over time.

Cardiology/Cardiovascular Research

Villablanca PA, **Fadel RA**, **Giustino G**, **Jabri A**, **Basir MB**, **Cowger J**, **Alaswad K**, **O'Neill B**, **Gonzalez PE**, **Gyzm GG**, **Frisoli T**, **Lee J**, **Aurora L**, **Gorgis S**, **Nemeh H**, **Apostolou D**, **Alqarqaz M**, **Koenig GC**, **Aronow HD**, **Fuller B**, **Aggarwal V**, and **O'Neill W**. Hemodynamic Effects and Clinical Outcomes of Left Atrial Veno-Arterial Extracorporeal Membrane Oxygenation (LAVA-ECMO) in Cardiogenic Shock. *Am J Cardiol* 2024; Epub ahead of print. PMID: 39547341. Full Text

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Left atrial veno-arterial extracorporeal membrane oxygenation (LAVA-ECMO) in CS is a novel mechanical cardiocirculatory support strategy that provides robust cardiocirculatory support and simultaneous left and right atrial venting via a multi-fenestrated transeptal catheter. We performed a single-center retrospective analysis of all patients aged ≥ 18 years with CS who underwent LAVA-ECMO at a quaternary care institution from 2018-2023. Clinical outcomes as well as pre- and post-hemodynamics were evaluated. A total of 68 patients were analyzed (75% male, 72% white, median age 63). Indications for LAVA-ECMO were CS due to myocardial infarction (29.4%), biventricular failure (26.5%), and/or valvular heart disease (26.5%). Trans-septal puncture was guided by intracardiac echocardiography (86.8%) or transesophageal echocardiography (13.2%). Arterial cannulation was performed via transcaval access in 25% of the cases. Post-LAVA-ECMO cannulation was associated with substantial improvement in the hemodynamics within 24 hours post cannulation, including reduction in right atrial pressure (absolute mean difference: -5.0 mmHg, p<0.001), mean pulmonary artery pressure (-9.0 mmHg, p<0.001), pulmonary capillary wedge pressure (-10.0 mmHg, p<0.001), and LV end-diastolic pressure (-14.0 mmHg, p<0.001). Survival to decannulation occurred in 69.1%, while 30-day survival from cannulation was 51.5%. In-hospital all-cause mortality was 51.5%. Only 5 patients (7.4%) required additional MCS (4 Impella, 1 VAV-ECMO). There were no complications related to transeptal placement of the venous ECMO cannula. In conclusion, LAVA-ECMO, a MCS strategy providing bi-atrial drainage, appears to also provide simultaneous LV venting as demonstrated by improved invasive hemodynamics. Although the procedure itself appears safe, with no direct complications to interatrial septal cannulation, post-cannulation complications remain high, and further studies are needed to evaluate the full safety profile of LAVA-ECMO compared to alternative MCS strategies.

Center for Health Policy and Health Services Research

Hrywna M, **Teotia A**, Miller Lo E, Giovenco DP, and Delnevo CD. The Impact of New Jersey's 2020 E-cigarette Flavor Ban on E-cigarette, Cigarette, and Cigar Sales in New Jersey. *Nicotine Tob Res* 2024; 26(12):1700-1707. PMID: 38913006. Request Article

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INTRODUCTION: On April 20, 2020, New Jersey (NJ) implemented a comprehensive ban on the sale of flavored e-cigarettes. This study compares sales of e-cigarettes, cigarettes, and cigars before and after the law. AIMS AND METHODS: Data were biweekly retailer scanner sales in NJ convenience stores for e-cigarettes, cigarettes, and cigars between August 2019 and December 2020. We used Joinpoint regression to assess sales trends for cigarettes (non-menthol and menthol), cigars (unflavored and flavored), and e-cigarettes (unflavored, fruit or sweet or concept flavor, and menthol flavor) in the 36 weeks before and 36 weeks after a statewide ban on flavored e-cigarettes. RESULTS: Flavored e-cigarette sales, not including menthol, significantly decreased over the study period while menthol e-cigarette sales significantly increased until the e-cigarette flavor ban took effect, after which these sales rapidly declined through May 2020, then slowed. Unflavored e-cigarette sales declined through September 2019, then grew modestly until the flavored e-cigarette ban, after which sales significantly increased. Flavored cigar sales increased between March and May 2020, then declined; non-flavored cigar sales increased between mid-February and early July 2020, then declined. Cigarette sales were decreasing before the flavored e-cigarette ban but after, significantly increased until June 2020. Overall, there was no significant trend in the average biweekly percent change for cigarette sales. CONCLUSIONS: Flavored e-cigarette sales were declining prior to the ban but the pace of the decline accelerated following federal and state restrictions on flavored e-cigarette sales, then slowed by the second half of 2020, with a brief period of increased cigarette and cigar sales immediately following the ban. IMPLICATIONS: NJ's 2020 statewide e-cigarette flavor ban offered the opportunity to observe how sales of e-cigarette, cigarette, and cigar products shifted after the change. The effect of the state law, at least in the short-term, was decreased sales of flavored e-cigarettes and increased sales of unflavored e-cigarettes. Research on long-term policy effects is needed.

Center for Health Policy and Health Services Research

Lapham GT, Hyun N, Bobb JF, Wartko PD, Matthews AG, Yu O, McCormack J, Lee AK, Liu DS, Samet JH, Zare-Mehrjerdi M, **Braciszewski JM**, Murphy MT, Arnsten JH, Horigian V, Caldeiro RM, Addis M, and Bradley KA. Nurse Care Management of Opioid Use Disorder Treatment After 3 Years: A Secondary Analysis of the PROUD Cluster Randomized Clinical Trial. *JAMA Netw Open* 2024; 7(11):e2447447. PMID: 39576637. Full Text

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IMPORTANCE: The Primary Care Opioid Use Disorders (PROUD) treatment trial was a 2-year implementation trial that demonstrated the Massachusetts office-based addiction treatment (OBAT) model of nurse care management for opioid use disorder (OUD) increased OUD treatment in the 2 years after implementation began (8.2 more patient-years of OUD treatment per 10 000 primary care patients). The intervention was continued for a third year, permitting evaluation of 3-year outcomes. OBJECTIVE: To compare OUD medication treatment in intervention and usual care clinics over 3 years of implementation. DESIGN, SETTING, AND PARTICIPANTS: This is a preplanned secondary analysis of a cluster randomized implementation trial, conducted in 6 health systems in 5 states (2 primary care clinics per health system) with clinic randomization stratified by system (assignment notification February 28, 2018 [August 31, 2018, in 1 system]). Data were obtained from electronic health records and insurance claims. Eligible patients were those aged 16 to 90 years visiting intervention or usual care clinics from 3 years before to 2 years after randomization. Patients new to clinics during the third year after randomization could not be included because COVID-19-era transitions to virtual care precluded assignment of patients to clinics. Data analysis occurred from November 2023 to September 2024. INTERVENTION: Clinics were randomized to intervention or care as usual. Intervention included 3 implementation components: salary for 1 full-time OBAT nurse per intervention clinic; training and ongoing technical assistance for nurses; and 3 or more primary care buprenorphine prescribers. MAIN OUTCOME AND MEASURES: Patient-years of OUD treatment (buprenorphine or extended-release naltrexone) per 10 000 primary care patients in the 3 years postrandomization. Mixed-effect models adjusted for baseline values of the outcome and included a health system-specific random intercept to account for correlation of clinic pairs within a system. RESULTS: Prerandomization, a total of 290 071 primary care patients were seen, including 130 618 in intervention clinics (mean [SD] age, 48.6 [17.7] years; mean [SD] female, 59.3% [4.0%]) and 159 453 in usual care clinics (mean [SD] age, 47.2 [17.5] years; mean [SD] female, 64.0% [5.3%]). Over 3 years postrandomization, intervention clinics provided 19.7 (95% CI, 11.1-28.4) more patient-years of OUD treatment per 10 000 primary care patients compared with usual care clinics. CONCLUSIONS: In this secondary analysis of the PROUD cluster randomized trial, after an added year of the intervention, OUD treatment continued to increase in intervention clinics compared with usual care. The treatment increase over 3 years exceeded that of the first 2 years, suggesting that implementation of the Massachusetts OBAT model leads to ongoing increases in OUD treatment among primary care patients in the third year of implementation. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT03407638.

Center for Health Policy and Health Services Research

McManama O'Brien KH, Sellers CM, Spirito A, Yen S, and **Braciszewski JM**. An integrated alcohol and suicide intervention for adolescents in inpatient psychiatric treatment. *Suicide Life Threat Behav* 2024; Epub ahead of print. PMID: 39513394. Full Text

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BACKGROUND: Despite the bidirectional relationship between alcohol use and STB, the two issues are often treated separately in adolescent inpatient psychiatric hospitals, highlighting the need for brief interventions that address both alcohol use and STB in an integrated fashion. AIMS: This study tested the feasibility, acceptability, and preliminary effectiveness of a brief integrated Alcohol and Suicide Intervention for Suicidal Teens (iASIST) with a post-discharge mHealth booster for adolescents in inpatient psychiatric treatment. METHODS: We conducted an RCT of iASIST relative to an attention-matched comparison condition with adolescents hospitalized following STB (N = 40). RESULTS: iASIST demonstrated feasibility and acceptability and mixed models indicated that both groups had significant decreases in substance use over the 3-month follow-up, but post-intervention group differences were not significant. In terms of cannabis use, however, iASIST participants significantly improved over time. Intervention group participants showed a significant decrease in suicide plans from baseline to follow-up,

which was not the case for control group participants. DISCUSSION: Study findings suggest a larger RCT is warranted to test the effectiveness of the iASIST intervention. CONCLUSION: iASIST shows promise in its ability to target the public health problems of alcohol use and STB in an integrated fashion with a high-risk adolescent population receiving acute psychiatric care.

Center for Health Policy and Health Services Research
Tobin ET, **Mooney JT**, **DePascale E**, **Maxwell S**, **Willens DE**, **Braciszewski JM**, and **Miller-Matero LR**. Implementing a pain psychology screening process in primary care. *Fam Syst Health* 2024; Epub ahead of print. PMID: 39556349. Full Text

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BACKGROUND: Integrating pain psychology in primary care has the potential to improve symptom burden; however, identifying those who may benefit is a challenge. The purpose of this study was to gather feedback from a multidisciplinary team to optimize digital screening and referral for psychological treatment of chronic pain distress within primary care. METHOD: Team members in a primary care clinic were introduced to the proposed screening process and offered the opportunity to complete a feedback survey. The proposed workflow involved the customer service representative providing patients with digital screeners on an iPad, results transferring to the electronic health record, and a medical assistant (MA) returning the iPad. Positive screens would alert the MA to start the referral process in the electronic health record then signaling the physician to discuss the referral to the psychology team with the patient. RESULTS: Sixty-eight percent of individuals agreed or strongly agreed that screening for chronic pain and distress is important. Sixty six percent of the respondents selected the customer service representatives as the ideal team member to give the iPad to patients and 84% responded that MAs should be responsible for returning the iPad to the front desk. Some thought a positive screen should directly alert physicians (58%) whereas 40% indicated a preference for signaling the MAs to start the referral process. DISCUSSION: Team members had favorable opinions about integrating digital chronic pain distress screening. The logistics of the screening and referral process were finalized based on this feedback and will be integrated into the clinic. (PsycInfo Database Record (c) 2024 APA, all rights reserved).

Center for Health Policy and Health Services Research
Weinstein ZM, Yu O, Wartko PD, Samet JH, Bobb JF, **Braciszewski JM**, Arnsten JH, Murphy MT, Horigian VE, Stotts AL, Beers D, and Bradley K. Does implementation of office based addiction treatment by a nurse care manager increase the duration of OUD treatment in primary care? A secondary analysis of the PROUD randomized control trial. *Drug Alcohol Depend* 2024; 265:112497. PMID: 39550823. Full Text

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BACKGROUND: Implementation of office-based addiction treatment (OBAT) by nurse care managers increases overall use of OUD medication, but it is unknown whether it increases treatment duration among treated patients. METHODS: The Primary Care Opioid Use Disorders Treatment (PROUD) trial was a pragmatic, cluster-randomized trial testing whether implementation of OBAT increased OUD treatment in 12 primary care clinics in 6 systems. One of 2 clinics per system was randomized to implement OBAT (intervention), the other, usual care (UC). We evaluated treatment duration for the 3 years after nurses began seeing patients at clinics randomized to intervention vs. UC. The primary sample included patients newly initiating OUD medication; the secondary sample included patients with ongoing OUD medication. The primary outcome was percentage of days with OUD medications after treatment initiation, modeled using linear generalized estimating equations (GEE). Modified Poisson GEE models assessed secondary outcomes (≥80 % of days covered, ≥6 months on treatment). RESULTS: In adjusted analyses, the mean difference between intervention and UC in percent days treated was 6.3 % (95 % CI -9.6 %, 22.1 %) in the primary sample and 2.3 % (95 % CI -36.4 %, 31.8 %) in the secondary sample. There was no significant difference in treatment duration between intervention and UC patients in either primary or secondary outcomes. CONCLUSIONS: Implementation of OBAT in this trial did not measurably increase duration of medication treatment among those treated for OUD compared to UC, suggesting that benefits of OBAT, at least in this trial, largely reflect increases in treatment access.

Center for Health Policy and Health Services Research

Wolock CJ, Williamson BD, Shortreed SM, Simon GE, Coleman KJ, Yeargans R, **Ahmedani BK**, Daida Y, Lynch FL, Rossom RC, Ziebell RA, Cruz M, Wellman RD, and Yates Coley R. Importance of variables from different time frames for predicting self-harm using health system data. *J Biomed Inform* 2024; 104750. Epub ahead of print. PMID: 39557209. Request Article

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OBJECTIVE: Self-harm risk prediction models developed using health system data (electronic health records and insurance claims information) often use patient information from up to several years prior to the index visit when the prediction is made. Measurements from some time periods may not be available for all patients. Using the framework of algorithm-agnostic variable importance, we study the predictive potential of variables corresponding to different time horizons prior to the index visit and demonstrate the application of variable importance techniques in the biomedical informatics setting. MATERIALS AND METHODS: We use variable importance to quantify the potential of recent (up to three months before the index visit) and distant (more than one year before the index visit) patient mental health information for predicting self-harm risk using data from seven health systems. We quantify importance as the decrease in predictiveness when the variable set of interest is excluded from the prediction task. We define predictiveness using discriminative metrics: area under the receiver operating characteristic curve (AUC), sensitivity, and positive predictive value. RESULTS: Mental health predictors corresponding to the three months prior to the index visit show strong signal of importance; in one setting, excluding these variables decreased AUC from 0.85 to 0.77. Predictors corresponding to more distant information were less important. DISCUSSION: Predictors from the months immediately preceding the index visit are highly important. Implementation of self-harm prediction models may be challenging in settings where recent data are not completely available (e.g., due to lags in insurance claims processing) at the time a prediction is made. CONCLUSION: Clinically derived variables from different time frames exhibit varying levels of importance for predicting self-harm. Variable importance analyses can inform whether and how to implement risk prediction models into clinical practice given real-world data limitations. These analyses be applied more broadly in biomedical informatics research to provide insight into general clinical risk prediction tasks.

Dermatology
Bhargava D, **Shareef SJ**, and Ashack K. Health savings accounts and dermatological care: a comprehensive overview of eligible products and services. *Arch Dermatol Res* 2024; 317(1):2. PMID: 39520564. Full Text

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Dermatology
Buxo Z, and **Fakhoury JW**. Cross-Sectional Cost Analysis of Finasteride for Androgenetic Alopecia via Direct-to-Consumer Pharmacies Compared to Online Wholesale Pharmacies. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 39521137. Full Text

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Dermatology
Kohli I, and **Lim HW**. Blue Light-Induced Pigmentation. *J Invest Dermatol* 2024; Epub ahead of print. PMID: 39488784. Full Text

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Dermatology

Passeron T, Dreno B, Puig S, Goh CL, Kang HY, Ly F, Morita A, Candiani JO, Schalka S, Wei L, Demessant-Flavigny AL, Le Floc'h C, Kerob D, **Lim HW**, and Krutmann J. Sun Exposure Behaviors and Knowledge Among the At-Risk Population: Results From an International Survey, the HELIOS Project. *Photodermatol Photoimmunol Photomed* 2024; 40(6):e13014. PMID: 39527474. Full Text

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Dermatology

Young K, **Loveless I**, **Su WK**, **Veenstra J**, **Yin C**, **Dimitrion P**, **Krevh R**, **Zhou L**, **She R**, **Pan M**, **Levin AM**, **Young A**, **Samir E**, **Dai A**, **Ge J**, **Huggins RH**, **de Guzman Strong C**, **Lim HW**, **Ozog DM**, **Hamzavi I**, **Adrianto I**, and **Mi QS**. A diverse hidradenitis suppurativa cohort: a retrospective cross-sectional study of 13,130 patients from a large US healthcare system database from 1995-2022. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 39532232. Full Text

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BACKGROUND: Most epidemiological studies of hidradenitis suppurativa (HS) have described homogeneous patient populations. OBJECTIVE: To characterize demographics, modifiable health behaviors, and comorbidities of HS patients within a diverse cohort. METHODS: A retrospective cross-sectional study of 13,130 HS patients within a healthcare system was conducted. RESULTS: A female sex bias of ~3:1 in all racial/ethnic subgroups was observed. Black/African American (AA) patients had a lower age at HS diagnosis than White patients (37.1 years vs 39.4 years, P<0.001). A higher proportion of Black/AA females than White females with HS had BMI in the obese range (69.9% vs 56.5%; P=0.03). In contrast, fewer Black/African American males with HS had a BMI in the obese range compared to White males (51.4% vs. 61.0%; P<0.001). More Black/AA patients than White patients with HS had congestive heart failure (OR=2.10, CI=1.19-3.78; P<0.05), chronic pulmonary disease (OR=1.34; CI=1.02-1.78; P<0.05), diabetes with chronic complication (OR=1.73; CI=1.16-2.60; P<0.05), renal disease (OR=2.66; CI=1.67-4.34; P<0.05), and Charlson Comorbidity Index score ≥4 (OR=1.67; CI=1.09-2.58; P<0.05). Furthermore, male patients were more likely than female patients to have renal disease (OR=2.62; CI 1.66-4.14; P<0.05). LIMITATIONS: A single-center study. CONCLUSION: Subgroups of HS patients had significant differences in demographics, risk factors, and comorbid conditions.

Dermatology

Zehtab M, Fuller LC, Enbiale W, Wanat KA, Borradori L, **Lim HW**, and Freeman EE. Emerging Challenges in Global Health Dermatology: measuring impact and sustainability. *Br J Dermatol* 2024; Epub ahead of print. PMID: 39545508. Full Text

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Diagnostic Radiology

Gregg A, **Lin M**, **Qadir H**, **Sly M**, and **McVinnie D**. Totally implantable venous access port metastasis in a patient with multiple myeloma. *Radiol Case Rep* 2025; 20(1):432-436. PMID: 39534750. Full Text

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Multiple myeloma is a hematologic malignancy characterized by the proliferation of monoclonal plasma cells within the bone marrow. Extramedullary plasmacytomas, a rare manifestation of multiple myeloma, occur in a small percentage of patients. These plasmacytomas can develop in the skin, often near venous catheter access sites, posing diagnostic challenges due to their rarity. We report a case of a 63-year-old man with multiple myeloma who presented with a mildly painful, swollen left chest port site. A whole-body FDG PET/CT scan revealed a hypermetabolic soft tissue mass surrounding the port site, suggestive of malignancy. Subsequent surgical excision and histopathological analysis confirmed the presence of a metastatic subcutaneous plasmacytoma, consistent with the patient's known multiple myeloma. Cutaneous extramedullary plasmacytomas at central venous catheter sites are rarely reported. Potential mechanisms for tumor development at trauma sites include local expression of chemokines that attract myeloma cells. This case underscores the importance of recognizing cutaneous plasmacytomas in patients with multiple myeloma and venous access ports to avoid misdiagnosis and unnecessary interventions. It contributes to the broader understanding of extramedullary disease manifestations in multiple myeloma and emphasizes the need for thorough investigation and appropriate management in such cases.

Diagnostic Radiology

Rademacher AF, **Fadel HA**, **Pawloski JA**, **Ma M**, **Nkongchu KN**, **Lee IY**, and **Ali AY**. Laser Interstitial Thermal Therapy for Intra-Axial Brain Tumors: Everything the Neuroradiologist Should Know. *AJNR Am J Neuroradiol* 2024; Epub ahead of print. PMID: 39572197. Full Text

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Laser interstitial thermal therapy (LITT) is a minimally invasive cytoreductive treatment option for patients with intracranial tumors. Utilizing real-time MR thermometry, LITT delivers tailored, targeted, and permanent cytotoxic thermal injury to intra-axial pathology. As a minimally invasive and nonionizing treatment option proved to be an effective, less morbid, and more efficient alternative to surgery, the utility of LITT has rapidly expanded. Along with this growth comes the need for neurosurgeons and neuroradiologists to accurately assess the radiographic outcomes of LITT in a standardized, dependable, and longitudinal fashion. We present a comprehensive overview of the indications and mechanisms of action of LITT for intra-axial brain tumors as well as guidance on thorough pre-, intra-, and postoperative imaging assessments. Using detailed case examples describing the contemporary uses of LITT, we hope

to provide a foundational understanding of LITT that will inform imaging assessment and guide accurate multi disciplinary tumor board discussion.

Emergency Medicine

Guichard L, An X, Neylan TC, Clifford GD, Li Q, Ji Y, Macchio L, Baker J, Beaudoin FL, Jovanovic T, Linnstaedt SD, Germine LT, Bollen KA, Rauch SL, Haran JP, Storrow AB, **Lewandowski C**, Musey PI, Jr., Hendry PL, Sheikh S, Jones CW, Punches BE, Swor RA, Gentile NT, Pascual JL, Seamon MJ, Datner EM, Pearson C, Peak DA, Merchant RC, Domeier RM, Rathlev NK, O'Neil BJ, Sergot P, Sanchez LD, Bruce SE, Sheridan JF, Harte SE, Ressler KJ, Koenen KC, Kessler RC, and McLean SA. Heart rate variability wrist-wearable biomarkers identify adverse posttraumatic neuropsychiatric sequelae after traumatic stress exposure. *Psychiatry Res* 2024; 342:116260. PMID: 39549594. Full Text

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Adverse posttraumatic neuropsychiatric sequelae (APNS) are common after traumatic events. We examined whether wrist-wearable devices could provide heart rate variability (HRV) biomarkers for recovery after traumatic stress exposure in a large socioeconomically disadvantaged cohort. Participants were enrolled in the emergency department within 72 hours after a traumatic event as part of the AURORA (Advancing Understanding of RecOvery afteR traumA) multicenter prospective observational cohort study and followed over 6 months. HRV biomarkers were derived and validated for associations with specific APNS symptoms at a point in time and changes in symptom severity over time. Sixty-four HRV characteristics were derived and validated as cross-sectional biomarkers of APNS symptoms, including pain (26), re-experiencing (8), somatic (7), avoidance (7), concentration difficulty (6), hyperarousal (5), nightmares (1), anxiety (1), and sleep disturbance (3). Changes in 22 HRV characteristics were derived and validated as biomarkers identifying changes in APNS symptoms, including reexperiencing (11), somatic (3), avoidance (2), concentration difficulty (1), hyperarousal (1), and sleep disturbance (4). Changes in HRV variables over time predicted symptom improvement (PPV 0.68-0.87) and symptom worsening (NPV 0.71-0.90). HRV biomarkers collected from wrist-wearable devices may have utility as screening tools for APNS symptoms that occur after traumatic stress exposure in high-risk populations.

Diagnostic Radiology

Haering S, Seligowski AV, Linnstaedt SD, Michopoulos V, House SL, Beaudoin FL, An X, Neylan TC, Clifford GD, Germine LT, Rauch SL, Haran JP, Storrow AB, **Lewandowski C**, Musey PI, Jr., Hendry PL, Sheikh S, Jones CW, Punches BE, Swor RA, Gentile NT, Hudak LA, Pascual JL, Seamon MJ, Pearson C, Peak DA, Merchant RC, Domeier RM, Rathlev NK, O'Neil BJ, Sanchez LD, Bruce SE, Harte SE, McLean SA, Kessler RC, Koenen KC, Powers A, and Stevens JS. Disentangling sex differences in PTSD risk factors. *Nat Ment Health* 2024; 2(5):605-615. PMID: 39534178. Request Article

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Despite extensive research on sex/gender differences in posttraumatic stress disorder (PTSD), underlying mechanisms are still not fully understood. Here we present a systematic overview of three sex/gender-related risk pathways. We assessed 16 risk factors as well as 3-month PTSD severity in a prospective cohort study (n=2924) of acutely traumatized individuals and investigated potential mediators in the pathway between sex assigned at birth and PTSD severity using multiple mediation analysis with regularization. Six risk factors were more prevalent/severe in women, and none were more pronounced in men. Analyses showed that acute stress disorder, neuroticism, lifetime sexual assault exposure, anxiety sensitivity, and pre-trauma anxiety symptoms fully mediated and uniquely contributed to the relationship between sex assigned at birth and PTSD severity. Our results demonstrate different risk mechanisms for women and men. Such knowledge can inform targeted interventions. Our systematic approach to differential risk pathways can be transferred to other mental disorders to guide sex- and gender-sensitive mental health research.

Diagnostic Radiology

Hagerman T, and Khoujah D. The geriatric emergency literature of note 2023. *Am J Emerg Med* 2024; 88:34-44. PMID: 39581001. Full Text

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Caring for older adults in the Emergency Department demands compassion, expertise, and adaptability to address the intricate medical and emotional needs of this vulnerable population. Key geriatric emergency medicine articles from 2023 highlight the evolving landscape of this field: updates to the Beers Criteria for potentially inappropriate medications, medications most implicated in causing delirium, geriatric trauma centers, behavioral problems in persons with dementia, geriatric syndrome detection, and emergency department (ED) process outcomes in geriatric EDs. As healthcare organizations shift to focus on the larger continuum of care that extends beyond the ED visit, we also highlight a novel program from the Veterans Affairs bringing former military medics to the home to improve outcomes after ED discharge. This review highlights practice-changing updates to improve the management of older adults in the ED.

Diagnostic Radiology

Koerber SN, **Huynh D**, **Farrington S**, **Springer K**, and **Manteuffel J**. Disparities in Buprenorphine Administration for Opioid use Disorder in the Emergency Department. *J Addict Med* 2024; Epub ahead of print. PMID: 39514889. Full Text

From the Department of Emergency Medicine, Henry Ford Hospital, Detroit, MI (SK, JM); Wayne State University School of Medicine, Detroit, MI (DH, SF); and Department of Public Health Sciences, Henry Ford Health, Detroit, MI (KS).

STUDY OBJECTIVE: Although buprenorphine is an effective treatment for opioid use disorder (OUD), this treatment is often not universally provided in the emergency department (ED). We aimed to determine whether patient characteristics, particularly race and ethnicity, were associated with buprenorphine administration. METHODS: This was a retrospective cross-sectional study of adult patients who had a positive screening result for opioid misuse in the ED at a single urban hospital. Univariate and

multivariable logistic regressions were used to assess the association of patient characteristics (race, ethnicity, age, sex, insurance type, and Area Deprivation Index) with buprenorphine administration. RESULTS: Of 1082 patients who screened positive for opioid misuse, 133 (12%) were treated with buprenorphine and 949 (88%) were not. Despite representing over half the patient sample, Black patients (n = 682) were less likely than White patients (n = 310) to be treated with buprenorphine (multivariable: OR, 0.56; 95% CI, 0.35-0.88; P = 0.023). Age, sex, insurance type, ethnicity, and Area Deprivation Index were not associated with buprenorphine administration. CONCLUSIONS: Patient race was associated with buprenorphine administration, even after controlling for multiple other social determinants of health. These data suggest racial disparities in care that should be investigated through further research to optimize equitable administration of buprenorphine.

Diagnostic Radiology

Lee C, House SL, Beaudoin FL, Neylan TC, Clifford GD, Linnstaedt SD, Germine LT, Rauch SL, Haran JP, Storrow AB, **Lewandowski C**, Musey PI, Hendry PL, Sheikh S, Punches BE, Swor RA, Hudak LA, Pascual JL, Seamon MJ, Harris E, Pearson C, Peak DA, Domeier RM, Rathlev NK, O'Neil BJ, Sergot P, Sanchez LD, Bruce SE, Sheridan JF, Harte SE, Koenen KC, Kessler RC, McLean SA, Yang Q, and An X. Understanding Onset, Dynamic Transitions, and Associated Inequality Risk Factors for Adverse Posttraumatic Neuropsychiatric Sequelae After Trauma Exposure. *Psychiatr Res Clin Pract* 2024; Epub ahead of print. PMID: Not assigned. Full Text

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Objective: Several gaps remain in the understanding of the onset, dynamic transitions, and associated risk factors of adverse posttraumatic neuropsychiatric sequelae (APNS) in the acute post-trauma window. Based on serial assessments of symptoms from a large cohort study, we identified homogeneous statuses across multiple APNS symptom domains and investigated the dynamic transitions among these statuses during the first 2 months after trauma exposure. Furthermore, we studied how symptom onset and transitions are affected by equity-relevant characteristics. Methods: The analysis was based on 2557 participants enrolled in the Advancing Understanding of RecOvery afteR traumA (AURORA). APNS symptoms comprised pain, depression, sleep discontinuity, nightmares, avoidance, re-experience, anxiety, hyperarousal, somatic symptoms, and mental fatigue. We identified the homogeneous status of APNS symptoms at baseline, 1 month, and 2 months, and explored transition probabilities among these statuses using latent transition analysis. Equity-relevant characteristics included gender, race, education, family income, childhood trauma, and area deprivation. Results: Three homogeneous statuses–low-, moderate-, and severe-symptom–were identified. While the majority of trauma survivors with severe- or moderate-symptom status maintained the same status over time, some transitioned to a less severe symptom status, particularly within the first month. Specifically, females, non-whites, and those with higher childhood trauma were associated with a decreased likelihood of transitioning to a less severe symptom status. From one to 2 months, lower income was associated with a decreased likelihood of transitioning from moderate-to low-symptom status. Conclusions: The findings can inform early intervention strategies for APNS, potentially reducing health disparities among trauma survivors.

Endocrinology and Metabolism

Stephens A, Morrison C, Lutchka J, Richard C, Hares K, **Tinsley S**, Sood A, **Shannon B**, **Rogers C**, **Shill J**, **Shakir N**, and **Abdollah F**. Prostate Cancer Screening and Diagnoses in the Transfeminine Population. *Urology* 2024; Epub ahead of print. PMID: 39580118. Full Text

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OBJECTIVES: To examine the frequency and rate at which transfeminine patients receive prostate specific antigen testing compared to a matched cisgender cohort. METHODS: Patients with prostates who had encounters in our health system, are currently age 46 or older, and who are alive were included in our study. Transfeminine patients were identified through diagnosis codes and chart review. A 1:5 matched cohort was created based on patient age, race, and area deprivation index. Conditional logistic regression was done to compare odds of receiving any testing and Poisson regression was done to compare the total tests. RESULTS: A total of 275,112 patients were included in the study, of which 315 were confirmed to be transfeminine. A well matched 1:5 propensity matched cohort was created. Our results suggest that transfeminine patients were 0.28 (95% CI 0.20 - 0.38, p<0.001) times as likely as cisgender patients to receive at least one PSA test at our institution and received only 32% (95% CI 27%-37%, p <0.001) as many total PSA tests. CONCLUSION: Until more is known about the best practices for PSA testing in the transfeminine population, these patients should receive PSA testing. However, our results suggest that transfeminine patients are significantly less likely to receive any testing and significantly fewer tests in their lifetimes, which may represent a significant healthcare disparity.

Endocrinology and Metabolism

Weinstock RS, Raghinaru D, Gal RL, Bergenstal RM, Bradshaw A, **Cushman T**, Kollman C, **Kruger D**, Johnson ML, McArthur T, Olson BA, Oser SM, Oser TK, Beck RW, Hood K, and Aleppo G. Older Adults Benefit From Virtual Support for Continuous Glucose Monitor Use But Require Longer Visits. *J Diabetes Sci Technol* 2024; 19322968241294250. Epub ahead of print. PMID: 39487727. Full Text

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BACKGROUND: Older adults may be less comfortable with continuous glucose monitoring (CGM) technology or require additional education to support use. The Virtual Diabetes Specialty Clinic study provided the opportunity to understand glycemic outcomes and support needed for older versus younger adults living with diabetes and using CGM. METHODS: Prospective, virtual study of adults with type 1 diabetes (T1D, N = 160) or type 2 diabetes (T2D, N = 74) using basal-bolus insulin injections or insulin pump therapy. Remote CGM diabetes education (3 scheduled visits over 1 month) was provided by Certified Diabetes Care and Education Specialists with additional visits as needed. CGM-measured glycemic metrics, HbA1c and visit duration were evaluated by age (<40, 40-64 and ≥65 years). RESULTS: Median CGM use was ≥95% in all age groups. From baseline to 6 months, time 70 to 180 mg/dL improved from 45% ± 22 to 57% ± 16%; 50 ± 25 to 65 ± 18%; and 60 ± 28 to 69% ± 18% in the <40, 40-64, and ≥65-year groups, respectively (<40 vs 40-64 years P = 0.006). Corresponding values for HbA1c were 8.0% ± 1.6 to 7.3% ± 1.0%; 7.9 ± 1.6 to 7.0 ± 1.0%; and 7.4 ± 1.4 to 7.1% ± 0.9% (all P > 0.05). Visit duration was 41 min longer for ages ≥65 versus <40 years (P = 0.001). CONCLUSIONS: Adults with diabetes experience glycemic benefit after remote CGM use training, but training time for those >65 years is longer compared with younger adults. Addressing individual training-related needs, including needs that may vary by age, should be considered.

Gastroenterology

Abusuliman M, Olimy A, Aboeldahb M, Abusuliman A, **Dawod S**, **Rehman S**, Salem AE, Meribout S, Aloum K, and **Jafri SM**. Pregnancy Management and Outcomes in a Small Bowel, Pancreas, and Liver Transplant Recipient: A Case Report and Literature Review. *Am J Case Rep* 2024; 25:e945914. PMID: 39543857. Full Text

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BACKGROUND Small bowel transplantation (SBT) is a rare but life-saving surgery. However, successful full-term pregnancies in individuals with SBT are exceedingly rare due to the nutritional and immunosuppression challenges this transplant poses for pregnancy. Therefore, clear guidelines for treating pregnant SBT recipients are unavailable. Here, we report the second case of a successful pregnancy in an individual with a triple organ transplant, including SBT, highlighting the need for careful immunosuppressive management and multidisciplinary care. CASE REPORT A 20-year-old woman in the third trimester of pregnancy with a history of small bowel, liver, and pancreas transplantation at age 1 year presented with elevated liver function test results. She had been taking tacrolimus, sirolimus, and prednisone before pregnancy, with no signs of organ rejection. While sirolimus and prednisone was discontinued upon conception, laboratory test results at presentation revealed low serum tacrolimus levels. The patient had an acute kidney injury and pulmonary edema during her hospitalization and received a diagnosis of preeclampsia. She underwent a successful cesarean delivery, due to labor induction complications; however, about 1 month after hospital discharge, the patient experienced elevated liver enzymes, which was treated with high-dose steroids and adjusted tacrolimus. Sirolimus was restarted, and the patient's liver enzymes have been normalized to date. CONCLUSIONS Comprehensive multidisciplinary care, as well as monitoring and optimizing immunosuppression, are essential for pregnant SBT recipients throughout the prenatal, perinatal, and postpartum periods to mitigate risks, prevent graft rejection, and ensure positive maternal and fetal health outcomes.

Gastroenterology

Alomari A, **Obri M**, Aldroubi B, **Khan MZ**, **Chaudhary A**, Althunibat I, **Piraka C**, and **Zuchelli T**. Hybrid Endoscopic Submucosal Dissection for Isolated Gastric Metastasis of Renal Cell Carcinoma. *ACG Case Rep J* 2024; 11(11):e01548. PMID: 39493953. Full Text

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Metastasis to the stomach is a rare occurrence, especially from renal cell carcinoma (RCC). We report a case of a 76-year-old man with a history of RCC, in remission for 11 years postnephrectomy, who presented with gastrointestinal symptoms, was found to have a 2 cm gastric mass confirmed as metastatic RCC. Endoscopic submucosal dissection was attempted, but due to the hypervascular nature of the mass, a hybrid endoscopic submucosal dissection was performed, achieving complete resection. Follow-up at 7 months showed no recurrence, highlighting the potential for endoscopic treatment options for isolated gastric metastasis, despite the lack of specific guidelines.

Gastroenterology

Chaudhary AJ, **Jamali T**, Sohail A, **Keller CE**, **Caines A**, and **Elatrache M**. Esophagitis in a Post-Liver Transplant Patient: A Case of Cytomegalovirus and Herpes Simplex Virus-1 Coinfection. *Clin Case Rep* 2024; 12(11):e9565. PMID: 39568531. Full Text

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In post-liver transplant patients, esophagitis presents a diagnostic and management challenge due to the potential for opportunistic infections. This case describes a 59-year-old female with primary sclerosing cholangitis who underwent orthotopic liver transplantation six years prior. She presented with dysphagia,

and her medical history included immunosuppression with prednisone, tacrolimus, and mycophenolate and a history of achalasia treated with esophageal peroral endoscopic myotomy. Esophagogastroduodenoscopy (EGD) revealed severe esophagitis with extensive ulcerations, raising suspicion for infectious etiologies such as cytomegalovirus (CMV) and herpes simplex virus-1 (HSV-1). The biopsy confirmed a rare coinfection of CMV and HSV-1, which was characterized histologically by viral cytopathic effects and immunohistochemical staining. Treatment with valganciclovir and temporary cessation of mycophenolate led to symptom resolution and viral clearance. Follow-up EGD demonstrated healing of esophageal ulcers, with subsequent findings of Candida esophagitis but no evidence of CMV or HSV recurrence. This case highlights the importance of early endoscopic evaluation and biopsy in immunocompromised patients with esophagitis. CMV and HSV-1 coinfection, while rare, should be considered in this population due to its association with severe complications such as perforation and bleeding. Timely antiviral therapy and immunosuppression adjustment are critical for favorable outcomes.

Gastroenterology

Liu KS, George R, Shin C, Xiong JQ, **Jamali T**, Liu Y, Roy P, Singh S, Ma S, El-Serag HB, and Tan MC. Interval Advanced Adenomas and Neoplasia in Patients with Negative Colonoscopy Following Positive Stool-Based Colorectal Cancer Screening Test. *Dig Dis Sci* 2024; Epub ahead of print. PMID: 39581897. Full Text

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BACKGROUND/AIMS: Fecal occult blood test (FOBT) and fecal immunohistochemical test (FIT) are used for colorectal cancer (CRC) screening. However, when no adenomas are found following a positive FOBT/FIT, the future risk of advanced adenomas or colorectal cancer (CRC) is unclear. We determined the incidence and determinants of advanced adenomas or CRC after a negative index colonoscopy following a positive FOBT/FIT. METHODS: We identified patients in the Harris Health System (Houston, Texas) who underwent a colonoscopy following a positive FOBT/FIT from 01/2010 to 01/2013. We compared the incidence rates of advanced adenomas (≥ 1 cm, villous histopathology, or high-grade dysplasia) or CRC through 12/2023 for patients without polyps on index colonoscopy (negative colonoscopy) to patients with polyps (positive colonoscopy). We examined risk factors for incident adenomas using Cox regression models. RESULTS: Of 2096 patients, 1293 (61.7%) had negative index colonoscopy and 803 (38.3%) had positive index colonoscopy. Overall, 411 patients (19.6%) underwent subsequent colonoscopy with incident adenomas in 241 patients and no incident CRC over mean 12.5 years. The incidence rate of advanced adenomas was 2.08 per 100 person-years after positive index colonoscopy compared to 0.65 per 100 person-years after negative index colonoscopy (age-adjusted incidence rate ratio 3.08, 95% CI 1.27-7.48). Non-Hispanic white race was the strongest risk factor for incident adenomas among patients with negative index colonoscopy. CONCLUSIONS: We found a low likelihood of advanced adenomas and no interval CRC following negative index colonoscopy after positive FOBT/FIT. Non-Hispanic white race was a risk factor for incident adenomas, and these patients may warrant closer surveillance.

Gastroenterology

Toiv A, **Harris KB**, **Khan MZ**, **Theisen BK**, **Varma A**, **Fain C**, and **Kaur N**. Dynamic Presentations of Recurrent Post-Transplant Lymphoproliferative Disorder in a Heart Transplant Recipient: A Rare Case Study. *ACG Case Rep J* 2024; 11(11):e01554. PMID: 39568982. Full Text

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Post-transplant lymphoproliferative disorders (PTLD) are complications that arise from post-transplantation immunosuppressive therapy. Although Epstein-Barr virus (EBV) viremia is often seen in PTLD, it is not a definitive feature for diagnosis. We report a rare case of recurrent PTLD in a 26-year-old heart transplant recipient on high-dose tacrolimus who presented with emesis, fatigue, and bloody diarrhea. Although substantial EBV viremia was seen in the first PTLD episode, the current episode was a gastrointestinal manifestation with barely detectable circulating EBV. The patient's history of gastrointestinal disease delayed definitive diagnosis, which was later established through endoscopy and biopsy sample analysis.

Gastroenterology
Toiv A, **Saleh Z**, **Watson AM**, and **Piraka CR**. Duodenal Obstruction Caused by an Isolated Spontaneous Celiac Artery Dissection. *Am J Gastroenterol* 2024; Epub ahead of print. PMID: 39494890. Full Text

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Hematology-Oncology
Bachler JL, **Khan GN**, **Wollner IS**, and **Philip PA**. Treatment of unresectable and resectable stage IV colorectal cancer. *Clin Adv Hematol Oncol* 2024; 22(9):455-463. PMID: 39509047. Request Article

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Colorectal cancer is the third most commonly diagnosed cancer in the United States. Approximately 20% of patients have metastatic disease at diagnosis, and a proportion of patients with initially localized disease will experience systemic disease recurrence. In the era of molecular subtyping, we have an increasing number of systemic therapies and the opportunity to individualize the treatment of patients with advanced disease. Nonetheless, the 5-year overall survival rate remains unsatisfactory for this patient population. Most patients will be treated with palliative cytotoxic therapy, often with an added monoclonal antibody. Molecular subtyping allows patients to receive targeted therapies upon further lines of therapy. A small portion of patients will have oligometastases that may be amenable to resection or locoregional therapies to help improve outcomes with systemic therapy. Here, we review the current treatment of patients with unresectable and resectable stage IV colorectal cancer, with a focus on pharmacologic therapies.

Hematology-Oncology
Bazhenova L, Ismaila N, **Abu Rous F**, Alluri K, Freeman-Daily J, Halmos B, Malhotra N, Marrone KA, Puri S, Qin A, and Leighl NB. Therapy for Stage IV Non-Small Cell Lung Cancer With Driver Alterations: ASCO Living Guideline, Version 2024.2. *J Clin Oncol* 2024; Jco2402133. Epub ahead of print. PMID: 39531596. Full Text

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Living guidelines are developed for selected topic areas with rapidly evolving evidence that drives frequent change in recommended clinical practice. Living guidelines are updated on a regular schedule by a standing expert panel that systematically reviews the health literature on a continuous basis, as described in the ASCO Guidelines Methodology Manual. ASCO Living Guidelines follow the ASCO Conflict of Interest Policy Implementation for Clinical Practice Guidelines. Living Guidelines and updates are not intended to substitute for independent professional judgment of the treating clinician and do not account for individual variation among patients. See the Appendix for disclaimers and other important information (Appendix 1 and Appendix 2, online only). Updates are published regularly and can be found at https://ascopubs.org/nsclc-da-living-guideline.

Hematology-Oncology
Diab M. New Therapeutic Targets in RAS Wild-type Pancreatic Cancer. *Curr Treat Options Oncol* 2024; Epub ahead of print. PMID: 39546212. Full Text

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The landscape of treatment of advanced PDAC is witnessing significant changes. This is in part due to the advent of molecular profiling, which has highlighted molecularly-distinct subsets of pts, especially those with KRAS wild-type disease. We now know that these pts harbor genomic alterations that not only serve as molecular drivers but also pose as therapeutically relevant markers. In the absence of strong evidence to support the use of targeted therapy in the front-line setting, we continue to offer chemotherapy for treatment-naïve pts. However, an argument can be made for the front-line use of targeted therapy in pts who are not fit for chemotherapy or who are not interested in it. The challenge is ensuring that molecular profiling is done in a timely fashion to prevent significant delays in therapy. In our practice, we offer molecular testing to all pts with a new diagnosis of advanced PDAC. We prefer the utility of targeted therapy in the second line and beyond for pts who have an actionable target, over the use of further chemotherapy, as targeted therapy appears to confer deep and durable responses and longer survival. For pts with MSI-H or MMRd disease, the use of immunotherapy is indicated, although it has to be noted that MSI-H/MMRd PDAC performed worse that other MSI-H/MMRd cancers treated with immunotherapy. Therefore, in the presence of MSI-H/MMRd and an additional actionable target, we prefer treating with targeted therapy and reserving immunotherapy for later lines. Pt preference has to be taken into consideration at all times though.

Hematology-Oncology
Graham S, Dmitrieva M, **Vendramini-Costa DB**, **Francescone R**, Trujillo MA, Cukierman E, and Wood LD. From precursor to cancer: decoding the intrinsic and extrinsic pathways of pancreatic intraepithelial neoplasia progression. *Carcinogenesis* 2024; 45(11):801-816. PMID: 39514554. Request Article

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This review explores the progression of pancreatic intraepithelial neoplasia (PanIN) to pancreatic ductal adenocarcinoma through a dual lens of intrinsic molecular alterations and extrinsic microenvironmental influences. PanIN development begins with Kirsten rat sarcoma viral oncogene (KRAS) mutations driving PanIN initiation. Key additional mutations in cyclin-dependent kinase inhibitor 2A (CDKN2A), tumor protein p53 (TP53), and mothers against decapentaplegic homolog 4 (SMAD4) disrupt cell cycle control

and genomic stability, crucial for PanIN progression from low-grade to high-grade dysplasia. Additional molecular alterations in neoplastic cells, including epigenetic modifications and chromosomal alterations, can further contribute to neoplastic progression. In parallel with these alterations in neoplastic cells, the microenvironment, including fibroblast activation, extracellular matrix remodeling, and immune modulation, plays a pivotal role in PanIN initiation and progression. Crosstalk between neoplastic and stromal cells influences nutrient support and immune evasion, contributing to tumor development, growth, and survival. This review underscores the intricate interplay between cell-intrinsic molecular drivers and cell-extrinsic microenvironmental factors, shaping PanIN predisposition, initiation, and progression. Future research aims to unravel these interactions to develop targeted therapeutic strategies and early detection techniques, aiming to alleviate the severe impact of pancreatic cancer by addressing both genetic predispositions and environmental influences.

Hematology-Oncology

Liu X, Bian Z, Hu S, Dickinson CF, Benjamin MM, Jia J, Tian Y, Place A, Hanna GS, Luesch H, Croot P, Reddy MM, Thomas OP, Hardiman G, Puglisi MP, Yang M, Zhong Z, Lemasters JJ, Korte JE, Waters AL, Heltzel CE, Williamson RT, Strangman WK, **Valeriote F**, Tius MA, DiTullio GR, Ferreira D, Alekseyenko A, Wang S, Hamann MT, and Wang X. The Chemistry of Phytoplankton. *Chem Rev* 2024; Epub ahead of print. PMID: 39571071. Request Article

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Phytoplankton have a high potential for CO(2) capture and conversion. Besides being a vital food source at the base of oceanic and freshwater food webs, microalgae provide a critical platform for producing chemicals and consumer products. Enhanced nutrient levels, elevated CO(2), and rising temperatures increase the frequency of algal blooms, which often have negative effects such as fish mortalities, loss of

flora and fauna, and the production of algal toxins. Harmful algal blooms (HABs) produce toxins that pose major challenges to water quality, ecosystem function, human health, tourism, and the food web. These toxins have complex chemical structures and possess a wide range of biological properties with potential applications as new therapeutics. This review presents a balanced and comprehensive assessment of the roles of algal blooms in generating fixed carbon for the food chain, sequestering carbon, and their unique secondary metabolites. The structural complexity of these metabolites has had an unprecedented impact on structure elucidation technologies and total synthesis, which are highlighted throughout this review. In addition, the influence of biogeochemical environmental perturbations on algal blooms and their influence on biospheric environments is discussed. Lastly, we summarize work on management strategies and technologies for the control and treatment of HABs.

Hematology-Oncology
Scarano WR, Guerra MT, Perobelli JE, Fernandes GSA, Arena AC, **de Aquino AM**, Rocha VA, Magosso N, Souza PV, and Barbisan LF. Phthalate exposure and reproductive effects in rodents: a model for approaches on the protective role of natural products. *Reproduction* 2024; Epub ahead of print. PMID: 39499862. Full Text

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This review article summarizes the experimental findings in rodents published between 2014 and 2024 concerning phthalates exposure and reproductive outcomes. Rodents were chosen for this review since most studies that have developmental aspects in different phases of exposure and that address more in-depth reproductive mechanisms have been carried out in mice and rats. The evidence of adverse effects of phthalates on fetal development and human and animal reproduction is extensive, with impacts ranging from gene expression to physiological alterations. Despite the large volume of scientific papers pointing out the harmful effects of exposure to phthalates, isolated or in mixtures, at different developmental periods, most of them are associated with the maternal exposure and long-term effects in the offspring. Regular vegetables, fruits, fish, dairy products, and whole grains intake rich in bioactive compounds can mitigate the adverse effects of EDCs in humans and animals at different developmental periods. Various food bioactive compounds (FBCs) such as genistein, resveratrol, lycopene, vitamin E, curcumin, selenium, and plant secondary metabolites (PSMs) present antioxidant, anti-inflammatory, anti-tumor, and other biological properties with the potential to reduce of deleterious effects of phthalates on the reproductive tract. In this review, we aimed to summarize the main studies produced in the last decade about phthalate exposure and reproductive disorders in males and females (at different developmental critical windows). Additionally, we proposed some FBCs and PSMs that could attenuate the main adverse effects caused by phthalate exposure on male reproduction since there is a lack of studies with females.

Hematology-Oncology
Udumula MP, **Rashid F**, **Singh H**, Pardee T, Luther S, **Bhardwaj T**, **Anjaly K**, **Piloni S**, **Hijaz M**, Gogoi R, **Philip PA**, **Munkarah AR**, **Giri S**, and **Rattan R**. Targeting mitochondrial metabolism with CPI-613 in chemoresistant ovarian tumors. *J Ovarian Res* 2024; 17(1):226. PMID: 39543742. Full Text

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BACKGROUND: There is evidence indicating that chemoresistance in tumor cells is mediated by the reconfiguration of the tricarboxylic acid cycle, leading to heightened mitochondrial activity and oxidative phosphorylation (OXPHOS). Previously, we have shown that ovarian cancer cells that are resistant to chemotherapy display increased OXPHOS, mitochondrial function, and metabolic flexibility. To exploit this weakness in chemoresistant ovarian cancer cells, we examined the effectiveness of the mitochondrial inhibitor CPI-613 in treating preclinical ovarian cancer. METHODS: Chemosensitive OVCAR3, and chemoresistant CAOV3 and F2 ovarian cancer cells lines and their xenografts in nude mice were used. Functional metabolic studies were performed using Seahorse instrument. Metabolite quantification was performed using LC/MS/MS. RESULTS: Mice treated with CPI-613 exhibited a notable increase in overall survival and a reduction in tumor development and burden in OVCAR3, F2, and CAOV3 xenografts. CPI-613 suppressed the activity of pyruvate dehydrogenase and alpha-ketoglutarate dehydrogenase complex, which are two of its targets. This led to a reduction in OXPHOS and tricarboxylic acid cycle activity in all 3 xenografts. The addition of CPI-613 enhanced the responsiveness of chemotherapy in the chemoresistant F2 and CAOV3 tumors, resulting in a notable improvement in survival rates and a reduction in tumor size as compared to using chemotherapy alone. CPI-613 reduced the chemotherapy-induced OXPHOS in chemoresistant tumors. The study revealed that the mechanism by which CPI-613 inhibits tumor growth is through mitochondrial collapse. This is evidenced by an increase in superoxide production within the mitochondria, a decrease in ATP generation, and the release of cytochrome C, which triggers mitochondria-induced apoptosis. CONCLUSION: Our study demonstrates the translational potential of CPI-613 against chemoresistant ovarian tumors.

Hematology-Oncology

Yono SS, **Cannella C**, **Gonte M**, **Rama S**, **Zhu S**, **Luker J**, **Evangelista MS**, **Bensenhaver J**, **Walker EM**, and **Atisha D**. Factors associated with breast lymphedema after adjuvant radiation therapy in women undergoing breast conservation therapy. *Breast* 2024; 79:103846. PMID: 39580932. Full Text

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PURPOSE: Breast lymphedema after post-lumpectomy radiation therapy (RT) is poorly defined and difficult to treat. The aim of this study was to define the incidence of breast lymphedema and identify factors associated with the risk of developing breast lymphedema (BL) in women undergoing breast-conserving therapy. METHODS: A retrospective cohort study of patients with early-stage breast cancer who underwent breast-conserving surgery (lumpectomy) followed by RT between January 1, 2014 and July 31, 2019 at a single institution. Women who developed BL, defined as swelling of the breast persisting ≥1 year after RT, were compared with women who did not. Univariate and multivariate regression analyses were used to identify factors associated with risk of BL. RESULTS: A total of 1052 patients were included in the study: 99 (9.6 %) developed BL and 953 (90.6 %) did not develop BL. The mean ± standard deviation age was 62.9 ± 11.1 years and the mean breast volume was 1352.0 ± 744.9 cm(3). Patients with breast volume ≥1500 cm(3) (adjusted odds ratio [aOR] = 2.34; 95 % CI, 1.40-3.91; p = 0.001), Black patients (aOR = 1.78; 95 % CI, 1.12-2.82; p = 0.015), those who received neoadjuvant (aOR = 3.05; 95 % CI, 1.28-7.30; p = 0.012) or adjuvant chemotherapy (aOR = 2.14; 95 % CI, 1.29-3.55; p = 0.003), those with postoperative cellulitis (aOR = 3.94; 95 % CI, 2.20-7.06; p < 0.001), and women who developed arm lymphedema (aOR = 2.94; 95 % CI, 1.50-5.77; p = 0.002) had significantly higher odds of developing BL. CONCLUSION: Patients with larger breast volumes, Black patients, those receiving chemotherapy, and those who develop arm lymphedema or cellulitis may be at higher risk of BL after lumpectomy and RT, suggesting that patients with these risk features may benefit from complementary or alternative surgical approaches and heightened monitoring to avoid BL.

Hospital Medicine

Paje D, Walzl E, Heath M, McLaughlin E, Horowitz JK, Tatarcuk C, Swaminathan L, **Kaatz S**, Malani AN, Vaughn VM, Bernstein SJ, Flanders SA, and Chopra V. Midline vs Peripherally Inserted Central Catheter for Outpatient Parenteral Antimicrobial Therapy. *JAMA Intern Med* 2024; Epub ahead of print. PMID: 39527077. Full Text

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IMPORTANCE: Little is known about the safety of midline catheters vs peripherally inserted central catheters (PICCs) for outpatient parenteral antimicrobial therapy (OPAT). OBJECTIVE: To compare outcomes from midline catheters vs PICCs for OPAT. DESIGN, SETTING, AND PARTICIPANTS: This retrospective cohort study included patients who received antimicrobial therapy through a midline catheter or PICC between January 2017 and November 2023 across 69 Michigan hospitals. Because peripherally compatible OPAT was the indication of interest, vancomycin therapy was excluded. Data were analyzed from April to June 2024. EXPOSURES: Insertion of a midline catheter or PICC for OPAT following hospitalization. MAIN OUTCOMES AND MEASURES: The primary outcome was major device complications (ie, catheter-related bloodstream infection or catheter-related venous thromboembolism). Secondary outcomes included minor device complications (eg, catheter dislodgement, occlusion, tip migration, infiltration, superficial thrombophlebitis, or exit site concerns) and device failure, defined as catheter removal following device complication. Cox proportional hazards regression models were fit to device type and outcomes, adjusting for patient and device confounders and device dwell. RESULTS: Of 2824 included patients, 1487 (53.5%) were male, and the median (IQR) age was 66.8 (55.9-77.1) years. Of 2824 devices placed for OPAT, 1999 (70.8%) were midline catheters and 825 (29.2%) were PICCs. The median (IQR) dwell time was 12 (8-17) days for midline catheters and 19 (12-27) days for PICCs ($P < .001$). A major device complication occurred in 44 patients (1.6%) overall, including 16 (0.8%) with midline catheters and 28 (3.4%) with PICCs ($P < .001$). OPAT delivered via midline catheters was associated with a lower risk of major complications vs PICCs (adjusted hazard ratio [aHR], 0.46; 95% CI, 0.23-0.91). Risks of minor complications and device failure were similar across device types (minor complications: 206 of 1999 [10.3%] vs 114 of 825 [13.8%]; aHR, 1.07; 95% CI, 0.83-1.38; device failure: 191 of 1999 [9.6%] vs 100 of 825 [12.1%]; aHR, 1.26; 95% CI, 0.96-1.65). For device dwell of 14 or fewer days, midline catheters were associated with a lower risk of major complications (12 of 1324 [0.9%] vs 16 of 304 [5.3%]; aHR, 0.29; 95% CI, 0.12-0.68) and similar risk of failure (151 of 1324 [11.4%] vs 52 of 304 [17.1%]; aHR, 0.79; 95% CI, 0.56-1.12) vs PICCs. For dwell longer than 14 days, no significant difference in rates of major complications (4 of 675 [0.6%] vs 12 of 521 [2.3%]; aHR, 0.42; 95% CI, 0.13-1.40) or device failure (40 of 675 [5.9%] vs 48 of 521 [9.2%]; aHR, 1.02; 95% CI, 0.64-1.61) were observed. CONCLUSIONS AND RELEVANCE: In this study, midline catheters appeared to be safe alternatives to PICCs for OPAT, particularly if infusions were planned for 14 or fewer days.

Infectious Diseases

DeCuir J, Surie D, Zhu Y, Lauring AS, Gaglani M, McNeal T, Ghamande S, Peltan ID, Brown SM, Ginde AA, Steinwand A, Mohr NM, Gibbs KW, Hager DN, Ali H, Frosch A, Gong MN, Mohamed A, Johnson NJ, Srinivasan V, Steingrub JS, Khan A, Busse LW, Duggal A, Wilson JG, Qadir N, Chang SY, Mallow C, Kwon JH, Exline MC, Shapiro NI, Columbus C, **Vaughn IA**, **Ramesh M**, Safdar B, Mosier JM, Casey JD, Talbot HK, Rice TW, Halasa N, Chappell JD, Grijalva CG, Baughman A, Womack KN, Rhoads JP, Swan SA, Johnson C, Lewis N, Ellington S, Dawood FS, McMorrow M, and Self WH. Effectiveness of Original Monovalent and Bivalent COVID-19 Vaccines Against COVID-19-Associated Hospitalization and Severe In-Hospital Outcomes Among Adults in the United States, September 2022-August 2023. *Influenza Other Respir Viruses* 2024; 18(11):e70027. PMID: 39496339. Full Text

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BACKGROUND: Assessments of COVID-19 vaccine effectiveness are needed to monitor the protection provided by updated vaccines against severe COVID-19. We evaluated the effectiveness of original monovalent and bivalent (ancestral strain and Omicron BA.4/5) COVID-19 vaccination against COVID-19-associated hospitalization and severe in-hospital outcomes. METHODS: During September 8, 2022 to August 31, 2023, adults aged ≥ 18 years hospitalized with COVID-19-like illness were enrolled at 26 hospitals in 20 US states. Using a test-negative case-control design, we estimated vaccine effectiveness (VE) with multivariable logistic regression adjusted for age, sex, race/ethnicity, admission date, and geographic region. RESULTS: Among 7028 patients, 2924 (41.6%) were COVID-19 case patients, and 4104 (58.4%) were control patients. Compared to unvaccinated patients, absolute VE against COVID-19-associated hospitalization was 6% (-7%-17%) for original monovalent doses only (median time since last dose [IQR] = 421 days [304-571]), 52% (39%-61%) for a bivalent dose received 7-89 days earlier, and 13% (-10%-31%) for a bivalent dose received 90-179 days earlier. Absolute VE against COVID-19-associated invasive mechanical ventilation or death was 51% (34%-63%) for original monovalent doses only, 61% (35%-77%) for a bivalent dose received 7-89 days earlier, and 50% (11%-71%) for a bivalent dose received 90-179 days earlier. CONCLUSION: Bivalent vaccination provided protection against COVID-19-associated hospitalization and severe in-hospital outcomes within 3 months of receipt, followed by a decline in protection to a level similar to that remaining from previous original monovalent vaccination by 3-6 months. These results underscore the benefit of remaining up to date with recommended COVID-19 vaccines.

Infectious Diseases

Keshtkar-Jahromi M, Adam SJ, **Brar I**, Chung LK, Currier JS, Daar ES, Davey VJ, Denning ET, Gelijns AC, Higgs ES, Jagannathan P, Javan AC, Jensen TO, Jilg N, Kalomenidis I, Kim P, Nayak SU, Newell M, Taiwo BO, Yokum T, and Delph Y. ACTIV trials: cross-trial lessons learned for master protocol implementation. *J Clin Transl Sci* 2024; 8(1):e152. PMID: 39540114. Full Text

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The United States Government (USG) public-private partnership "Accelerating COVID-19 Treatment Interventions and Vaccines" (ACTIV) was launched to identify safe, effective therapeutics to treat patients with Coronavirus Disease 2019 (COVID-19) and prevent hospitalization, progression of disease, and death. Eleven original master protocols were developed by ACTIV, and thirty-seven therapeutic agents entered evaluation for treatment benefit. Challenges encountered during trial implementation led to innovations enabling initiation and enrollment of over 26,000 participants in the trials. While only two ACTIV trials continue to enroll, the recommendations here reflect information from all the trials as of May 2023. We review clinical trial implementation challenges and corresponding lessons learned to inform future therapeutic clinical trials implemented in response to a public health emergency and the conduct of complex clinical trials during "peacetime," as well.

Infectious Diseases

Lewis NM, Harker EJ, Leis A, Zhu Y, Talbot HK, Grijalva CG, Halasa N, Chappell JD, Johnson CA, Rice TW, Casey JD, Lauring AS, Gaglani M, Ghamande S, Columbus C, Steingrub JS, Shapiro NI, Duggal A, Felzer J, Prekker ME, Peltan ID, Brown SM, Hager DN, Gong MN, Mohamed A, Exline MC, Khan A, Wilson JG, Mosier J, Qadir N, Chang SY, Ginde AA, Mohr NM, Mallow C, Harris ES, Johnson NJ, Srinivasan V, Gibbs KW, Kwon JH, **Vaughn IA**, **Ramesh M**, Safdar B, DeCuir J, Surie D, Dawood FS, Ellington S, Self WH, and Martin ET. Assessment and mitigation of bias in influenza and COVID-19 vaccine effectiveness analyses - IVY Network, September 1, 2022-March 30, 2023. *Vaccine* 2024; 43(Pt 2):126492. PMID: 39515195. Full Text

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Cleveland Clinic, Cleveland, OH, United States.
Emory University, Atlanta, GA, United States.
Hennepin County Medical Center, Minneapolis, MN, United States.
University of Utah, Salt Lake City, UT, United States; Intermountain Medical Center, Murray, UT, United States.
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Montefiore Medical Center, Albert Einstein College of Medicine, New York, NY, United States.
The Ohio State University, Columbus, OH, United States.
Oregon Health & Science University, Portland, OR, United States.
Stanford University School of Medicine, Stanford, CA, United States.
University of Arizona, Tucson, AZ, United States.
Ronald Reagan UCLA Medical Center, Los Angeles, CA, United States.
University of Colorado School of Medicine, Aurora, CO, United States.
University of Iowa School of Medicine, Iowa City, IA, United States.
University of Miami School of Medicine, Miami, FL, United States.
University of Utah, Salt Lake City, UT, United States.
University of Washington, Seattle, WA, United States.
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BACKGROUND: In test-negative studies of vaccine effectiveness (VE), including patients with co-circulating, vaccine-preventable, respiratory pathogens in the control group for the pathogen of interest can introduce a downward bias on VE estimates. METHODS: A multicenter sentinel surveillance network in the US prospectively enrolled adults hospitalized with acute respiratory illness from September 1, 2022-March 31, 2023. We evaluated bias in estimates of VE against influenza-associated and COVID-19-associated hospitalization based on: inclusion vs exclusion of patients with a co-circulating virus among VE controls; observance of VE against the co-circulating virus (rather than the virus of interest), unadjusted and adjusted for vaccination against the virus of interest; and observance of influenza or COVID-19 against a sham outcome of respiratory syncytial virus (RSV). RESULTS: Overall VE against influenza-associated hospitalizations was 6 percentage points lower when patients with COVID-19 were included in the control group, and overall VE against COVID-19-associated hospitalizations was 2 percentage points lower when patients with influenza were included in the control group. Analyses of VE against the co-circulating virus and against the sham outcome of RSV showed that downward bias was largely attributable the correlation of vaccination status across pathogens, but also potentially attributable to other sources of residual confounding in VE models. CONCLUSION: Excluding cases of confounding respiratory pathogens from the control group in VE analysis for a pathogen of interest can reduce downward bias. This real-world analysis demonstrates that such exclusion is a helpful bias mitigation strategy, especially for measuring influenza VE, which included a high proportion of COVID-19 cases among controls.

Internal Medicine

Abusuliman M, Olimy A, Aboeldahb M, Abusuliman A, **Dawod S**, **Rehman S**, Salem AE, Meribout S, Aloum K, and **Jafri SM**. Pregnancy Management and Outcomes in a Small Bowel, Pancreas, and Liver Transplant Recipient: A Case Report and Literature Review. *Am J Case Rep* 2024; 25:e945914. PMID: 39543857. Full Text

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BACKGROUND Small bowel transplantation (SBT) is a rare but life-saving surgery. However, successful full-term pregnancies in individuals with SBT are exceedingly rare due to the nutritional and immunosuppression challenges this transplant poses for pregnancy. Therefore, clear guidelines for treating pregnant SBT recipients are unavailable. Here, we report the second case of a successful pregnancy in an individual with a triple organ transplant, including SBT, highlighting the need for careful immunosuppressive management and multidisciplinary care. CASE REPORT A 20-year-old woman in the third trimester of pregnancy with a history of small bowel, liver, and pancreas transplantation at age 1 year presented with elevated liver function test results. She had been taking tacrolimus, sirolimus, and prednisone before pregnancy, with no signs of organ rejection. While sirolimus and prednisone was discontinued upon conception, laboratory test results at presentation revealed low serum tacrolimus levels. The patient had an acute kidney injury and pulmonary edema during her hospitalization and received a diagnosis of preeclampsia. She underwent a successful cesarean delivery, due to labor induction complications; however, about 1 month after hospital discharge, the patient experienced elevated liver enzymes, which was treated with high-dose steroids and adjusted tacrolimus. Sirolimus was restarted, and the patient's liver enzymes have been normalized to date. CONCLUSIONS Comprehensive multidisciplinary care, as well as monitoring and optimizing immunosuppression, are essential for pregnant SBT recipients throughout the prenatal, perinatal, and postpartum periods to mitigate risks, prevent graft rejection, and ensure positive maternal and fetal health outcomes.

Internal Medicine

Ahmed O, King NE, **Qureshi MA**, Choudhry AA, Osama M, Zehner C, Ali A, Hamzeh IR, Palaskas NL, Thompson KA, Koutroumpakis E, Deswal A, and Yusuf SW. Non-bacterial thrombotic endocarditis: a clinical and pathophysiological reappraisal. *Eur Heart J* 2024; Epub ahead of print. PMID: 39565324. Full Text

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Non-bacterial thrombotic endocarditis (NBTE), formerly recognized as marantic endocarditis, represents a rare cardiovascular pathology intricately linked with hypercoagulable states, notably malignancy and autoimmune disorders. Characterized by the development of sterile vegetations comprised of fibrin and platelets on cardiac valves, NBTE poses a diagnostic challenge due to its resemblance to infective endocarditis. Therapeutic endeavours primarily revolve around addressing the underlying aetiology and instituting anticoagulant regimens to forestall embolic events, with surgical intervention seldom warranted. Non-bacterial thrombotic endocarditis frequently coexists with malignancies and autoimmune conditions, such as lupus and antiphospholipid antibody syndrome, and, more recently, has been associated with COVID-19. Its pathogenesis is underpinned by a complex interplay of endothelial dysfunction,

hypercoagulability, hypoxia, and immune complex deposition. Clinical manifestations typically manifest as embolic phenomena, particularly cerebrovascular accidents, bearing substantial mortality rates. Diagnosis necessitates a high index of suspicion and meticulous exclusion of infective endocarditis, often facilitated by advanced cardiac imaging modalities. Anticoagulation, typically employing low molecular weight heparin or warfarin, constitutes the cornerstone of pharmacological intervention. Surgical recourse may be warranted in instances of refractory heart failure or recurrent embolic events. Given its multifaceted nature, the management of NBTE mandates a multidisciplinary approach, with prognosis contingent upon individual clinical intricacies. Future endeavours should prioritize further research to refine therapeutic strategies and enhance patient outcomes.

Internal Medicine

Almajed MR, **Fadel RA**, **Parsons A**, Jabri A, **Ayyad A**, **Shelters R**, **Tanaka D**, **Cowger J**, **Grafton G**, **Alqarqaz M**, **Villablanca P**, **Koenig G**, and **Basir MB**. Incidence and risk factors associated with stroke when utilizing peripheral VA-ECMO. *Cardiovasc Revasc Med* 2024; Epub ahead of print. PMID: 39500701. Full Text

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BACKGROUND: Mechanical circulatory support with veno-arterial extracorporeal membrane oxygenation (VA-ECMO) has brought forward a paradigm shift in the management of cardiogenic shock. Neurological complications associated with VA-ECMO represent a significant source of morbidity and mortality and serve as a limiting factor in its application and duration of use. METHODS: We performed a single-center retrospective case-control study of patients who developed stroke while managed with peripheral VA-ECMO from January 2018 to September 2022 at a quaternary center. We included consecutive patients above the age of 18 who were admitted to the cardiac intensive care unit and were managed with peripheral VA-ECMO. All patients who developed a stroke while on VA-ECMO were included in the case cohort, and compared to those who did not suffer stroke. Multivariable logistic regression was performed to identify risk factors associated with stroke on VA-ECMO. In-hospital outcomes were assessed out to 30 days. RESULTS: A total 244 patients were included in the final analysis, 36 (14.7 %) of whom developed stroke on VA-ECMO. Ischemic stroke was seen in 20 patients (55.6 %) whereas hemorrhagic stroke was seen in 16 patients (44.4 %). The use of P2Y(12) antagonists (aOR 2.70, p = 0.019), limb ischemia (aOR 4.41, p = 0.002), and blood transfusion requirement (aOR 8.55, p = 0.041) were independently associated with development of stroke on VA-ECMO. Female sex trended towards statistical significance (aOR 2.19, p = 0.053) while age was not independently associated with development of stroke on VA-ECMO. There was no significant association between stroke development and outcomes of VA-ECMO duration, hospital length of stay, and all-cause mortality out to 30-days. CONCLUSIONS: VA-ECMO carried a considerable risk of neurological complications. Mortality and duration of hemodynamic support was not associated with stroke risk. Awareness regarding stroke risk is imperative in facilitating early identification and management of ischemic and hemorrhagic stroke. Research involving clinical trials and multicenter studies are necessary to empower centers in mitigating this source of significant morbidity and mortality in patients on mechanical circulatory support.

Internal Medicine

Alomari A, **Obri M**, Aldroubi B, **Khan MZ**, **Chaudhary A**, Althunibat I, **Piraka C**, and **Zuchelli T**. Hybrid Endoscopic Submucosal Dissection for Isolated Gastric Metastasis of Renal Cell Carcinoma. *ACG Case Rep J* 2024; 11(11):e01548. PMID: 39493953. Full Text

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Metastasis to the stomach is a rare occurrence, especially from renal cell carcinoma (RCC). We report a case of a 76-year-old man with a history of RCC, in remission for 11 years postnephrectomy, who presented with gastrointestinal symptoms, was found to have a 2 cm gastric mass confirmed as metastatic RCC. Endoscopic submucosal dissection was attempted, but due to the hypervascular nature of the mass, a hybrid endoscopic submucosal dissection was performed, achieving complete resection. Follow-up at 7 months showed no recurrence, highlighting the potential for endoscopic treatment options for isolated gastric metastasis, despite the lack of specific guidelines.

Internal Medicine
Arnautovic JZ, Ya'Qoub L, **Wajid Z**, **Jacob C**, Murlidhar M, Damlakhy A, and **Walji M**. Outcomes and Complications of Mitral and Tricuspid Transcatheter Edge-to-edge Repair. *Interv Cardiol* 2024; 19:e20. PMID: 39569385. Full Text

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In the realm of innovative medical procedures, TEER (transcatheter edge-to-edge repair) has emerged as a promising field, showcasing significant growth and advancements. Mitral TEER has been performed for the last two decades; in contrast, tricuspid TEER is newer, with long-term outcomes pending. This article aims to provide a comprehensive review of the current literature, with a primary focus on outcomes and potential complications associated with both procedures. Both procedures carry a low risk of complications when done by experienced providers. A team approach involving specialists in cardiology, cardiothoracic surgery, cardiac imaging and heart failure ensures comprehensive care. A unified approach encompassing preprocedural workup, risk assessment, and standardised care throughout the procedure and recovery contributes to successful outcomes.

Internal Medicine
Bugazia S, **Selim A**, **Sreenivasan A**, **Rehman M**, and **Mahmoud M**. First report of salmonella Dublin subdural empyema: A rare presentation of CNS infection. *IDCases* 2024; 38:e02111. PMID: 39563682. Full Text

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Subdural empyema can be precipitated by a range of pathogens. Common clinical symptoms include fever, headache, seizures, and changed mental status. Yet, cerebral infections caused by Salmonella are relatively uncommon as it is rare for Salmonella to invade the central nervous system. We present the first reported case of Salmonella enterica serovar Dublin causing subdural empyema in an 83-year-old female, which was successfully managed with surgical burr hole and drainage in addition to prolonged targeted antimicrobial therapy consisting of 2 g of intravenous Ceftriaxone twice daily for a total of 56 days. This report demonstrates the course of her illness and the corresponding treatment plan; which may help guide medical providers when encountering similar cases.

Internal Medicine

Chaudhary AJ, **Jamali T**, Sohail A, **Keller CE**, **Caines A**, and **Elatrache M**. Esophagitis in a Post-Liver Transplant Patient: A Case of Cytomegalovirus and Herpes Simplex Virus-1 Coinfection. *Clin Case Rep* 2024; 12(11):e9565. PMID: 39568531. Full Text

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In post-liver transplant patients, esophagitis presents a diagnostic and management challenge due to the potential for opportunistic infections. This case describes a 59-year-old female with primary sclerosing cholangitis who underwent orthotopic liver transplantation six years prior. She presented with dysphagia, and her medical history included immunosuppression with prednisone, tacrolimus, and mycophenolate and a history of achalasia treated with esophageal peroral endoscopic myotomy. Esophagogastroduodenoscopy (EGD) revealed severe esophagitis with extensive ulcerations, raising suspicion for infectious etiologies such as cytomegalovirus (CMV) and herpes simplex virus-1 (HSV-1). The biopsy confirmed a rare coinfection of CMV and HSV-1, which was characterized histologically by viral cytopathic effects and immunohistochemical staining. Treatment with valganciclovir and temporary cessation of mycophenolate led to symptom resolution and viral clearance. Follow-up EGD demonstrated healing of esophageal ulcers, with subsequent findings of Candida esophagitis but no evidence of CMV or HSV recurrence. This case highlights the importance of early endoscopic evaluation and biopsy in immunocompromised patients with esophagitis. CMV and HSV-1 coinfection, while rare, should be considered in this population due to its association with severe complications such as perforation and bleeding. Timely antiviral therapy and immunosuppression adjustment are critical for favorable outcomes.

Internal Medicine

Meresh ES, Shkundin A, **Tobin ET**, Piletz J, and Halaris A. Non-cardiac chest pain: psychopathology, pathophysiology, and response to escitalopram. *Gen Hosp Psychiatry* 2024; Epub ahead of print. PMID: 39490333. Full Text

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Internal Medicine

Nadir U, Lauck KC, and Kivelevitch D. Absolute Risk of Type II Diabetes Mellitus After Presentation of Associated Cutaneous Disorders: A Retrospective Review. *Arch Dermatol Res* 2024; 316(10):751. PMID: 39503879. Full Text

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Internal Medicine

Tobin ET, **Mooney JT**, **DePascale E**, **Maxwell S**, **Willens DE**, **Braciszewski JM**, and **Miller-Matero LR**. Implementing a pain psychology screening process in primary care. *Fam Syst Health* 2024; Epub ahead of print. PMID: 39556349. Full Text

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BACKGROUND: Integrating pain psychology in primary care has the potential to improve symptom burden; however, identifying those who may benefit is a challenge. The purpose of this study was to gather feedback from a multidisciplinary team to optimize digital screening and referral for psychological treatment of chronic pain distress within primary care. METHOD: Team members in a primary care clinic were introduced to the proposed screening process and offered the opportunity to complete a feedback survey. The proposed workflow involved the customer service representative providing patients with digital screeners on an iPad, results transferring to the electronic health record, and a medical assistant (MA) returning the iPad. Positive screens would alert the MA to start the referral process in the electronic health record then signaling the physician to discuss the referral to the psychology team with the patient. RESULTS: Sixty-eight percent of individuals agreed or strongly agreed that screening for chronic pain and distress is important. Sixty six percent of the respondents selected the customer service representatives as the ideal team member to give the iPad to patients and 84% responded that MAs should be responsible for returning the iPad to the front desk. Some thought a positive screen should directly alert physicians (58%) whereas 40% indicated a preference for signaling the MAs to start the referral process. DISCUSSION: Team members had favorable opinions about integrating digital chronic pain distress screening. The logistics of the screening and referral process were finalized based on this feedback and will be integrated into the clinic. (PsycInfo Database Record (c) 2024 APA, all rights reserved).

Internal Medicine
Toiv A, **Harris KB**, **Khan MZ**, **Theisen BK**, **Varma A**, **Fain C**, and **Kaur N**. Dynamic Presentations of Recurrent Post-Transplant Lymphoproliferative Disorder in a Heart Transplant Recipient: A Rare Case Study. *ACG Case Rep J* 2024; 11(11):e01554. PMID: 39568982. Full Text

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Post-transplant lymphoproliferative disorders (PTLD) are complications that arise from post-transplantation immunosuppressive therapy. Although Epstein-Barr virus (EBV) viremia is often seen in PTLD, it is not a definitive feature for diagnosis. We report a rare case of recurrent PTLD in a 26-year-old heart transplant recipient on high-dose tacrolimus who presented with emesis, fatigue, and bloody diarrhea. Although substantial EBV viremia was seen in the first PTLD episode, the current episode was a gastrointestinal manifestation with barely detectable circulating EBV. The patient's history of gastrointestinal disease delayed definitive diagnosis, which was later established through endoscopy and biopsy sample analysis.

Internal Medicine
Toiv A, **Saleh Z**, **Watson AM**, and **Piraka CR**. Duodenal Obstruction Caused by an Isolated Spontaneous Celiac Artery Dissection. *Am J Gastroenterol* 2024; Epub ahead of print. PMID: 39494890. Full Text

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Neurology
Ahmed ME, **Akhter N**, **Fatima S**, Ahmad S, **Giri S**, **Hoda MN**, and **Ahmad AS**. Therapeutic utility of Perfluorocarbon Oxygent in limiting the severity of subarachnoid hemorrhage in mice. *Sci Rep* 2024; 14(1):26638. PMID: 39496694. Full Text

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Subarachnoid hemorrhage (SAH) is the deadliest form of hemorrhagic stroke; however, effective therapies are still lacking. Perfluorocarbons (PFCs) are lipid emulsion particles with great flexibility and their much smaller size as compared to red blood cells (RBCs) allows them to flow more efficiently within the blood circulation. Due to their ability to carry oxygen, a specific PFC-based emulsion, PFC-Oxygent, has been used as a blood substitute; however, its role in cerebral blood flow regulation is unknown. Adult C57BL/6 wildtype male mice were subjected to an endovascular perforation model of SAH followed by an intravenous (i.v.) injection of 9 ml/kg PFC-Oxygent or no treatment at 5 h after SAH. At 48 h after SAH, functional and anatomical outcomes were assessed. We found that SAH resulted in significant neurologic and motor deficits which were prevented by PFC-Oxygent treatment. We found that SAH-induced vasospasm, reduced RBC deformability, and augmented endothelial dysfunction were also restricted by PFC-Oxygent treatment. Moreover, mitochondrial activity and fusion proteins were also markedly decreased as assessed by oxidative phosphorylation (OXPHOS) after SAH. Interestingly, PFC-Oxygent treatment brought the mitochondrial activity close to the basal level. Moreover, SAH attenuated the level of phosphorylated AMP-activated protein kinase (pAMPK), whereas PFC treatment improved pAMPK levels. These data show the beneficial effects of PFC-Oxygent in limiting the severity of SAH. Further studies are needed to fully understand the mechanism through which PFC-Oxygent exerts its beneficial effects in limiting SAH severity.

Neurology

Bugazia S, **Selim A**, **Sreenivasan A**, **Rehman M**, and **Mahmoud M**. First report of salmonella Dublin subdural empyema: A rare presentation of CNS infection. *IDCases* 2024; 38:e02111. PMID: 39563682. Full Text

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Department of Internal Medicine, Division of Pulmonary and Critical Care, Henry Ford Hospital, Detroit, MI, USA.

Subdural empyema can be precipitated by a range of pathogens. Common clinical symptoms include fever, headache, seizures, and changed mental status. Yet, cerebral infections caused by Salmonella are relatively uncommon as it is rare for Salmonella to invade the central nervous system. We present the first reported case of Salmonella enterica serovar Dublin causing subdural empyema in an 83-year-old female, which was successfully managed with surgical burr hole and drainage in addition to prolonged targeted antimicrobial therapy consisting of 2 g of intravenous Ceftriaxone twice daily for a total of 56 days. This report demonstrates the course of her illness and the corresponding treatment plan; which may help guide medical providers when encountering similar cases.

Neurology

Fana M, **Santangelo G**, **Albanna A**, **Jum'ah A**, and **Rehman M**. Optimal Timeline and Hematoma Size Parameters for Middle Meningeal Artery Embolization in Acute-On-Chronic Subdural Hematomas. *Neurohospitalist* 2024; 19418744241285275. Epub ahead of print. PMID: 39544276. Full Text

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BACKGROUND AND PURPOSE: Chronic subdural hematomas (cSDH) are subdural collection of blood for which the current treatment option remains as surgical evacuation due to recurring focal inflammation and angiogenesis. An adjunctive therapeutic intervention is endovascular embolization of the middle meningeal artery (MMA) to cease the prolific cycle of angiogenesis. Few investigations have been made into the indications of this treatment modality regarding the intervention timeline and hematoma size for

non-surgical candidates with acute-on-chronic subdural hematomas. METHODS: We examined the clinical outcomes of 19 patients with 31 acute-on-chronic SDHs undergone MMA embolization and highlighted preliminary trends in radiological and morbidity outcomes. RESULTS: Primary outcomes identified a 57.6% success rate for MMA embolization of acute-on-chronic SDHs defined as significantly reduced hematoma size (i.e. >50%) without recurring bleeds, peri-procedural complications, post-procedural neurological deficits, and need for post-procedural surgical evacuation. Subgroup analysis demonstrated a success rate of 90.9% in patients undergone embolization after a minimum 3-week delay from initial CT head study compared to 33.3% with early intervention as well as a success rate of 75% in patients presenting with a large (i.e. >10 mm) SDH compared to 30% for small SDH. CONCLUSION: Our preliminary data in this retrospective cohort study demonstrates significantly improved outcomes of MMA embolization in patients presenting with large (>10 mm) acute-on-chronic SDHs and in patients undergone embolization after >3 weeks from initial CT head and symptomatic presentation.

Neurology

Jumah A, **Albanna AJ**, **Elfaham A**, Eltous L, Zoghoul S, and **Miller D**. High-Risk Plaque Features in the Non-stenosing Carotid Artery, How Frequently is This Reported? A Retrospective Study. *Neurohospitalist* 2024; 19418744241283858. Epub ahead of print. PMID: 39544266. Full Text

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BACKGROUND: High-risk features of non-stenosing (ie, <50%) carotid plaques are emerging as a possible source of embolism in patients with embolic stroke of undetermined source (ESUS). However, in the absence of hemodynamically significant stenosis, neuroradiology reports rarely describe these morphological features. Our aim was to determine how often high-risk features of non-stenosing plaques are included in diagnostic imaging reports. METHODS: In this retrospective study, we evaluated computed tomography angiography (CTA) reports associated with the CTA imaging results for a previously published cohort study. Plaque features reporting frequencies were calculated and defined as the number of times specific plaque features were included in the CTA reports (Thickness, ulceration, length, soft component and calcification) divided by the number of occurrences of high-risk plaque features (Thickness >0.3 cm; ulceration; length >1.0 cm), soft component, or calcification identified in the CTA results. We used Fisher exact test to compare the reporting frequencies of the 5 plaque features. RESULTS: We analyzed 152 CTA reports. The frequency of reporting plaque thickness (0/40; 0%), ulceration (3/37; 8.1%), and length (7/29; 24.1%) was significantly lower than the reporting of plaque calcification (122/122; 100%) and presence of soft component (31/34; 72.1%) when these features were present in CTA imaging results (all $P < 0.001$). CONCLUSION: When carotid plaques are not causing hemodynamically significant stenosis, neuroradiology reports frequency mention plaque density but often exclude other characteristics. Neuroradiologists and neurologists should collaborate to create algorithms, scoring systems and prediction models to accurately determine which plaque features are highly associated with embolism.

Neurology

Udumula MP, **Rashid F**, **Singh H**, Pardee T, Luther S, **Bhardwaj T**, **Anjaly K**, **Piloni S**, **Hijaz M**, Gogoi R, **Philip PA**, **Munkarah AR**, **Giri S**, and **Rattan R**. Targeting mitochondrial metabolism with CPI-613 in chemoresistant ovarian tumors. *J Ovarian Res* 2024; 17(1):226. PMID: 39543742. Full Text

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BACKGROUND: There is evidence indicating that chemoresistance in tumor cells is mediated by the reconfiguration of the tricarboxylic acid cycle, leading to heightened mitochondrial activity and oxidative phosphorylation (OXPHOS). Previously, we have shown that ovarian cancer cells that are resistant to chemotherapy display increased OXPHOS, mitochondrial function, and metabolic flexibility. To exploit this weakness in chemoresistant ovarian cancer cells, we examined the effectiveness of the mitochondrial inhibitor CPI-613 in treating preclinical ovarian cancer. METHODS: Chemosensitive OVCAR3, and chemoresistant CAOV3 and F2 ovarian cancer cells lines and their xenografts in nude mice were used. Functional metabolic studies were performed using Seahorse instrument. Metabolite quantification was performed using LC/MS/MS. RESULTS: Mice treated with CPI-613 exhibited a notable increase in overall survival and a reduction in tumor development and burden in OVCAR3, F2, and CAOV3 xenografts. CPI-613 suppressed the activity of pyruvate dehydrogenase and alpha-ketoglutarate dehydrogenase complex, which are two of its targets. This led to a reduction in OXPHOS and tricarboxylic acid cycle activity in all 3 xenografts. The addition of CPI-613 enhanced the responsiveness of chemotherapy in the chemoresistant F2 and CAOV3 tumors, resulting in a notable improvement in survival rates and a reduction in tumor size as compared to using chemotherapy alone. CPI-613 reduced the chemotherapy-induced OXPHOS in chemoresistant tumors. The study revealed that the mechanism by which CPI-613 inhibits tumor growth is through mitochondrial collapse. This is evidenced by an increase in superoxide production within the mitochondria, a decrease in ATP generation, and the release of cytochrome C, which triggers mitochondria-induced apoptosis. CONCLUSION: Our study demonstrates the translational potential of CPI-613 against chemoresistant ovarian tumors.

Neurology

Walbert T, **Schultz L**, **Mikkelsen T**, **Snyder JM**, Phillips J, and **Fortunato JT**. Prospective assessment of end-of-life symptoms and quality of life in patients with high-grade glioma. *Neurooncol Pract* 2024; 11(6):733-739. PMID: 39554791. Full Text

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BACKGROUND: Glioblastoma and high-grade glioma (HGG) remain non-curable diseases. Symptoms and Quality-of-life (QoL) in the end-of-life (EoL) phase have not been prospectively studied with validated instruments. Therefore, we prospectively assessed symptom progression, symptom management, and hospice utilization in patients with treatment-refractory progressive HGG. METHODS: Patients failing bevacizumab and presenting with a Karnofsky performance score of ≤60, and their caregivers, were eligible. Symptoms, medication, and clinical management were tracked with serial telephone calls every 2 weeks until death utilizing clinical evaluations and the MD Anderson Symptom Inventory Brain Tumor Module (MDASI-BT). The MDASI-BT rates symptoms on a scale from 0 (no symptoms) to 10 (worst). RESULTS: Fifty-four patient-caregiver dyads were enrolled in the study. Amongst 50 evaluable patients,

the most severe symptoms during the last 2 weeks prior to death were drowsiness (9.09 ± 1.44), difficulty with concentration (8.87 ± 2.29), fatigue (8.63 ± 2.03), difficulty speaking (8.44 ± 2.42), weakness (8.27 ± 3.44), and difficulty with understanding (7.71 ± 2.94). All symptoms, except weakness and memory impairment, which were high at baseline, showed statistically significant progression. Seizures were rare and did not progressively worsen near the end of life (1.38 ± 3.02). The decision-making composite score almost doubled during the EoL phase (8.58 ± 1.53). CONCLUSIONS: This is the first prospective study describing symptoms and QoL issues in patients with HGG. Patients suffer from high morbidity in the EoL phase and should be offered early palliative and hospice care to assure proper symptom management and advance care planning.

Neurosurgery

Herrgott GA, **Snyder JM**, **She R**, **Malta TM**, **Sabedot TS**, **Lee IY**, **Pawloski J**, Podolsky-Gondim GG, **Asmaro KP**, **Zhang J**, **Cannella CE**, **Nelson K**, **Thomas B**, **deCarvalho AC**, **Hasselbach LA**, **Tundo KM**, **Newaz R**, **Transou A**, **Morosini N**, **Francisco V**, **Poisson LM**, **Chitale D**, **Mukherjee A**, **Mosella MS**, **Robin AM**, **Walbert T**, **Rosenblum M**, **Mikkelsen T**, **Kalkanis S**, Tirapelli DPC, Weisenberger DJ, Carlotti CG, Jr., **Rock J**, **Castro AV**, and **Noushmehr H**. Detection of diagnostic and prognostic methylation-based signatures in liquid biopsy specimens from patients with meningiomas. *Nat Commun* 2023; 14(1):5669. PMID: 37704607. Full Text

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Recurrence of meningiomas is unpredictable by current invasive methods based on surgically removed specimens. Identification of patients likely to recur using noninvasive approaches could inform treatment strategy, whether intervention or monitoring. In this study, we analyze the DNA methylation levels in blood (serum and plasma) and tissue samples from 155 meningioma patients, compared to other central nervous system tumor and non-tumor entities. We discover DNA methylation markers unique to meningiomas and use artificial intelligence to create accurate and universal models for identifying and predicting meningioma recurrence, using either blood or tissue samples. Here we show that liquid biopsy is a potential noninvasive and reliable tool for diagnosing and predicting outcomes in meningioma patients. This approach can improve personalized management strategies for these patients.

Neurosurgery

Moertel CL, Hirbe AC, Shuhaiber HH, Bielamowicz K, Sidhu A, Viskochil D, Weber MD, Lokku A, Smith LM, Foreman NK, Hajjar FM, McNall-Knapp RY, Weintraub L, Antony R, Franson AT, Meade J, Schiff D, **Walbert T**, Ambady P, Bota DA, Campen CJ, Kaur G, Klesse LJ, Maraka S, Moots PL, Nevel K, Bornhorst M, Aguilar-Bonilla A, Chagnon S, Dalvi N, Gupta P, Khatib Z, Metrock LK, Nghiemphu PL, Roberts RD, Robison NJ, Sadighi Z, Stapleton S, Babovic-Vuksanovic D, and Gershon TR. ReNeu: A Pivotal, Phase IIb Trial of Mirdametinib in Adults and Children With Symptomatic Neurofibromatosis Type 1-Associated Plexiform Neurofibroma. *J Clin Oncol* 2024; Jco2401034. Epub ahead of print. PMID: 39514826. Full Text

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SpringWorks Therapeutics, Inc, Stamford, CT.
Children's Hospital Colorado, Aurora, CO.
AdventHealth for Children, Orlando, FL.
University of Oklahoma Health Sciences Center, Oklahoma City, OK.
Albany Medical Center, Albany, NY.
University of California Davis, Sacramento, CA.
University of Michigan, Ann Arbor, MI.
University of Pittsburgh School of Medicine, Pittsburgh, PA.
University of Virginia Medical Center, Charlottesville, VA.
Henry Ford Health, Wayne State University and Michigan State University, Detroit, MI.
Oregon Health and Science University, Portland, OR.
University of California, Irvine, CA.
Stanford/Lucile Packard Children's Hospital and Stanford Children's Health, Palo Alto, CA.
New York Presbyterian Morgan Stanley Children's Hospital, Columbia University Medical Center, New York, NY.
University of Texas Southwestern/Children's Health, Dallas, TX.
University of Illinois at Chicago, Chicago, IL.
Vanderbilt University Medical Center/Vanderbilt-Ingram Cancer Center, Nashville, TN.
Indiana University Health/Indiana University School of Medicine, Indianapolis, IL.
Children's National Hospital, Washington, DC.
Orlando Health, Inc, Orlando, FL.
Children's Hospital of the Kings Daughters, Norfolk, VA.
Montefiore Medical Center/Children's Hospital at Montefiore, New York City, NY.
St Joseph's Regional Medical Center, Paterson, NJ.
Nicklaus Children's Hospital, Miami, FL.
University of Alabama at Birmingham, Birmingham, AL.
University of California, Los Angeles (UCLA), Los Angeles, CA.
Nationwide Children's Hospital, Columbus, OH.
Children's Hospital Los Angeles, Los Angeles, CA.
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PURPOSE: Pharmacologic therapies for neurofibromatosis type 1-associated plexiform neurofibromas (NF1-PNs) are limited; currently, none are US Food and Drug Administration-approved for adults. METHODS: ReNeu is an open-label, multicenter, pivotal, phase IIb trial of mirdametinib in 58 adults (≥18 years of age) and 56 children (2 to 17 years of age) with NF1-PN causing significant morbidities. Patients received mirdametinib capsules or tablets for oral suspension (2 mg/m(2) twice daily, maximum 4 mg twice daily), regardless of food intake, in 3 weeks on/1 week off 28-day cycles. The primary end point was confirmed objective response rate (ORR; proportion of patients with a ≥20% reduction of target PN volume from baseline on consecutive scans during the 24-cycle treatment phase) assessed by blinded independent central review (BICR) of volumetric magnetic resonance imaging. RESULTS: Twenty-four of 58 adults (41%) and 29 of 56 children (52%) had a BICR-confirmed objective response during the 24-cycle treatment phase; in addition, two adults and one child had confirmed responses during long-term follow-up. Median (range) target PN volumetric best response was -41% (-90 to 13) in adults and -42% (-91 to 48) in children. Both cohorts reported significant and clinically meaningful improvement in patient- or parent proxy-reported outcome measures of worst tumor pain severity, pain interference, and health-related quality of life (HRQOL) that began early and were sustained during treatment. The most commonly reported treatment-related adverse events were dermatitis acneiform, diarrhea, and nausea in adults and dermatitis acneiform, diarrhea, and paronychia in children. CONCLUSION: In ReNeu, the largest multicenter NF1-PN trial reported to date, mirdametinib treatment demonstrated significant

confirmed ORRs by BICR, deep and durable PN volume reductions, and early, sustained, and clinically meaningful improvement in pain and HRQOL. Mirdametinib was well-tolerated in adults and children.

Neurosurgery
Rademacher AF, **Fadel HA**, **Pawloski JA**, **Ma M**, **Nkongchu KN**, **Lee IY**, and **Ali AY**. Laser Interstitial Thermal Therapy for Intra-Axial Brain Tumors: Everything the Neuroradiologist Should Know. *AJNR Am J Neuroradiol* 2024; Epub ahead of print. PMID: 39572197. Full Text

From the Department of Neurosurgery (A.F.R., H.A.F., J.A.P., I.Y.L.), Henry Ford Health, Detroit, Michigan.
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Laser interstitial thermal therapy (LITT) is a minimally invasive cytoreductive treatment option for patients with intracranial tumors. Utilizing real-time MR thermometry, LITT delivers tailored, targeted, and permanent cytotoxic thermal injury to intra-axial pathology. As a minimally invasive and nonionizing treatment option proved to be an effective, less morbid, and more efficient alternative to surgery, the utility of LITT has rapidly expanded. Along with this growth comes the need for neurosurgeons and neuroradiologists to accurately assess the radiographic outcomes of LITT in a standardized, dependable, and longitudinal fashion. We present a comprehensive overview of the indications and mechanisms of action of LITT for intra-axial brain tumors as well as guidance on thorough pre-, intra-, and postoperative imaging assessments. Using detailed case examples describing the contemporary uses of LITT, we hope to provide a foundational understanding of LITT that will inform imaging assessment and guide accurate multi disciplinary tumor board discussion.

Neurosurgery
Walbert T, **Schultz L**, **Mikkelsen T**, **Snyder JM**, Phillips J, and **Fortunato JT**. Prospective assessment of end-of-life symptoms and quality of life in patients with high-grade glioma. *Neurooncol Pract* 2024; 11(6):733-739. PMID: 39554791. Full Text

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BACKGROUND: Glioblastoma and high-grade glioma (HGG) remain non-curable diseases. Symptoms and Quality-of-life (QoL) in the end-of-life (EoL) phase have not been prospectively studied with validated instruments. Therefore, we prospectively assessed symptom progression, symptom management, and hospice utilization in patients with treatment-refractory progressive HGG. METHODS: Patients failing bevacizumab and presenting with a Karnofsky performance score of ≤60, and their caregivers, were eligible. Symptoms, medication, and clinical management were tracked with serial telephone calls every 2 weeks until death utilizing clinical evaluations and the MD Anderson Symptom Inventory Brain Tumor Module (MDASI-BT). The MDASI-BT rates symptoms on a scale from 0 (no symptoms) to 10 (worst). RESULTS: Fifty-four patient-caregiver dyads were enrolled in the study. Amongst 50 evaluable patients, the most severe symptoms during the last 2 weeks prior to death were drowsiness (9.09 ± 1.44), difficulty with concentration (8.87 ± 2.29), fatigue (8.63 ± 2.03), difficulty speaking (8.44 ± 2.42), weakness (8.27 ± 3.44), and difficulty with understanding (7.71 ± 2.94). All symptoms, except weakness and memory impairment, which were high at baseline, showed statistically significant progression. Seizures were rare and did not progressively worsen near the end of life (1.38 ± 3.02). The decision-making composite score almost doubled during the EoL phase (8.58 ± 1.53). CONCLUSIONS: This is the first prospective study describing symptoms and QoL issues in patients with HGG. Patients suffer from high morbidity in the EoL

phase and should be offered early palliative and hospice care to assure proper symptom management and advance care planning.

Obstetrics, Gynecology and Women's Health Services

Udumula MP, **Rashid F**, **Singh H**, Pardee T, Luther S, **Bhardwaj T**, **Anjaly K**, **Piloni S**, **Hijaz M**, Gogoi R, **Philip PA**, **Munkarah AR**, **Giri S**, and **Rattan R**. Targeting mitochondrial metabolism with CPI-613 in chemoresistant ovarian tumors. *J Ovarian Res* 2024; 17(1):226. PMID: 39543742. Full Text

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BACKGROUND: There is evidence indicating that chemoresistance in tumor cells is mediated by the reconfiguration of the tricarboxylic acid cycle, leading to heightened mitochondrial activity and oxidative phosphorylation (OXPHOS). Previously, we have shown that ovarian cancer cells that are resistant to chemotherapy display increased OXPHOS, mitochondrial function, and metabolic flexibility. To exploit this weakness in chemoresistant ovarian cancer cells, we examined the effectiveness of the mitochondrial inhibitor CPI-613 in treating preclinical ovarian cancer. METHODS: Chemosensitive OVCAR3, and chemoresistant CAOV3 and F2 ovarian cancer cells lines and their xenografts in nude mice were used. Functional metabolic studies were performed using Seahorse instrument. Metabolite quantification was performed using LC/MS/MS. RESULTS: Mice treated with CPI-613 exhibited a notable increase in overall survival and a reduction in tumor development and burden in OVCAR3, F2, and CAOV3 xenografts. CPI-613 suppressed the activity of pyruvate dehydrogenase and alpha-ketoglutarate dehydrogenase complex, which are two of its targets. This led to a reduction in OXPHOS and tricarboxylic acid cycle activity in all 3 xenografts. The addition of CPI-613 enhanced the responsiveness of chemotherapy in the chemoresistant F2 and CAOV3 tumors, resulting in a notable improvement in survival rates and a reduction in tumor size as compared to using chemotherapy alone. CPI-613 reduced the chemotherapy-induced OXPHOS in chemoresistant tumors. The study revealed that the mechanism by which CPI-613 inhibits tumor growth is through mitochondrial collapse. This is evidenced by an increase in superoxide production within the mitochondria, a decrease in ATP generation, and the release of cytochrome C, which triggers mitochondria-induced apoptosis. CONCLUSION: Our study demonstrates the translational potential of CPI-613 against chemoresistant ovarian tumors.

Ophthalmology and Eye Care Services

Chauhan MZ, Elhusseiny AM, Marwah S, Sallam AB, Stein JD, Kishor KS, **Amin S**, **Edwards PA**, Srikumaran D, Woreta F, Schultz JS, Shrivastava A, Ahmad B, Pasquale L, Bryar PJ, French DD, Hribar M, Thomas M, Vanderbeek BL, Pershing S, Wang SY, Deiner M, Sun C, Patnaik J, Subramanian P, Munir S, Munir W, Stein JD, De Lott L, Ramachandran R, Feldman R, Stagg BC, Wirostko B, McMillian B, Sheybani A, Sarrapour S, and Harris-Nwanyanwu K. Incidence of Uveitis Following Initiation of

Prostaglandin Analogs Versus Other Glaucoma Medications: A Study from the SOURCE Repository. *Ophthalmol Glaucoma* 2024; Epub ahead of print. PMID: 39542214. Request Article

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Oregon Health Sciences University.
Scheie Eye Institute.
Stanford University.
University of California- San Francisco.
University of Colorado.
University of Maryland.
University of Michigan.
University of Rochester.
University of Texas- Houston.
University of Utah.
West Virginia University.
Washington University.
Yale University.

PURPOSE: To evaluate the risk of incidence rates of uveitis among patients starting topical glaucoma therapy. DESIGN: Retrospective database study utilizing the Sight Outcomes Research Collaborative (SOURCE) Ophthalmology Data Repository. PARTICIPANTS: Adult glaucoma patients who were recently started on topical glaucoma therapy. METHODS: Using data from 10 health systems contributing data to the SOURCE data repository, we identified all adult glaucoma patients who had been newly started on a topical glaucoma medication (prostaglandin analogues (PGAs), beta-blockers (BBs), alpha agonists (AAs), and carbonic anhydrase inhibitors (CAIs)). Patients with pre-existing documentation of uveitis were excluded. MAIN OUTCOME MEASURES: Incidence of uveitis within 3 months of initiating therapy with different topical glaucoma medications. RESULTS: We included 67,517 patients who were newly prescribed a topical glaucoma medication. The mean age of the patients was 67.3±13.2 years and ~59% were females. A total of 567 patients (0.87%) developed uveitis within 3 months of initiating the therapy. The incidence of uveitis was 0.32%, 1.95%, 1.63%, and 1.68% for users of PGAs, BBs, AAs, and CAIs, respectively. After adjusting for sociodemographic factors, individuals using topical BBs, AAs, and CAIs had significantly higher odds of developing uveitis versus those using PGAs (P<0.001 for all comparisons). CONCLUSIONS: The use of PGAs was not associated with higher odds of developing uveitis compared to other classes of topical glaucoma medications.

Ophthalmology and Eye Care Services

Vanalakar SA, Qureshi MH, **Srivastava SB**, Khan SU, Eren GO, Onal A, Kaya L, Kaleli HN, Pehlivan C, Hassnain M, Vhanalakar SA, Sahin A, Hasanreisoglu M, and Nizamoglu S. Perovskite Quantum Dot-Based Photovoltaic Biointerface for Photostimulation of Neurons. *IEEE Trans Biomed Eng* 2024. PMID: 39485691. Request Article

OBJECTIVE: A promising avenue for vision restoration against retinal degeneration is the use of semiconductor-based photovoltaic biointerfaces to substitute natural photoreceptors. Instead of silicon, perovskite has emerged as an exciting material for solar energy harvesting, and its nanocrystalline forms generally offer better stability than their bulk counterparts in addition to the distinct synthesis and

fabrication steps. METHODS: Herein, we synthesize tetramethylammonium lead iodide (TMAPbI3) perovskite quantum dots (QDs) as a novel photoactive material for photovoltaic biointerfaces. While the TMAPbI3 quantum dots and electrolyte interface induces Faradaic photocurrent under light illumination, the heterojunction with P3HT converts the charge-transfer process to a safe capacitive photocurrent with an improved ionic responsivity of 17.4 mA/W. SIGNIFICANCE: The integration of the 18-nm quantum dot thickness shows good biocompatibility with primary cultures of hippocampal neurons and the photoresponse of the biointerface triggered photostimulation of the neurons. The rise of perovskite materials can stimulate novel forms of photovoltaic retina implants.

Orthopedics/Bone and Joint Center

Gaudiani MA, **Castle JP**, **Jiang EX**, **Wager SG**, **Brown SR**, **Kasto JK**, **Gasparro MA**, **Jurayj AS**, **Makhni EC**, **Moutzouros V**, and **Muh SJ**. Worse postoperative outcomes and higher reoperation in smokers compared to nonsmokers for arthroscopic rotator cuff repair. *Shoulder Elbow* 2024; 17585732241263834. Epub ahead of print. PMID: 39552673. Full Text

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BACKGROUND: This study aimed to determine if smokers at the time of arthroscopic rotator cuff repair met the minimally clinical important difference and substantial clinical benefit for Patient-Reported Outcomes Measurement Information System Upper Extremity, Depression, and Pain Interference scores in comparison to nonsmoking patients in a retrospective review. METHODS: Clinical outcomes and Patient-Reported Outcomes Measurement Information System scores were compared between a cohort of nonsmokers and current or former smokers (smokers). Further sub-analysis compared a cohort of nonsmokers propensity-matched 1:1 to a cohort of current/former smokers via age, body mass index, and tear size. RESULTS: A total of 182 patients, 80 smokers and 102 nonsmokers, were included. Smokers had statistically different-sized tears with more rated massive (P = 0.02) and more reoperations (P = 0.02). Smokers met substantial clinical benefit thresholds at a lower rate than nonsmokers for Patient-Reported Outcomes Measurement Information System Upper Extremity (P = 0.03). In the sub-analysis, 74 smokers were matched to 74 nonsmokers. Smokers had a lower change in Patient-Reported Outcomes Measurement Information System Upper Extremity (P = 0.007) and Patient-Reported Outcomes Measurement Information System Pain Interference (P = 0.03) postoperatively. Fewer smokers met minimally clinical important difference for Patient-Reported Outcomes Measurement Information System Upper Extremity postoperatively (P = 0.003) and more had reoperations (P = 0.02). DISCUSSION: Overall, smokers demonstrated smaller improvements in function, and pain, and were less likely to meet minimally clinical important differences and substantial clinical benefits for Patient-Reported Outcomes Measurement Information System Upper Extremity at 6 months follow-up when compared to nonsmokers after rotator cuff repair.

Orthopedics/Bone and Joint Center

Gaudiani MA, Cooper T, Drummond A, **Hansen LM**, and Tompkins MA. Guided Growth for Correction of Elevated Tibial Posterior Slope in Pediatric ACL Deficiency: A Case Report. *JBJS Case Connect* 2024; 14(4). PMID: 39509535. Full Text

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CASE: Fourteen-year-old boy, history of autism presented with bilateral knee instability. Imaging revealed bilateral anterior cruciate ligament (ACL) insufficiency, 20° of posterior tibial slope (PTS) on the right and 18° on the left. A guided growth technique using anterior placed tension band plates was used to correct the PTS. At 22 months, the PTS corrected to 5.5° on the right and 6° on the left. The patient's knee stability improved, and he resumed activities at 30 months. CONCLUSION: Pediatric ACL insufficiency in the setting of elevated PTS can be successfully corrected with a guided growth technique.

Orthopedics/Bone and Joint Center

Gaudiani MA, **Wager SG**, **Enweze LC**, **Gasparro MA**, **Brown SR**, **Al-Saghir T**, **Keith KM**, **Kasto JK**, **Muh SJ**, and **Mahylis JM**. Increased complications and similar patient recorded outcomes after shoulder arthroplasty in patients with functional somatic syndromes. *Shoulder Elbow* 2024; 17585732241258176. Epub ahead of print. PMID: 39552684. Full Text

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BACKGROUND: The purpose of this study was to compare patient-reported outcomes measures, complication rates, and return to hospital in a cohort of patients undergoing anatomic total shoulder arthroplasty (aTSA) or reverse total shoulder arthroplasty (rTSA) with at least one functional somatic syndrome (FSS) to a control cohort. METHODS: A retrospective review identifying patients who underwent rTSA or aTSA from 2015 to 2022 was performed. Patients with one or more FSS diagnosis (irritable bowel syndrome, chronic headache, chronic low back pain, or fibromyalgia) were compared against a control cohort. Demographic data, comorbidities, operative data, and patient recorded outcomes including Patient-Reported Outcomes Measurement Information System (PROMIS) Upper Extremity (UE), Pain Interference (PI), and Depression (D) were collected. A 1:1 propensity matching to control for age, gender, and body mass index was performed. RESULTS: A total of 54 patients in the FSS cohort and 125 control patients without FSS were included. The FSS cohort had significantly higher rates of depression ($p < 0.001$), anxiety ($p < 0.001$), and postoperative complications (35.2% vs. 14.4%, $p = 0.002$). No significant differences in change in PROMIS-UE, -PI, and -D scores or proportion meeting minimal clinically important difference were seen at one year among the propensity-matched cohort. DISCUSSION: Patients with FSS undergoing shoulder arthroplasty had higher rates of complications; however, PROMIS scores were similar between cohorts. LEVEL OF EVIDENCE: Level III.

Orthopedics/Bone and Joint Center

Jenkins SM, Elwell J, **Muh SJ**, Roche CP, Rogalski BL, Eichinger JK, and Friedman RJ. Comparing the Exactech Equinoxe Reverse TSA for Fracture versus Degenerative Conditions: Five-Year Minimum Follow-Up. *J Shoulder Elbow Surg* 2024; Epub ahead of print. PMID: 39510340. Full Text

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INTRODUCTION: Reverse total shoulder arthroplasty (rTSA) has become the operative treatment of choice for acute proximal humerus fractures in the elderly population, but little data exists on the long-term outcomes or how they compare to rTSA done for degenerative conditions. The purpose of this study is to compare the clinical and radiographic outcomes of patients undergoing rTSA for acute fracture versus degenerative conditions with a minimum 5-year follow-up. METHODS: Data was extracted from an international registry of patients with the Exactech Equinoxe rTSA implant from 2007-2018. Patients with a minimum follow-up of 5 years were then split into fracture and degenerative cohorts and matched 1:3 based on age, sex, and follow-up duration. Clinical and radiographic outcomes were compared between the cohorts including range of motion (ROM), patient-reported outcome measures (PROM), VAS pain score, complication and revision rates, implant characteristics, and scapular notching. This data was analyzed using Welch's t-test, Fisher's exact test, or Wilcoxon rank sum test. RESULTS: There were 384 total patients included in the study, with 96 fractures and 288 degenerative. At a mean follow-up of 6.4 years, the degenerative cohort had significant improvements in all PROMs and ROM, compared to their preoperative status. At the latest follow-up, the mean ASES score was 83 and the mean VAS pain score was 1.1 for both cohorts. Patients with degenerative indications had greater forward elevation which did not meet the minimally clinically important difference and greater internal rotation which did not meet the substantial clinical benefit threshold. Patient satisfaction was very high for both cohorts, with 97% in the degenerative cohort and 91% in the fracture cohort satisfied with the procedure ($p=0.276$). Complication and revision rates were similar between the two cohorts. Patients in the fracture cohort had a larger glenosphere diameter ($p=0.045$) and greater combined liner/tray offset ($p=0.05$). Patients in the elective cohort more frequently required an augmented baseplate ($p<0.001$). Scapular notching was 11% in the

degenerative cohort and 9% in the fracture cohort (p=0.82). DISCUSSION: This study demonstrates no significant differences in the clinical or radiographic outcomes at a minimum of 5 years follow-up for patients undergoing rTSA for acute fracture versus degenerative conditions. Patients undergoing rTSA for either indication have similar rates of complications, revisions, and scapular notching, with high patient satisfaction. Patients undergoing rTSA for an acute fracture can expect similar results to those undergoing rTSA for degenerative conditions at minimum 5-year follow-up.

Orthopedics/Bone and Joint Center

Jurayj A, **Timoteo T**, **Nerys-Figueroa J**, **Kasto J**, **Mahylis JM**, and **Muh SJ**. How does residency program reputation influence American shoulder and elbow surgeons fellowship match results? *JSES Rev Rep Tech* 2024; Epub ahead of print. PMID: Not assigned. Full Text

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Background: Postresidency training is becoming increasingly common among orthopedic surgeons, with shoulder and elbow surgery growing as a desired subspeciality. There is limited data evaluating how the reputation of an applicants' orthopedic residency influences the outcome of the shoulder and elbow fellowship match. The purpose of this study was to determine if applicants from residencies with better reputation have more favorable odds during the match process compared to applicants from residencies with a less prestigious reputation. Methods: Residency reputation was determined using the 2023 Doximity residency ranking. These residency programs were then divided into 5 tiers (with tier 1 being the highest ranked and tier 5 being the lowest). Fellowship match data was obtained via San Francisco match from 2016 to 2023. Unmatched applicants, international graduates, and applicants without residency information were excluded. Applicants from 2016 to 2017 were excluded due to incomplete match data. Statistical analysis included descriptive statistics, Chi-square, analysis of variance, and nonparametric analysis. Results: There was a statistically significant difference with residency tier and average matched rank by fellowship program ($P < .001$). Applicants from tiers 1, 2, and 3 were more likely to be ranked higher compared to applicants from tiers 4 and 5. Applicants from tier 1 programs sent fewer applications and received a greater proportion of interview offers compared to applicants from tiers 3, 4, and 5 ($P < .001$). Tier 1 applicants were significantly more likely to be "ranked to match" compared to all remaining applicants ($P < .001$). There was no significant difference associated with residency tier and match position on the applicant's rank list. However, applicants from tier 1 programs were significantly more likely to match at their top 2 desired programs, compared to applicants from tiers 3, 4, and 5 ($P = .029$, $P = .023$, $P = .012$). Tier 2 applicants were more likely to match at one of their top 2 programs compared to tier 4 and 5 applicants ($P = .045$, $P = .023$). Conclusion: Applicants from higher tier residencies are more likely to be ranked higher by shoulder and elbow fellowship programs compared to applicants from lower-tier residencies. Tiers 1, 2, and 3 are ranked approximately equally, while tiers 4 and 5 are ranked significantly lower. There was no association noted between residency tier and applicant match rank; however, applicants from higher-tier residencies were far more likely to match at their top fellowship programs compared to applicants from lower-tier residencies.

Orthopedics/Bone and Joint Center

Kazi O, Alvero AB, **Castle JP**, Vogel MJ, Boden SA, Wright-Chisem J, and Nho SJ. Demographic Disparities and Outcomes Following Hip Arthroscopy: Exploring the Impact of Social Determinants of Health in Femoroacetabular Impingement Syndrome. *J Bone Joint Surg* 2024; Epub ahead of print. PMID: Not assigned. Full Text

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Background:The purpose of this study was to explore the impact of social deprivation on preoperative characteristics and postoperative outcomes following hip arthroscopy (HA) for femoroacetabular impingement syndrome (FAIS).Methods:Patients undergoing primary HA for FAIS were identified, and their social deprivation index (SDI) score was assigned on the basis of the provided ZIP code. Quartiles

(Q1 to Q4) were established using national percentiles, with Q4 representing patients from the areas of greatest deprivation. Patient-reported outcomes (PROs) were collected preoperatively and at a minimum follow-up of 2 years. Achievement rates for clinically meaningful outcomes, including the minimal clinically important difference (MCID), patient acceptable symptom state (PASS), and substantial clinical benefit (SCB), were determined. The incidences of revision HA and conversion to total hip arthroplasty (THA) were recorded. SDI groups were compared with respect to preoperative characteristics and postoperative outcome measures. Predictors of MCID, PASS, and SCB achievement; revision HA; and conversion to THA were identified with use of multivariable logistic regression.Results:In total, 2,060 hips were included, which had the following SDI distribution: Q1 = 955, Q2 = 580, Q3 = 281, and Q4 = 244. The composition of the included patients with respect to race and/or ethnicity was 85.3% Caucasian, 3.8% African American, 3.7% Hispanic, 1.7% Asian, and 5.4% "other."Patients with more social deprivation presented at a later age and with a higher body mass index (BMI), a longer duration of preoperative hip pain, and greater joint degeneration ($p \leq 0.035$ for all). The most socially deprived groups had higher proportions of African American and Hispanic individuals, less participation in physical activity, and greater prevalences of smoking, lower back pain, and Workers' Compensation ($p \leq 0.018$ for all). PRO scores and achievement of the PASS and SCB were worse among patients from areas of greater social deprivation ($p \leq 0.017$ for all). Age, BMI, activity status, race and/or ethnicity classified as "other,"SDI quartile, Workers' Compensation, preoperative back pain, duration of preoperative hip pain, and Tönnis grade were independent predictors of clinically meaningful outcome achievement, revision arthroscopy, and/or THA conversion ($p \leq 0.049$ for all).Conclusions:Individuals with more social deprivation demonstrated inferior postoperative outcome measures. This was driven primarily by preoperative characteristics such as SDI, hip pain duration, joint degeneration, and overall health at presentation. Despite differential outcomes, patients still showed clinical improvement regardless of SDI quartile.Level of Evidence:Prognostic Level III. See Instructions for Authors for a complete description of levels of evidence.

Orthopedics/Bone and Joint Center
Koerber SN, **Wager SG**, Zynda AJ, and **Santa Barbara MT**. Scoping Review: Reducing Musculoskeletal Injury Risk Factors for Adaptive Sport Athletes Through Prevention Programs. *Am J Phys Med Rehabil* 2024; 103(11):1045-1050. PMID: Not assigned. Full Text

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The purpose of this scoping review was to identify existing strategies to reduce modifiable risk factors for musculoskeletal (MSK) injury in adaptive athletes. Medline, Embase, Web of Science, and CINAHL were searched. Inclusion criteria required studies written in English, samples of adaptive athletes, and evaluation of any injury prevention programs that would reduce risk factors associated with MSK injury. The literature search resulted in 785 unique articles. Thirty-two full text articles were screened for inclusion. Four studies of wheelchair basketball and wheelchair rugby injury prevention programs were included in the final analysis, and these studies demonstrated increase in shoulder range of motion, decreased shoulder pain, and decreased cumulative traumatic disorders; all of which was proposed to reduce risk of shoulder injury. However, these studies were small and did not include control groups. Future research is needed to implement programs that reduce risk factors of MSK injuries and reduce health disparities for adaptive athletes.

Orthopedics/Bone and Joint Center
Lawrence RL, Ivens R, Caldwell CA, and Harris-Hayes M. The Effect of Scapular Orientation on Measures of Rotator Cuff Tendon Impingement: A Simulation Study. *J Appl Biomech* 2024; 1-11. Epub ahead of print. PMID: 39527948. Request Article

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Mechanical impingement of the rotator cuff tendons against the acromion (subacromial) and glenoid (internal) during shoulder motions has long been thought to contribute to tears. Clinically, the risk for impingement is thought to be influenced by scapular movement impairments. Therefore, our purpose was to determine the extent to which simulated changes in scapular orientation impact the proximity between the rotator cuff tendon footprint and the acromion and glenoid during scapular plane abduction. Specifically, shoulder kinematics were tracked in 25 participants using a high-speed biplane videoradiography system. Scapular movement impairments were simulated by rotating each participant's scapula from their in vivo orientation about the scapular axes (±2°, ±5°, and ±10°). Subacromial and internal proximities were described using minimum distances, proximity center locations, and prevalence of contact. Statistical parametric mapping was used to investigate the extent to which these measures were impacted by simulated changes in scapular orientation. Simulated changes in scapular orientation significantly altered proximity patterns in a complex manner that depended on the impingement mechanism, humerothoracic elevation angle, and magnitude of the simulated change. Clinicians should be mindful of these factors when interpreting the potential effects during a clinical examination.

Orthopedics/Bone and Joint Center

Sanii R, **Kasto J**, **Castle JP**, **Jay J**, **Burdick G**, and **Muh SJ**. Complications and revision rates after total shoulder arthroplasty are similar between patients with and without diabetes mellitus. *Shoulder Elbow* 2024; 17585732241278207. Epub ahead of print. PMID: 39545008. Full Text

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PURPOSE: There is wide variability in the conclusions of studies examining the effects of diabetes mellitus (DM) on outcomes of shoulder arthroplasty (SA). The objective of this study was to determine if there are differences in complication profiles between patients with DM and those without undergoing anatomic and reverse total SA. METHODS: A retrospective review of patients undergoing SA in a single center from January 2014 to December 2019 was performed. Patients were then stratified into two cohorts, patients with controlled DM (mean hemoglobin A1C < 7%) and those without. Outcomes analyzed included intraoperative complications, postoperative complications, and revision surgery rates. Emergency department (ED) visits and hospital readmissions within 30 days were also recorded. RESULTS: A total of 595 patients underwent SA. No significant difference was found between the diabetes (n = 151) and control group (n = 444) with regard to length of stay (P = .168), complications (P = .286), infection rate (P = .977), 30-day ED visits (P = .789), and readmissions (P = .230). The average time to revision was 26.8 months in the diabetes group and 26.6 months in the control group (P = .989). CONCLUSIONS: Following SA patients with controlled DM showed no increased risk of postoperative infection, ED visitation,hospital readmission, and revision surgery rate when compared to non-diabetics. LEVEL OF EVIDENCE: Level III-retrospective cohort.

Otolaryngology – Head and Neck Surgery

Adjei Boakye E, Nassar SI, Alzouhayli SJ, **Williams AM**, **Chang SS**, Ghanem TA, **Gilbert M**, **Momin S**, **Siddiqui F**, **Wu VF**, and **Tam SH**. Pretreatment Quality of Life and Substance Use Among Patients Diagnosed With Head and Neck Cancer. *Cancer Med* 2024; 13(21):e70399. PMID: 39512120. Full Text

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BACKGROUND: There is a paucity of research on the effects of commonly used substances, such as cannabis and other drugs, on quality of life as a contributor to head and neck cancer (HNC) prognosis. We examined associations between non-alcohol or tobacco substance use (cannabis and other illicit drug) and self-reported quality of life in patients with HNC prior to starting treatment. METHODS: This was a cross-sectional study of patients who presented for routine psych-oncologevaluation prior to treatment between 11/2015 and 9/2022. Primary exposures were cannabis use (never, past, or current users) and current illicit drug use (yes/no). The primary outcome measure was the Functional Assessment of Cancer Therapy-Head and Neck (FACT-HN) subscales (physical, social/family, functional and emotional). Linear regression models examined associations between pretreatment substance use and FACT-HN subscales adjusting for demographic, socioeconomic, and clinical factors. RESULTS: Of 570 patients, 13.9% endorsed current cannabis and 13.9% current illicit drug use. The mean (SD) scores for FACT-HN subscales were physical well-being = 22.8 (5.0), social well-being = 22.7 (5.5), emotional well-being = 17.5 (4.5), and functional well-being = 18.7 (6.9). In the adjusted models, cannabis use was not independently associated with any FACT-HN subscales. However, patients who currently used illicit drugs reported worse emotional well-being (β = -1.32; 95% CI -2.45 to -0.20). No independent association was found between current illicit drug use and other subscales (physical, social, and functional). CONCLUSIONS: Illicit drug use, but not cannabis use, is negatively associated with pretreatment emotional well-being in patients with HNC. Further research exploring the relationships between longitudinal cannabis and illicit drug use and methods of consumption on QoL and cancer outcomes in patients with head and neck cancer is warranted.

Otolaryngology – Head and Neck Surgery
Craig JR, and Saibene AM. Preface Odontogenic Sinusitis: The Next Step. *Otolaryngol Clin North Am* 2024; 57(6):2. PMID: Not assigned. Full Text

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Otolaryngology – Head and Neck Surgery
Mell LK, Torres-Saavedra PA, Wong SJ, Kish JA, **Chang SS**, Jordan RC, Liu T, Truong MT, Winquist EW, Takiar V, Wise-Draper T, Robbins JR, Rodriguez CP, Awan MJ, Beadle BM, Henson C, Narayan S, Spencer SA, Powell S, Dunlap N, Sacco AG, Hu KS, Park HS, Bauman JE, Harris J, Yom SS, and Le QT. Radiotherapy with cetuximab or durvalumab for locoregionally advanced head and neck cancer in patients with a contraindication to cisplatin (NRG-HN004): an open-label, multicentre, parallel-group, randomised, phase 2/3 trial. *Lancet Oncol* 2024; Epub ahead of print. PMID: 39551064. Full Text

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BACKGROUND: Management of patients with locoregionally advanced head and neck squamous cell carcinoma (HNSCC) when cisplatin is contraindicated is controversial. We aimed to assess whether radiotherapy with concurrent and adjuvant durvalumab would improve outcomes compared with radiotherapy with cetuximab. METHODS: NRG-HN004 was designed as an open-label, multicentre, parallel-group, randomised, phase 2/3 trial with safety lead-in conducted at 89 academic and community medical centres in North America. Eligible patients were aged 18 years or older with American Joint Committee on Cancer 8th edition stage III-IVB p16-negative HNSCC or unfavourable stage I-III p16-positive oropharyngeal or unknown primary carcinoma, who had a contraindication to cisplatin (Eastern Cooperative Oncology Group [ECOG] performance status 2, renal or hearing impairment, peripheral neuropathy, aged at least 70 years with moderate or severe comorbidity, or aged younger than 70 years with severe comorbidity). Patients were randomly assigned (2:1) by permuted block randomisation (multiples of 6) to intravenous durvalumab 1500 mg starting 2 weeks before radiotherapy then every 4 weeks starting week 2 of radiotherapy (seven cycles) or intravenous cetuximab 400 mg/m(2) 1 week before radiotherapy then 250 mg/m(2) weekly beginning week 1 of radiotherapy (eight cycles), with intensity-modulated radiotherapy (70 Gy in 35 fractions over 7 weeks). Stratification factors were tumour and nodal stage, ECOG performance status and comorbidity, and primary site and p16 status. The phase 2 primary endpoint was progression-free survival in the intention-to-treat population. There was one prespecified interim futility analysis at 50% of progression-free survival information. If the observed hazard ratio was 1·0 or more, favouring cetuximab, early stopping would be considered. Extended follow-up analysis was post hoc. This trial is registered with ClinicalTrials.gov, NCT03258554, and is closed to enrolment. FINDINGS: Following a ten-patient safety lead-in, the phase 2 trial enrolled 190 patients from March 12, 2019, to July 30, 2021, 186 of whom were randomly assigned (123 to durvalumab and 63 to cetuximab). Median age was 72 years (IQR 64-77), 30 (16%) patients were women and 156 (84%) were men. Phase 2 accrual was suspended in July 30, 2021, following an interim futility analysis, and permanently closed in Sept 1, 2022. The phase 3 part of the trial was not conducted. At a median follow-up of 2·3 years (IQR 1·9-3·1) for the extended follow-up (data cutoff July 31, 2023; post-hoc analysis), 2-year progression-free survival was 50·6% (95% CI 41·5-59·8) in the durvalumab group versus 63·7% (51·3-76·1) in the cetuximab group (hazard ratio 1·33 [95% CI 0·84-2·12]; p=0·89). Adverse events were similar in both groups. The most common grade 3-4 adverse events were dysphagia (26 [22%] of 119 patients in the durvalumab group vs 18 [30%] of 61 patients in the cetuximab group), lymphopenia (33 [28%] vs 20 [33%]), and oral mucositis (13 [11%] vs 11 [18%]). Four (3%) patients in the durvalumab group and one (2%) in the cetuximab group died from treatment-related adverse events (death not otherwise specified, laryngeal oedema, lung infection, and respiratory failure in the durvalumab group and sudden death not otherwise specified in the cetuximab group). INTERPRETATION: Our findings suggest that durvalumab did not improve outcomes compared with cetuximab in patients with HNSCC with contraindications to cisplatin. Further trials are needed to define the standard of care for this population. FUNDING: US National Cancer Institute and AstraZeneca.

Otolaryngology – Head and Neck Surgery

White MC, Canick JE, Omer TM, Barnes JM, Reed WT, Rohde RL, Abouelella DK, **Boakye EA**, Ramos K, Kahmke RR, and Osazuwa-Peters N. Head and neck cancer mortality in the United States: Regional differences in hospice use and place of death. *BJC Rep* 2024; 2(1):79. PMID: 39516333. Full Text

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BACKGROUND: With more than 15,000 annual deaths from head and neck cancer (HNC), an important aspect of end-of-life care for these patients is place of death. Recent evidence suggests an increasing preference for home/hospice at end of life; however, it is unclear whether there is variation in home/hospice use based on region or urban status. We described differences in the place of death of HNC patients based on their region and urban status. METHODS: Using the CDC WONDER (Wide-Ranging Online Data for Epidemiologic Research) database for HNC mortality (1999 to 2019), place of death was dichotomized as home/hospice vs. other, by Health and Human Services (HHS) region (Regions 1-10), and by urbanization status. Multivariable logistic regression analyses estimated odds of place of death being home/hospice, and being urban/metro, adjusting for both clinical and nonclinical variables. RESULTS: Over the study period, there were 260,630 deaths, 47.4% of which were at home or hospice. Compared to patients in New England/Region 1 (CT, ME, MA, NH, RI, and VT), HNC patients were more likely to die at home/hospice in the Pacific Northwest/Region 10 (AK, ID, OR, WA) (aOR (1.73; 95% CI: 1.64, 1.83) and less likely in the Eastern Section/Region 2 (NJ, NY, PR, VI) (aOR 0.93; 95% CI: 0.89, 0.97). Further, large central metro areas had significantly lower rates of dying at home/hospice than did all other settings. CONCLUSION: Patients in moderately urban areas were reported to have the greatest use of hospice services and at-home death; patients in the HHS Region representing Alaska, Idaho, Oregon, and Washington were also found to have the highest rates of use. These differences in hospice care should be considered when clinicians counsel patients on their end-of-life options.

Pathology and Laboratory Medicine

Alruwaii ZI, Alsayed A, Albagashi J, Poveda J, Suliman WA, **Al-Obaidy KI**, Aljaroudi M, and Montgomery E. Prevalence and Clinicopathological Features of Autoimmune Metaplastic Atrophic Gastritis in the Eastern Province of Saudi Arabia: A Regional Study. *Int J Surg Pathol* 2024; 10668969241295348. Epub ahead of print. PMID: 39533765. Full Text

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Introduction. Autoimmune metaplastic atrophic gastritis (AMAG, also termed autoimmune gastritis) is a chronic gastritis of autoimmune pathogenesis. Although its clinical and pathological features are well-documented in many countries, data from Middle Eastern populations remain scarce. This study examined the prevalence of AMAG in gastric specimens from the region, specifically from Saudi Arabia. Methods. We conducted a retrospective review of the pathology database of gastric specimens with a diagnosis of AMAG between 2020 and 2023. Detailed clinical, endoscopic, and pathological features of identified features were described. Result. Of the 978 gastric biopsies received, 17 patients were diagnosed with AMAG. The cohort comprised 11 women (64.7%) and 6 men (35.3%), presenting at a median age of 50 years (range: 32-85). Clinical manifestations varied widely, from abdominal pain (n = 6), dyspepsia (n = 2), symptomatic anemia with significant vitamin B12 deficiency (2 of 17) to asymptomatic/incidentally diagnosed patients (5 of 17). The tissue samples showed varying histological characteristics, with some showing lymphoplasmacytic infiltrate, mucosal atrophy, and hyperplasia of enterochromaffin-like cells. Conclusion. The observed prevalence of AMAG in our study aligns with global averages reported for other populations. The diverse clinical presentations highlight the need for awareness of findings in AMAG in gastric biopsies to ensure appropriate clinical management.

Pathology and Laboratory Medicine
Chaudhary AJ, **Jamali T**, Sohail A, **Keller CE**, **Caines A**, and **Elatrache M**. Esophagitis in a Post-Liver Transplant Patient: A Case of Cytomegalovirus and Herpes Simplex Virus-1 Coinfection. *Clin Case Rep* 2024; 12(11):e9565. PMID: 39568531. Full Text

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In post-liver transplant patients, esophagitis presents a diagnostic and management challenge due to the potential for opportunistic infections. This case describes a 59-year-old female with primary sclerosing cholangitis who underwent orthotopic liver transplantation six years prior. She presented with dysphagia, and her medical history included immunosuppression with prednisone, tacrolimus, and mycophenolate and a history of achalasia treated with esophageal peroral endoscopic myotomy. Esophagogastroduodenoscopy (EGD) revealed severe esophagitis with extensive ulcerations, raising suspicion for infectious etiologies such as cytomegalovirus (CMV) and herpes simplex virus-1 (HSV-1). The biopsy confirmed a rare coinfection of CMV and HSV-1, which was characterized histologically by viral cytopathic effects and immunohistochemical staining. Treatment with valganciclovir and temporary cessation of mycophenolate led to symptom resolution and viral clearance. Follow-up EGD demonstrated healing of esophageal ulcers, with subsequent findings of Candida esophagitis but no evidence of CMV or HSV recurrence. This case highlights the importance of early endoscopic evaluation and biopsy in immunocompromised patients with esophagitis. CMV and HSV-1 coinfection, while rare, should be considered in this population due to its association with severe complications such as perforation and bleeding. Timely antiviral therapy and immunosuppression adjustment are critical for favorable outcomes.

Pathology and Laboratory Medicine
Gregg A, **Lin M**, **Qadir H**, **Sly M**, and **McVinnie D**. Totally implantable venous access port metastasis in a patient with multiple myeloma. *Radiol Case Rep* 2025; 20(1):432-436. PMID: 39534750. Full Text

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Multiple myeloma is a hematologic malignancy characterized by the proliferation of monoclonal plasma cells within the bone marrow. Extramedullary plasmacytomas, a rare manifestation of multiple myeloma, occur in a small percentage of patients. These plasmacytomas can develop in the skin, often near venous catheter access sites, posing diagnostic challenges due to their rarity. We report a case of a 63-year-old man with multiple myeloma who presented with a mildly painful, swollen left chest port site. A whole-body FDG PET/CT scan revealed a hypermetabolic soft tissue mass surrounding the port site, suggestive of malignancy. Subsequent surgical excision and histopathological analysis confirmed the presence of a metastatic subcutaneous plasmacytoma, consistent with the patient's known multiple myeloma. Cutaneous extramedullary plasmacytomas at central venous catheter sites are rarely reported. Potential mechanisms for tumor development at trauma sites include local expression of chemokines that attract myeloma cells. This case underscores the importance of recognizing cutaneous plasmacytomas in patients with multiple myeloma and venous access ports to avoid misdiagnosis and unnecessary interventions. It contributes to the broader understanding of extramedullary disease manifestations in multiple myeloma and emphasizes the need for thorough investigation and appropriate management in such cases.

Pathology and Laboratory Medicine

Herrgott GA, **Snyder JM**, **She R**, **Malta TM**, **Sabedot TS**, **Lee IY**, **Pawloski J**, Podolsky-Gondim GG, **Asmaro KP**, **Zhang J**, **Cannella CE**, **Nelson K**, **Thomas B**, **deCarvalho AC**, **Hasselbach LA**, **Tundo KM**, **Newaz R**, **Transou A**, **Morosini N**, **Francisco V**, **Poisson LM**, **Chitale D**, **Mukherjee A**, **Mosella MS**, **Robin AM**, **Walbert T**, **Rosenblum M**, **Mikkelsen T**, **Kalkanis S**, Tirapelli DPC, Weisenberger DJ, Carlotti CG, Jr., **Rock J**, **Castro AV**, and **Noushmehr H**. Detection of diagnostic and prognostic methylation-based signatures in liquid biopsy specimens from patients with meningiomas. *Nat Commun* 2023; 14(1):5669. PMID: 37704607. Full Text

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Recurrence of meningiomas is unpredictable by current invasive methods based on surgically removed specimens. Identification of patients likely to recur using noninvasive approaches could inform treatment strategy, whether intervention or monitoring. In this study, we analyze the DNA methylation levels in blood (serum and plasma) and tissue samples from 155 meningioma patients, compared to other central nervous system tumor and non-tumor entities. We discover DNA methylation markers unique to meningiomas and use artificial intelligence to create accurate and universal models for identifying and predicting meningioma recurrence, using either blood or tissue samples. Here we show that liquid biopsy is a potential noninvasive and reliable tool for diagnosing and predicting outcomes in meningioma patients. This approach can improve personalized management strategies for these patients.

Pathology and Laboratory Medicine

Symes EO, Wang P, Sojitra P, Menon MP, Patel AA, Hasan F, **Ghosh S**, Roloff GW, Zhou Q, Findley A, Badar T, Zhang J, Tariq H, Chang H, Bell RC, Perry AM, and Venkataraman G. Somatic co-alteration signatures are prognostic in high-grade TP53-mutated myeloid neoplasms. *Br J Haematol* 2024; Epub ahead of print. PMID: 39551719. Full Text

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To assess the relevance of co-occurring somatic mutations in TP53-mutated myeloid neoplasms with ≥10% blasts, we pooled 325 individuals from 10 centres. We focused on comparing three published somatic co-alteration signatures comprising (1) nine MDS-related genes ('ICC-MDSR'), (2) ICC-MDSR + additional secondary mutations-related genes ('Tazi signature') and (3) EPI6 (comprising six genes). Outcomes examined were 24-month overall survival (OS24) and front-line complete response (CR1). The median age was 69 years with 77% receiving front-line hypomethylating agents (HMA). All three signatures ICC-MDSR ($p = 0.009$), Tazi signature ($p = 0.001$) and EPI6 ($p = 0.025$) predicted inferior CR1. In the low-intensity (HMA) subgroup, only Tazi signature ($p = 0.026$) predicted inferior CR1. In OS24 analysis of the HMA-treated subgroup ($N = 200$), only Tazi signature was adverse (hazard ratio, HR = 1.6 [1.1-2.2]; $p = 0.011$). However, a forward stepwise multivariable age-adjusted Cox model including all three signatures picked EPI6 as the sole significant adverse predictor in the entire cohort ($p = 0.0001$) as well as within the HMA-treated subgroup ($p = 0.0071$). These data confirm the value of testing co-occurring somatic alterations even within a high-grade TP53-mutated myeloid neoplasm cohort.

Pathology and Laboratory Medicine

Toiv A, **Harris KB**, **Khan MZ**, **Theisen BK**, **Varma A**, **Fain C**, and **Kaur N**. Dynamic Presentations of Recurrent Post-Transplant Lymphoproliferative Disorder in a Heart Transplant Recipient: A Rare Case Study. *ACG Case Rep J* 2024; 11(11):e01554. PMID: 39568982. Full Text

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Post-transplant lymphoproliferative disorders (PTLD) are complications that arise from post-transplantation immunosuppressive therapy. Although Epstein-Barr virus (EBV) viremia is often seen in PTLD, it is not a definitive feature for diagnosis. We report a rare case of recurrent PTLD in a 26-year-old heart transplant recipient on high-dose tacrolimus who presented with emesis, fatigue, and bloody diarrhea. Although substantial EBV viremia was seen in the first PTLD episode, the current episode was a gastrointestinal manifestation with barely detectable circulating EBV. The patient's history of gastrointestinal disease delayed definitive diagnosis, which was later established through endoscopy and biopsy sample analysis.

Pathology and Laboratory Medicine

Udumula MP, **Rashid F**, **Singh H**, Pardee T, Luther S, **Bhardwaj T**, **Anjaly K**, **Piloni S**, **Hijaz M**, Gogoi R, **Philip PA**, **Munkarah AR**, **Giri S**, and **Rattan R**. Targeting mitochondrial metabolism with CPI-613 in chemoresistant ovarian tumors. *J Ovarian Res* 2024; 17(1):226. PMID: 39543742. Full Text

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BACKGROUND: There is evidence indicating that chemoresistance in tumor cells is mediated by the reconfiguration of the tricarboxylic acid cycle, leading to heightened mitochondrial activity and oxidative phosphorylation (OXPHOS). Previously, we have shown that ovarian cancer cells that are resistant to chemotherapy display increased OXPHOS, mitochondrial function, and metabolic flexibility. To exploit this weakness in chemoresistant ovarian cancer cells, we examined the effectiveness of the mitochondrial inhibitor CPI-613 in treating preclinical ovarian cancer. METHODS: Chemosensitive OVCAR3, and chemoresistant CAOV3 and F2 ovarian cancer cells lines and their xenografts in nude mice were used. Functional metabolic studies were performed using Seahorse instrument. Metabolite quantification was performed using LC/MS/MS. RESULTS: Mice treated with CPI-613 exhibited a notable increase in overall survival and a reduction in tumor development and burden in OVCAR3, F2, and CAOV3 xenografts. CPI-613 suppressed the activity of pyruvate dehydrogenase and alpha-ketoglutarate dehydrogenase complex, which are two of its targets. This led to a reduction in OXPHOS and tricarboxylic acid cycle activity in all 3 xenografts. The addition of CPI-613 enhanced the responsiveness of chemotherapy in the chemoresistant F2 and CAOV3 tumors, resulting in a notable improvement in survival rates and a reduction in tumor size as compared to using chemotherapy alone. CPI-613 reduced the chemotherapy-induced OXPHOS in chemoresistant tumors. The study revealed that the mechanism by which CPI-613 inhibits tumor growth is through mitochondrial collapse. This is evidenced by an increase in superoxide production within the mitochondria, a decrease in ATP generation, and the release of cytochrome C, which triggers mitochondria-induced apoptosis. CONCLUSION: Our study demonstrates the translational potential of CPI-613 against chemoresistant ovarian tumors.

Pathology and Laboratory Medicine

Xu Z, **Vitale A**, **Keller C**, **Alkhoory W**, **Zhang Z**, and **Yuan L**. Noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP): Prevalence, cyto-histo correlation, and molecular and ultrasonographic profile. *Ann Diagn Pathol* 2024; 73:152390. PMID: 39515030. Full Text

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Non-invasive follicular thyroid neoplasm with papillary like nuclear features (NIFTP) was introduced in 2017 WHO Classification of Endocrine Tumors. In this study, we aim to characterize the molecular and ultrasonographic profiles of NIFTP and evaluate the performance of fine needle aspiration (FNA) cytology. Consecutive thyroid resections at our institution between 2018 and 2022 were collected; 1282 thyroid resections were identified. NIFTP was diagnosed in 109 cases (prevalence: 8.5 %); 65 (60 %) were the targeted nodules with an average size of 2.5 cm. Among these 65 targeted, 27 had Afirma testing results, 44 had Thyroid Imaging Reporting and Data System (TIRADS) scores, and 53 had FNA results. Of the 27 cases with Afirma reports, 23 were labeled "suspicious", including 5 with RAS-related mutations (risk of malignancy (ROM) 75 %) and 17 without a reportable genetic alternation (ROM 50 %).

60 % cases with TIRADS scores were classified as TIRADS 4, while 16 % were classified as TIRADS 5. The majority of the 53 FNA cases had a diagnosis of AUS/FLUS (53.7 %) or FN (31.5 %). One additional targeted nodule with a diagnosis of NIFTP had BRAFV600E mutation and was reclassified as papillary thyroid carcinoma. In summary, the majority of the targeted NIFTPs had "suspicious" Afirma testing results (85 %), TIRADS 4 scores (60 %) and either AUS/FLUS (53.7 %) or FN (31.5 %) FNA results. The sensitivity and specificity of cytology for diagnosing NIFTP were 90 % and 57 %, respectively, with a positive predictive value (PPV) of 16 % and negative predictive value of 98 %.

Pediatrics

Gamarel KE, Jadwin-Cakmak L, Correll-King WM, Trammell R, Abad J, Harris H, Ward L, Ubong I-A, Reyes L, **Connolly M**, Harper GW, and Neilands TB. Kickin' it with the Gurlz: An evaluation of an HIV status-neutral intervention designed to address violence and trauma among transgender women of color in Detroit. *Psychol Violence* 2024; Epub ahead of print. PMID: Not assigned. Request Article

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Objective: Intersectional oppression exposes transgender women of color to gender-based violence and contributes to inequities across the human immunodeficiency virus (HIV) prevention and care continua. This pilot study aimed to adapt and examine the feasibility and acceptability of Kickin' it with the Gurlz, an HIV status-neutral multicomponent intervention designed to address violence, promote healing from trauma, and reduce barriers to engagement in HIV prevention and care. Impact Statement This study shows that a community-led multicomponent program, guided by social safety theory and designed with and for transgender women of color, is feasible and well-received in addressing gender-based violence, improving access to gender affirmation, and enhancing HIV prevention and care engagement. The findings underscore the importance of inclusive, supportive community-engaged interventions to help reduce violence and promote the health and well-being of transgender women of color. (PsycInfo Database Record (c) 2024 APA, all rights reserved)

Pharmacy

Caniff KE, Judd C, Lucas K, Goro S, Orzol C, Eshaya M, Al Musawa M, **Veve MP**, and Rybak MJ. Heartfelt Impact: A Descriptive Analysis of Ceftaroline-Containing Regimens in Endocarditis due to Methicillin-Resistant Staphylococcus aureus. *Infect Dis Ther* 2024; 13(12):2649-2662. PMID: 39487947. Full Text

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INTRODUCTION: Infective endocarditis (IE) due to methicillin-resistant Staphylococcus aureus (MRSA) is characterized by frequent treatment failure to first-line agents and high mortality, necessitating use of alternative management strategies. Ceftaroline fosamil (CPT) is a cephalosporin antibiotic with activity against MRSA but without regulatory approval for the indication of IE. This study describes clinical experience with CPT-based regimens utilized in MRSA-IE. METHODS: This is a retrospective, observational, descriptive analysis of patients from two major urban medical centers in Detroit, Michigan from 2011 to 2023. Included adult patients (≥ 18 years) had ≥ 1 positive blood culture for MRSA, met definitive clinical criteria for IE, and received CPT for ≥ 72 h. The primary outcome was treatment failure, defined as a composite of 30-day all-cause mortality from index culture or failure to improve or resolve infectious signs/symptoms after CPT initiation. RESULTS: Seventy patients were included. The median (interquartile range [IQR]) age was 51 (34-63) years and 45.7% were male. Persons with injection drug use (PWID) made up 55.7% of the cohort and right-sided IE was the most prevalent subtype (50.0%). CPT was frequently employed second-line or later, often in combination with vancomycin (10.0%) or daptomycin (72.9%). Overall, 31.4% experienced treatment failure and 30-day all-cause mortality occurred in 15.7%. CONCLUSIONS: These findings illustrate the challenges posed by MRSA-IE, including frequent treatment failures, and highlight the utilization of CPT as salvage therapy. Comparative studies are needed to more clearly define its role in MRSA-IE.

Pharmacy

Mulugeta SG, **Mannino A**, **Aref N**, **Procopio V**, **Gendjar S**, and **Vincent S**. Thrice is nice: Thrice weekly versus daily ertapenem in patients on haemodialysis. *Int J Antimicrob Agents* 2024; 64(6):107355. PMID: 39389384. Full Text

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Pharmacy

Nelson Z, Tarik Aslan A, Beahm NP, Blyth M, Cappiello M, Casaus D, Dominguez F, Egbert S, Hanretty A, Khadem T, Olney K, Abdul-Azim A, Aggrey G, Anderson DT, Barosa M, Bosco M, Chahine EB, Chowdhury S, Christensen A, de Lima Corvino D, Fitzpatrick M, Fleece M, Footer B, Fox E, Ghanem B, Hamilton F, Hayes J, Jegorovic B, Jent P, Jimenez-Juarez RN, Joseph A, Kang M, Kludjian G, Kurz S, Lee RA, Lee TC, Li T, Maraolo AE, Maximos M, McDonald EG, Mehta D, Moore JW, Nguyen CT, Papan C, Ravindra A, Spellberg B, Taylor R, Thumann A, Tong SYC, **Veve M**, Wilson J, Yassin A, Zafonte V, and Mena Lora AJ. Guidelines for the Prevention, Diagnosis, and Management of Urinary Tract Infections in Pediatrics and Adults: A WikiGuidelines Group Consensus Statement. *JAMA Netw Open* 2024; 7(11):e2444495. PMID: 39495518. Full Text

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IMPORTANCE: Traditional approaches to practice guidelines frequently result in dissociation between strength of recommendation and quality of evidence. OBJECTIVE: To create a clinical guideline for the diagnosis and management of urinary tract infections that addresses the gap between the evidence and recommendation strength. EVIDENCE REVIEW: This consensus statement and systematic review applied an approach previously established by the WikiGuidelines Group to construct collaborative clinical guidelines. In May 2023, new and existing members were solicited for questions on urinary tract infection prevention, diagnosis, and management. For each topic, literature searches were conducted up until early 2024 in any language. Evidence was reported according to the WikiGuidelines charter: clear recommendations were established only when reproducible, prospective, controlled studies provided

hypothesis-confirming evidence. In the absence of such data, clinical reviews were developed discussing the available literature and associated risks and benefits of various approaches. FINDINGS: A total of 54 members representing 12 countries reviewed 914 articles and submitted information relevant to 5 sections: prophylaxis and prevention (7 questions), diagnosis and diagnostic stewardship (7 questions), empirical treatment (3 questions), definitive treatment and antimicrobial stewardship (10 questions), and special populations and genitourinary syndromes (10 questions). Of 37 unique questions, a clear recommendation could be provided for 6 questions. In 3 of the remaining questions, a clear recommendation could only be provided for certain aspects of the question. Clinical reviews were generated for the remaining questions and aspects of questions not meeting criteria for a clear recommendation. CONCLUSIONS AND RELEVANCE: In this consensus statement that applied the WikiGuidelines method for clinical guideline development, the majority of topics relating to prevention, diagnosis, and treatment of urinary tract infections lack high-quality prospective data and clear recommendations could not be made. Randomized clinical trials are underway to address some of these gaps; however further research is of utmost importance to inform true evidence-based, rather than eminence-based practice.

Pharmacy

Shah K, Mabhugu S, **Obioma J**, Nguyen Q, Schillig J, Torres BP, Howard M, and Lindley B. Angiotensin-Converting Enzyme Inhibitor Washout Period Prior to Angiotensin Receptor/Neprilysin Inhibitor Initiation in the Inpatient Setting. *Ann Pharmacother* 2024; 10600280241282324. Epub ahead of print. PMID: 39497472. Full Text

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BACKGROUND: The 2022 AHA-ACC HFSA Guideline for Management of Heart Failure recommend initiating an angiotensin receptor/neprilysin inhibitor (ARNI) in patients with heart failure with reduced ejection fraction (HFrEF) who can tolerate an angiotensin-converting enzyme inhibitor (ACEi). The manufacturer recommends initiating a 36-hour washout period when switching from ACEi to ARNI due to an increased risk of adverse effects, including angioedema. This study investigated the adherence to the washout period when transitioning from ACEi to ARNI at a community hospital. OBJECTIVES: The primary objective was to assess the rate of adherence to the 36-hour washout when transitioning patients from ACEi to ARNI. Secondary outcomes included heart failure exacerbation readmission rates within 90 days and the rate of adverse effects (angioedema, hypotension, acute kidney injury, and hyperkalemia). METHODS: This was a retrospective cohort study including patients with HFrEF who were transitioned from ACEi to ARNI during their hospital stay between March 1, 2016 and December 31, 2022. Patients were excluded if they did not receive an ACEi or ARNI during their admission or if they had an ejection fraction >40%. Pearson chi-square was used to analyze categorical data. RESULTS: Of 33 patients included in this study, 67% received the full 36-hour washout period when transitioning from ACEi to ARNI. There were no significant differences between the rates of hospital readmissions or adverse effects between the groups. No patients experienced hyperkalemia or angioedema. CONCLUSION AND RELEVANCE: This is the first study to our knowledge to describe real-world prescribing practices when transitioning patients from ACEi to ARNI for the treatment of HFrEF. Larger, multicenter studies are needed to provide more data on prescribing practices outside this single center. Future research should also include pharmacist's role in adhering to the recommended washout.

Plastic Surgery

Yono SS, **Cannella C**, **Gonte M**, **Rama S**, **Zhu S**, **Luker J**, **Evangelista MS**, **Bensenhaver J**, **Walker EM**, and **Atisha D**. Factors associated with breast lymphedema after adjuvant radiation therapy in women undergoing breast conservation therapy. *Breast* 2024; 79:103846. PMID: 39580932. Full Text

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PURPOSE: Breast lymphedema after post-lumpectomy radiation therapy (RT) is poorly defined and difficult to treat. The aim of this study was to define the incidence of breast lymphedema and identify factors associated with the risk of developing breast lymphedema (BL) in women undergoing breast-conserving therapy. METHODS: A retrospective cohort study of patients with early-stage breast cancer who underwent breast-conserving surgery (lumpectomy) followed by RT between January 1, 2014 and July 31, 2019 at a single institution. Women who developed BL, defined as swelling of the breast persisting ≥1 year after RT, were compared with women who did not. Univariate and multivariate regression analyses were used to identify factors associated with risk of BL. RESULTS: A total of 1052 patients were included in the study: 99 (9.6 %) developed BL and 953 (90.6 %) did not develop BL. The mean ± standard deviation age was 62.9 ± 11.1 years and the mean breast volume was 1352.0 ± 744.9 cm(3). Patients with breast volume ≥1500 cm(3) (adjusted odds ratio [aOR] = 2.34; 95 % CI, 1.40-3.91; p = 0.001), Black patients (aOR = 1.78; 95 % CI, 1.12-2.82; p = 0.015), those who received neoadjuvant (aOR = 3.05; 95 % CI, 1.28-7.30; p = 0.012) or adjuvant chemotherapy (aOR = 2.14; 95 % CI, 1.29-3.55; p = 0.003), those with postoperative cellulitis (aOR = 3.94; 95 % CI, 2.20-7.06; p < 0.001), and women who developed arm lymphedema (aOR = 2.94; 95 % CI, 1.50-5.77; p = 0.002) had significantly higher odds of developing BL. CONCLUSION: Patients with larger breast volumes, Black patients, those receiving chemotherapy, and those who develop arm lymphedema or cellulitis may be at higher risk of BL after lumpectomy and RT, suggesting that patients with these risk features may benefit from complementary or alternative surgical approaches and heightened monitoring to avoid BL.

Public Health Sciences

Adjei Boakye E, Nassar SI, Alzouhayli SJ, **Williams AM**, **Chang SS**, Ghanem TA, **Gilbert M**, **Momin S**, **Siddiqui F**, **Wu VF**, and **Tam SH**. Pretreatment Quality of Life and Substance Use Among Patients Diagnosed With Head and Neck Cancer. *Cancer Med* 2024; 13(21):e70399. PMID: 39512120. Full Text

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BACKGROUND: There is a paucity of research on the effects of commonly used substances, such as cannabis and other drugs, on quality of life as a contributor to head and neck cancer (HNC) prognosis. We examined associations between non-alcohol or tobacco substance use (cannabis and other illicit drug) and self-reported quality of life in patients with HNC prior to starting treatment. METHODS: This was a cross-sectional study of patients who presented for routine psych-oncologevaluation prior to treatment between 11/2015 and 9/2022. Primary exposures were cannabis use (never, past, or current users) and current illicit drug use (yes/no). The primary outcome measure was the Functional Assessment of Cancer Therapy-Head and Neck (FACT-HN) subscales (physical, social/family, functional and emotional). Linear regression models examined associations between pretreatment substance use and FACT-HN subscales adjusting for demographic, socioeconomic, and clinical factors. RESULTS: Of 570 patients, 13.9% endorsed current cannabis and 13.9% current illicit drug use. The mean (SD) scores for FACT-HN subscales were physical well-being = 22.8 (5.0), social well-being = 22.7 (5.5), emotional well-being = 17.5 (4.5), and functional well-being = 18.7 (6.9). In the adjusted models, cannabis use was not independently associated with any FACT-HN subscales. However, patients who currently used illicit drugs reported worse emotional well-being (β = -1.32; 95% CI -2.45 to -0.20). No independent association was found between current illicit drug use and other subscales (physical, social, and functional). CONCLUSIONS: Illicit drug use, but not cannabis use, is negatively associated with pretreatment emotional well-being in patients with HNC. Further research exploring the relationships between longitudinal cannabis and illicit drug use and methods of consumption on QoL and cancer outcomes in patients with head and neck cancer is warranted.

Public Health Sciences

Almajed MR, **Fadel RA**, **Parsons A**, Jabri A, **Ayyad A**, **Shelters R**, **Tanaka D**, **Cowger J**, **Grafton G**, **Alqarqaz M**, **Villablanca P**, **Koenig G**, and **Basir MB**. Incidence and risk factors associated with stroke when utilizing peripheral VA-ECMO. *Cardiovasc Revasc Med* 2024; Epub ahead of print. PMID: 39500701. Full Text

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BACKGROUND: Mechanical circulatory support with veno-arterial extracorporeal membrane oxygenation (VA-ECMO) has brought forward a paradigm shift in the management of cardiogenic shock. Neurological complications associated with VA-ECMO represent a significant source of morbidity and mortality and serve as a limiting factor in its application and duration of use. METHODS: We performed a single-center retrospective case-control study of patients who developed stroke while managed with peripheral VA-ECMO from January 2018 to September 2022 at a quaternary center. We included consecutive patients above the age of 18 who were admitted to the cardiac intensive care unit and were managed with peripheral VA-ECMO. All patients who developed a stroke while on VA-ECMO were included in the case cohort, and compared to those who did not suffer stroke. Multivariable logistic regression was performed

to identify risk factors associated with stroke on VA-ECMO. In-hospital outcomes were assessed out to 30 days. RESULTS: A total 244 patients were included in the final analysis, 36 (14.7 %) of whom developed stroke on VA-ECMO. Ischemic stroke was seen in 20 patients (55.6 %) whereas hemorrhagic stroke was seen in 16 patients (44.4 %). The use of P2Y(12) antagonists (aOR 2.70, p = 0.019), limb ischemia (aOR 4.41, p = 0.002), and blood transfusion requirement (aOR 8.55, p = 0.041) were independently associated with development of stroke on VA-ECMO. Female sex trended towards statistical significance (aOR 2.19, p = 0.053) while age was not independently associated with development of stroke on VA-ECMO. There was no significant association between stroke development and outcomes of VA-ECMO duration, hospital length of stay, and all-cause mortality out to 30-days. CONCLUSIONS: VA-ECMO carried a considerable risk of neurological complications. Mortality and duration of hemodynamic support was not associated with stroke risk. Awareness regarding stroke risk is imperative in facilitating early identification and management of ischemic and hemorrhagic stroke. Research involving clinical trials and multicenter studies are necessary to empower centers in mitigating this source of significant morbidity and mortality in patients on mechanical circulatory support.

Public Health Sciences

DeCuir J, Surie D, Zhu Y, Lauring AS, Gaglani M, McNeal T, Ghamande S, Peltan ID, Brown SM, Ginde AA, Steinwand A, Mohr NM, Gibbs KW, Hager DN, Ali H, Frosch A, Gong MN, Mohamed A, Johnson NJ, Srinivasan V, Steingrub JS, Khan A, Busse LW, Duggal A, Wilson JG, Qadir N, Chang SY, Mallow C, Kwon JH, Exline MC, Shapiro NI, Columbus C, **Vaughn IA**, **Ramesh M**, Safdar B, Mosier JM, Casey JD, Talbot HK, Rice TW, Halasa N, Chappell JD, Grijalva CG, Baughman A, Womack KN, Rhoads JP, Swan SA, Johnson C, Lewis N, Ellington S, Dawood FS, McMorrow M, and Self WH. Effectiveness of Original Monovalent and Bivalent COVID-19 Vaccines Against COVID-19-Associated Hospitalization and Severe In-Hospital Outcomes Among Adults in the United States, September 2022-August 2023. *Influenza Other Respir Viruses* 2024; 18(11):e70027. PMID: 39496339. Full Text

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BACKGROUND: Assessments of COVID-19 vaccine effectiveness are needed to monitor the protection provided by updated vaccines against severe COVID-19. We evaluated the effectiveness of original monovalent and bivalent (ancestral strain and Omicron BA.4/5) COVID-19 vaccination against COVID-19-associated hospitalization and severe in-hospital outcomes. METHODS: During September 8, 2022 to August 31, 2023, adults aged ≥ 18 years hospitalized with COVID-19-like illness were enrolled at 26 hospitals in 20 US states. Using a test-negative case-control design, we estimated vaccine effectiveness (VE) with multivariable logistic regression adjusted for age, sex, race/ethnicity, admission date, and geographic region. RESULTS: Among 7028 patients, 2924 (41.6%) were COVID-19 case patients, and 4104 (58.4%) were control patients. Compared to unvaccinated patients, absolute VE against COVID-19-associated hospitalization was 6% (-7%-17%) for original monovalent doses only (median time since last dose [IQR] = 421 days [304-571]), 52% (39%-61%) for a bivalent dose received 7-89 days earlier, and 13% (-10%-31%) for a bivalent dose received 90-179 days earlier. Absolute VE against COVID-19-associated invasive mechanical ventilation or death was 51% (34%-63%) for original monovalent doses only, 61% (35%-77%) for a bivalent dose received 7-89 days earlier, and 50% (11%-71%) for a bivalent dose received 90-179 days earlier. CONCLUSION: Bivalent vaccination provided protection against COVID-19-associated hospitalization and severe in-hospital outcomes within 3 months of receipt, followed by a decline in protection to a level similar to that remaining from previous original monovalent vaccination by 3-6 months. These results underscore the benefit of remaining up to date with recommended COVID-19 vaccines.

Public Health Sciences

Finati M, **Stephens A**, **Cirulli GO**, **Chiarelli G**, **Tinsley S**, **Morrison C**, Sood A, Buffi N, Lughezzani G, Salonia A, Briganti A, Montorsi F, Busetto GM, **Rogers C**, Carrieri G, and **Abdollah F**. Association of Race and Area of Deprivation Index with Prostate Cancer Incidence and Lethality. *JNCI Cancer Spectr* 2024; Epub ahead of print. PMID: 39576690. Full Text

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BACKGROUND: Socio-economic and demographical factors contribute to disparity in prostate cancer (PCa) outcomes. We examined the impact of area of deprivation index (ADI) and race on PCa incidence and lethality in a North-American cohort. METHODS: Our cohort included men who received at least one PSA test within our Health System (1995-2022). An ADI score was assigned to each patient based on their residential census block, ranked as a percentile of deprivation relative to the national level. Individuals were further categorized into quartiles, where the fourth one (ADI 75-100) represented those living in the most deprived areas. We investigated PCa incidence and lethality, using cumulative incidence estimates and competing-risk regression. An ADIxRace interaction term examined whether the relationship between ADI and outcomes varied based on race. RESULTS: We included 134,366 patients, 25% of whom were NHB. Median (IQR) follow-up was 8.8 (5-17) years. At multivariate analysis, individuals from the third (ADI 50-74, 95% CI: 0.83-0.95) and the fourth quartile (ADI ≥ 75, 95% CI: 0.75-0.86) showed significant reduced HRs for PCa incidence, when compared with the first quartile (ADI < 25, all $p < .001$). In contrast to the overall cohort, PCa incidence increased with ADI in NHB men, who were persistently at higher hazard for both PCa incidence and lethality than NHW, across all ADI strata (all $p < .001$). CONCLUSIONS: Living in more deprived areas was associated with lower PCa incidence and higher lethal disease rate. Conversely, PCa incidence increased with ADI for NHB, who consistently showed worse outcomes than NHW individuals, regardless of ADI.

Public Health Sciences

Herrgott GA, **Snyder JM**, **She R**, **Malta TM**, **Sabedot TS**, **Lee IY**, **Pawloski J**, Podolsky-Gondim GG, **Asmaro KP**, **Zhang J**, **Cannella CE**, **Nelson K**, **Thomas B**, **deCarvalho AC**, **Hasselbach LA**, **Tundo KM**, **Newaz R**, **Transou A**, **Morosini N**, **Francisco V**, **Poisson LM**, **Chitale D**, **Mukherjee A**, **Mosella MS**, **Robin AM**, **Walbert T**, **Rosenblum M**, **Mikkelsen T**, **Kalkanis S**, Tirapelli DPC, Weisenberger DJ, Carlotti CG, Jr., **Rock J**, **Castro AV**, and **Noushmehr H**. Detection of diagnostic and prognostic methylation-based signatures in liquid biopsy specimens from patients with meningiomas. *Nat Commun* 2023; 14(1):5669. PMID: 37704607. Full Text

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Recurrence of meningiomas is unpredictable by current invasive methods based on surgically removed specimens. Identification of patients likely to recur using noninvasive approaches could inform treatment strategy, whether intervention or monitoring. In this study, we analyze the DNA methylation levels in blood (serum and plasma) and tissue samples from 155 meningioma patients, compared to other central nervous system tumor and non-tumor entities. We discover DNA methylation markers unique to meningiomas and use artificial intelligence to create accurate and universal models for identifying and predicting meningioma recurrence, using either blood or tissue samples. Here we show that liquid biopsy is a potential noninvasive and reliable tool for diagnosing and predicting outcomes in meningioma patients. This approach can improve personalized management strategies for these patients.

Public Health Sciences

Koerber SN, **Huynh D**, **Farrington S**, **Springer K**, and **Manteuffel J**. Disparities in Buprenorphine Administration for Opioid use Disorder in the Emergency Department. *J Addict Med* 2024; Epub ahead of print. PMID: 39514889. Full Text

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STUDY OBJECTIVE: Although buprenorphine is an effective treatment for opioid use disorder (OUD), this treatment is often not universally provided in the emergency department (ED). We aimed to determine whether patient characteristics, particularly race and ethnicity, were associated with buprenorphine administration. METHODS: This was a retrospective cross-sectional study of adult patients who had a positive screening result for opioid misuse in the ED at a single urban hospital. Univariate and multivariable logistic regressions were used to assess the association of patient characteristics (race, ethnicity, age, sex, insurance type, and Area Deprivation Index) with buprenorphine administration. RESULTS: Of 1082 patients who screened positive for opioid misuse, 133 (12%) were treated with buprenorphine and 949 (88%) were not. Despite representing over half the patient sample, Black patients (n = 682) were less likely than White patients (n = 310) to be treated with buprenorphine (multivariable: OR, 0.56; 95% CI, 0.35-0.88; P = 0.023). Age, sex, insurance type, ethnicity, and Area Deprivation Index were not associated with buprenorphine administration. CONCLUSIONS: Patient race was associated with buprenorphine administration, even after controlling for multiple other social determinants of health. These data suggest racial disparities in care that should be investigated through further research to optimize equitable administration of buprenorphine.

Public Health Sciences

Lewis NM, Harker EJ, Leis A, Zhu Y, Talbot HK, Grijalva CG, Halasa N, Chappell JD, Johnson CA, Rice TW, Casey JD, Lauring AS, Gaglani M, Ghamande S, Columbus C, Steingrub JS, Shapiro NI, Duggal A, Felzer J, Prekker ME, Peltan ID, Brown SM, Hager DN, Gong MN, Mohamed A, Exline MC, Khan A, Wilson JG, Mosier J, Qadir N, Chang SY, Ginde AA, Mohr NM, Mallow C, Harris ES, Johnson NJ, Srinivasan V, Gibbs KW, Kwon JH, **Vaughn IA**, **Ramesh M**, Safdar B, DeCuir J, Surie D, Dawood FS, Ellington S, Self WH, and Martin ET. Assessment and mitigation of bias in influenza and COVID-19 vaccine effectiveness analyses - IVY Network, September 1, 2022-March 30, 2023. *Vaccine* 2024; 43(Pt 2):126492. PMID: 39515195. Full Text

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BACKGROUND: In test-negative studies of vaccine effectiveness (VE), including patients with co-circulating, vaccine-preventable, respiratory pathogens in the control group for the pathogen of interest can introduce a downward bias on VE estimates. METHODS: A multicenter sentinel surveillance network in the US prospectively enrolled adults hospitalized with acute respiratory illness from September 1, 2022-March 31, 2023. We evaluated bias in estimates of VE against influenza-associated and COVID-19-associated hospitalization based on: inclusion vs exclusion of patients with a co-circulating virus among VE controls; observance of VE against the co-circulating virus (rather than the virus of interest), unadjusted and adjusted for vaccination against the virus of interest; and observance of influenza or COVID-19 against a sham outcome of respiratory syncytial virus (RSV). RESULTS: Overall VE against influenza-associated hospitalizations was 6 percentage points lower when patients with COVID-19 were included in the control group, and overall VE against COVID-19-associated hospitalizations was 2 percentage points lower when patients with influenza were included in the control group. Analyses of VE against the co-circulating virus and against the sham outcome of RSV showed that downward bias was largely attributable the correlation of vaccination status across pathogens, but also potentially attributable to other sources of residual confounding in VE models. CONCLUSION: Excluding cases of confounding respiratory pathogens from the control group in VE analysis for a pathogen of interest can reduce downward bias. This real-world analysis demonstrates that such exclusion is a helpful bias mitigation strategy, especially for measuring influenza VE, which included a high proportion of COVID-19 cases among controls.

Public Health Sciences

Stephens A, Morrison C, Lutchka J, Richard C, Hares K, **Tinsley S**, Sood A, **Shannon B**, **Rogers C**, **Shill J**, **Shakir N**, and **Abdollah F**. Prostate Cancer Screening and Diagnoses in the Transfeminine Population. *Urology* 2024; Epub ahead of print. PMID: 39580118. Full Text

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OBJECTIVES: To examine the frequency and rate at which transfeminine patients receive prostate specific antigen testing compared to a matched cisgender cohort. METHODS: Patients with prostates who had encounters in our health system, are currently age 46 or older, and who are alive were included in our study. Transfeminine patients were identified through diagnosis codes and chart review. A 1:5 matched cohort was created based on patient age, race, and area deprivation index. Conditional logistic regression was done to compare odds of receiving any testing and Poisson regression was done to compare the total tests. RESULTS: A total of 275,112 patients were included in the study, of which 315 were confirmed to be transfeminine. A well matched 1:5 propensity matched cohort was created. Our

results suggest that transfeminine patients were 0.28 (95% CI 0.20 - 0.38, p<0.001) times as likely as cisgender patients to receive at least one PSA test at our institution and received only 32% (95% CI 27%-37%, p <0.001) as many total PSA tests. CONCLUSION: Until more is known about the best practices for PSA testing in the transfeminine population, these patients should receive PSA testing. However, our results suggest that transfeminine patients are significantly less likely to receive any testing and significantly fewer tests in their lifetimes, which may represent a significant healthcare disparity.

Public Health Sciences

Tinsley SA, **Stephens A**, **Finati M**, **Chiarelli G**, **Cirulli GO**, **Morrison C**, **Richard C**, **Hares K**, **Lutchka J**, Sood A, Buffi N, Lughezzani G, Bettocchi C, Salonia A, Briganti A, Montorsi F, Carrieri G, **Rogers C**, and **Abdollah F**. Surgery versus radiation for clinically positive nodal prostate cancer in an other cause mortality risk weighted cohort. *Int Urol Nephrol* 2024; Epub ahead of print. PMID: 39528898. Full Text

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PURPOSE: This study examined cancer control metrics between surgery and radiation for clinically positive nodal prostate cancer in an other-cause mortality weighted cohort, to circumvent limitations in previous studies. METHODS: The Surveillance, Epidemiology, and End Results Research Plus database was queried to identify men with clinically positive nodal prostate cancer at diagnosis between 2004 and 2017 who were treated with surgery or radiation. A competing-risks regression model was used to calculate the 10-year other-cause mortality risk using available covariates, including treatment type. Inverse probability of treatment weighting was then used to balance covariates, including other-cause mortality risk. Then, competing-risks cumulative incidence curves and multivariable models, which were weighted on the calculated other-cause mortality risk, were used to examine the impact of treatment type on cancer-specific mortality, after accounting for covariates. RESULTS: 4739 patients underwent surgery whereas 1039 underwent radiation. The median follow-up was 4.7 years (2.6-8.2). Other-cause mortality was statistically different between treatment arms in the unweighted cohort (Gray's p = 0.005), but that difference disappeared in the weighted cohort (Gray's p = 0.2). At 10 years, the cancer-specific mortality rate was 27.6% (22.2-33.9) for radiation versus 18.1% (16.2-20.3) for surgery (p < 0.001). On competing-risks multivariable analysis, radiation had 1.86-fold (95% CI 1.69-2.12) higher hazard likelihood from one year to the next compared to surgery (p < 0.001). CONCLUSION: Clinically positive nodal patients treated with radiation fare worst cancer-specific mortality than those that underwent surgery, using calculated other-cause mortality risk.

Public Health Sciences

Waheed A, Murland S, Yip E, Heikal A, **Ghosh S**, Abraham A, Paulson K, Tankel K, Usmani N, Severin D, Wong C, and Joseph K. Sharing Mono-Institutional Experience of Treating Pancreatic Cancer with Stereotactic Body Radiation Therapy (SBRT). *Curr Oncol* 2024; 31(10):5974-5986. PMID: 39451750. Full Text

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BACKGROUND: Stereotactic body radiotherapy (SBRT) is an evolving treatment for the local management of pancreatic cancer (PC). The main purpose of this study is to report our initial experience in terms of local control (LC) and toxicity for PC patients treated with SBRT. METHODS: We conducted a retrospective review of patients treated with SBRT using abdominal compression (AC) or an end-expiratory breath-holding (EEBH) technique. The median prescribed dose was 35 Gy, delivered in five fractions. Toxicities were recorded using Common Terminology Criteria for Adverse Events (CTCAE) v5.0, and survival was estimated using the Kaplan-Meier method. RESULTS: From 2017 to 2023, 17 PC patients were offered SBRT. Their median age was 69 years. The median follow-up from the date of diagnosis was 22.37 months. The overall survival (OS) was 94% at 1 year and 60.9% at 2 years. The progression-free survival (PFS) was 63.1% at 6 months and 56.1% at 9 months. The median OS was 26.3 months, and the median PFS was 20.6 months. The 6-month and 1-year LC rates were 71% and 50.8%, respectively. CONCLUSION: We are successful in implementing the SBRT program at our centre. SBRT appears to be a promising treatment option for achieving LC with limited acute toxicities.

Public Health Sciences

Walbert T, **Schultz L**, **Mikkelsen T**, **Snyder JM**, Phillips J, and **Fortunato JT**. Prospective assessment of end-of-life symptoms and quality of life in patients with high-grade glioma. *Neurooncol Pract* 2024; 11(6):733-739. PMID: 39554791. Full Text

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BACKGROUND: Glioblastoma and high-grade glioma (HGG) remain non-curable diseases. Symptoms and Quality-of-life (QoL) in the end-of-life (EoL) phase have not been prospectively studied with validated instruments. Therefore, we prospectively assessed symptom progression, symptom management, and hospice utilization in patients with treatment-refractory progressive HGG. METHODS: Patients failing bevacizumab and presenting with a Karnofsky performance score of ≤60, and their caregivers, were eligible. Symptoms, medication, and clinical management were tracked with serial telephone calls every 2 weeks until death utilizing clinical evaluations and the MD Anderson Symptom Inventory Brain Tumor Module (MDASI-BT). The MDASI-BT rates symptoms on a scale from 0 (no symptoms) to 10 (worst). RESULTS: Fifty-four patient-caregiver dyads were enrolled in the study. Amongst 50 evaluable patients, the most severe symptoms during the last 2 weeks prior to death were drowsiness (9.09 ± 1.44), difficulty with concentration (8.87 ± 2.29), fatigue (8.63 ± 2.03), difficulty speaking (8.44 ± 2.42), weakness (8.27 ± 3.44), and difficulty with understanding (7.71 ± 2.94). All symptoms, except weakness and memory impairment, which were high at baseline, showed statistically significant progression. Seizures were rare and did not progressively worsen near the end of life (1.38 ± 3.02). The decision-making composite score almost doubled during the EoL phase (8.58 ± 1.53). CONCLUSIONS: This is the first prospective study describing symptoms and QoL issues in patients with HGG. Patients suffer from high morbidity in the EoL phase and should be offered early palliative and hospice care to assure proper symptom management and advance care planning.

Public Health Sciences

White MC, Canick JE, Omer TM, Barnes JM, Reed WT, Rohde RL, Abouelella DK, **Boakye EA**, Ramos K, Kahmke RR, and Osazuwa-Peters N. Head and neck cancer mortality in the United States: Regional differences in hospice use and place of death. *BJC Rep* 2024; 2(1):79. PMID: 39516333. Full Text

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BACKGROUND: With more than 15,000 annual deaths from head and neck cancer (HNC), an important aspect of end-of-life care for these patients is place of death. Recent evidence suggests an increasing preference for home/hospice at end of life; however, it is unclear whether there is variation in home/hospice use based on region or urban status. We described differences in the place of death of HNC patients based on their region and urban status. METHODS: Using the CDC WONDER (Wide-Ranging Online Data for Epidemiologic Research) database for HNC mortality (1999 to 2019), place of death was dichotomized as home/hospice vs. other, by Health and Human Services (HHS) region (Regions 1-10), and by urbanization status. Multivariable logistic regression analyses estimated odds of place of death being home/hospice, and being urban/metro, adjusting for both clinical and nonclinical variables. RESULTS: Over the study period, there were 260,630 deaths, 47.4% of which were at home or hospice. Compared to patients in New England/Region 1 (CT, ME, MA, NH, RI, and VT), HNC patients were more likely to die at home/hospice in the Pacific Northwest/Region 10 (AK, ID, OR, WA) (aOR (1.73; 95% CI: 1.64, 1.83) and less likely in the Eastern Section/Region 2 (NJ, NY, PR, VI) (aOR 0.93; 95% CI: 0.89, 0.97). Further, large central metro areas had significantly lower rates of dying at home/hospice than did all other settings. CONCLUSION: Patients in moderately urban areas were reported to have the greatest use of hospice services and at-home death; patients in the HHS Region representing Alaska, Idaho, Oregon, and Washington were also found to have the highest rates of use. These differences in hospice care should be considered when clinicians counsel patients on their end-of-life options.

Public Health Sciences

Young K, **Loveless I**, **Su WK**, **Veenstra J**, **Yin C**, **Dimitrion P**, **Krevh R**, **Zhou L**, **She R**, **Pan M**, **Levin AM**, **Young A**, **Samir E**, **Dai A**, **Ge J**, **Huggins RH**, **de Guzman Strong C**, **Lim HW**, **Ozog DM**, **Hamzavi I**, **Adrianto I**, and **Mi QS**. A diverse hidradenitis suppurativa cohort: a retrospective cross-sectional study of 13,130 patients from a large US healthcare system database from 1995-2022. *J Am Acad Dermatol* 2024; Epub ahead of print. PMID: 39532232. Full Text

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BACKGROUND: Most epidemiological studies of hidradenitis suppurativa (HS) have described homogeneous patient populations. OBJECTIVE: To characterize demographics, modifiable health behaviors, and comorbidities of HS patients within a diverse cohort. METHODS: A retrospective cross-sectional study of 13,130 HS patients within a healthcare system was conducted. RESULTS: A female sex bias of ~3:1 in all racial/ethnic subgroups was observed. Black/African American (AA) patients had a

lower age at HS diagnosis than White patients (37.1 years vs 39.4 years, P<0.001). A higher proportion of Black/AA females than White females with HS had BMI in the obese range (69.9% vs 56.5%; P=0.03). In contrast, fewer Black/African American males with HS had a BMI in the obese range compared to White males (51.4% vs. 61.0%; P<0.001). More Black/AA patients than White patients with HS had congestive heart failure (OR=2.10, CI=1.19-3.78; P<0.05), chronic pulmonary disease (OR=1.34; CI=1.02-1.78; P<0.05), diabetes with chronic complication (OR=1.73; CI=1.16-2.60; P<0.05), renal disease (OR=2.66; CI=1.67-4.34; P<0.05), and Charlson Comorbidity Index score ≥4 (OR=1.67; CI=1.09-2.58; P<0.05). Furthermore, male patients were more likely than female patients to have renal disease (OR=2.62; CI 1.66-4.14; P<0.05). LIMITATIONS: A single-center study. CONCLUSION: Subgroups of HS patients had significant differences in demographics, risk factors, and comorbid conditions.

Pulmonary and Critical Care Medicine

Bugazia S, **Selim A**, **Sreenivasan A**, **Rehman M**, and **Mahmoud M**. First report of salmonella Dublin subdural empyema: A rare presentation of CNS infection. *IDCases* 2024; 38:e02111. PMID: 39563682. Full Text

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Subdural empyema can be precipitated by a range of pathogens. Common clinical symptoms include fever, headache, seizures, and changed mental status. Yet, cerebral infections caused by Salmonella are relatively uncommon as it is rare for Salmonella to invade the central nervous system. We present the first reported case of Salmonella enterica serovar Dublin causing subdural empyema in an 83-year-old female, which was successfully managed with surgical burr hole and drainage in addition to prolonged targeted antimicrobial therapy consisting of 2 g of intravenous Ceftriaxone twice daily for a total of 56 days. This report demonstrates the course of her illness and the corresponding treatment plan; which may help guide medical providers when encountering similar cases.

Radiation Oncology

Adjei Boakye E, Nassar SI, Alzouhayli SJ, **Williams AM**, **Chang SS**, Ghanem TA, **Gilbert M**, **Momin S**, **Siddiqui F**, **Wu VF**, and **Tam SH**. Pretreatment Quality of Life and Substance Use Among Patients Diagnosed With Head and Neck Cancer. *Cancer Med* 2024; 13(21):e70399. PMID: 39512120. Full Text

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BACKGROUND: There is a paucity of research on the effects of commonly used substances, such as cannabis and other drugs, on quality of life as a contributor to head and neck cancer (HNC) prognosis. We examined associations between non-alcohol or tobacco substance use (cannabis and other illicit drug) and self-reported quality of life in patients with HNC prior to starting treatment. METHODS: This was a cross-sectional study of patients who presented for routine psych-oncologevaluation prior to treatment between 11/2015 and 9/2022. Primary exposures were cannabis use (never, past, or current users) and current illicit drug use (yes/no). The primary outcome measure was the Functional Assessment of Cancer Therapy-Head and Neck (FACT-HN) subscales (physical, social/family, functional and emotional). Linear regression models examined associations between pretreatment substance use

and FACT-HN subscales adjusting for demographic, socioeconomic, and clinical factors. RESULTS: Of 570 patients, 13.9% endorsed current cannabis and 13.9% current illicit drug use. The mean (SD) scores for FACT-HN subscales were physical well-being = 22.8 (5.0), social well-being = 22.7 (5.5), emotional well-being = 17.5 (4.5), and functional well-being = 18.7 (6.9). In the adjusted models, cannabis use was not independently associated with any FACT-HN subscales. However, patients who currently used illicit drugs reported worse emotional well-being (β = -1.32; 95% CI -2.45 to -0.20). No independent association was found between current illicit drug use and other subscales (physical, social, and functional). CONCLUSIONS: Illicit drug use, but not cannabis use, is negatively associated with pretreatment emotional well-being in patients with HNC. Further research exploring the relationships between longitudinal cannabis and illicit drug use and methods of consumption on QoL and cancer outcomes in patients with head and neck cancer is warranted.

Radiation Oncology

Udumula MP, **Rashid F**, **Singh H**, Pardee T, Luther S, **Bhardwaj T**, **Anjaly K**, **Piloni S**, **Hijaz M**, Gogoi R, **Philip PA**, **Munkarah AR**, **Giri S**, and **Rattan R**. Targeting mitochondrial metabolism with CPI-613 in chemoresistant ovarian tumors. *J Ovarian Res* 2024; 17(1):226. PMID: 39543742. Full Text

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BACKGROUND: There is evidence indicating that chemoresistance in tumor cells is mediated by the reconfiguration of the tricarboxylic acid cycle, leading to heightened mitochondrial activity and oxidative phosphorylation (OXPHOS). Previously, we have shown that ovarian cancer cells that are resistant to chemotherapy display increased OXPHOS, mitochondrial function, and metabolic flexibility. To exploit this weakness in chemoresistant ovarian cancer cells, we examined the effectiveness of the mitochondrial inhibitor CPI-613 in treating preclinical ovarian cancer. METHODS: Chemosensitive OVCAR3, and chemoresistant CAOV3 and F2 ovarian cancer cells lines and their xenografts in nude mice were used. Functional metabolic studies were performed using Seahorse instrument. Metabolite quantification was performed using LC/MS/MS. RESULTS: Mice treated with CPI-613 exhibited a notable increase in overall survival and a reduction in tumor development and burden in OVCAR3, F2, and CAOV3 xenografts. CPI-613 suppressed the activity of pyruvate dehydrogenase and alpha-ketoglutarate dehydrogenase complex, which are two of its targets. This led to a reduction in OXPHOS and tricarboxylic acid cycle activity in all 3 xenografts. The addition of CPI-613 enhanced the responsiveness of chemotherapy in the chemoresistant F2 and CAOV3 tumors, resulting in a notable improvement in survival rates and a reduction in tumor size as compared to using chemotherapy alone. CPI-613 reduced the chemotherapy-induced OXPHOS in chemoresistant tumors. The study revealed that the mechanism by which CPI-613 inhibits tumor growth is through mitochondrial collapse. This is evidenced by an increase in superoxide production within the mitochondria, a decrease in ATP generation, and the release of cytochrome C,

which triggers mitochondria-induced apoptosis. CONCLUSION: Our study demonstrates the translational potential of CPI-613 against chemoresistant ovarian tumors.

Radiation Oncology

Upadhaya T, Chetty IJ, McKenzie EM, **Bagher-Ebadian H**, and Atkins KM. Application of CT-based foundational artificial intelligence and radiomics models for prediction of survival for lung cancer patients treated on the NRG/RTOG 0617 clinical trial. *BJR Open* 2024; 6(1):tzae038. PMID: 39568594. Full Text

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OBJECTIVES: To apply CT-based foundational artificial intelligence (AI) and radiomics models for predicting overall survival (OS) for patients with locally advanced non-small cell lung cancer (NSCLC). METHODS: Data for 449 patients retrospectively treated on the NRG Oncology/Radiation Therapy Oncology Group (RTOG) 0617 clinical trial were analyzed. Foundational AI, radiomics, and clinical features were evaluated using univariate cox regression and correlational analyses to determine independent predictors of survival. Several models were fit using these predictors and model performance was evaluated using nested cross-validation and unseen independent test datasets via area under receiver-operator-characteristic curves, AUCs. RESULTS: For all patients, the combined foundational AI and clinical models achieved AUCs of 0.67 for the Random Forest (RF) model. The combined radiomics and clinical models achieved RF AUCs of 0.66. In the low-dose arm, foundational AI alone achieved AUC of 0.67, while AUC for the ensemble radiomics and clinical models was 0.65 for the support vector machine (SVM). In the high-dose arm, AUC values were 0.67 for combined radiomics and clinical models and 0.66 for the foundational AI model. CONCLUSIONS: This study demonstrated encouraging results for application of foundational AI and radiomics models for prediction of outcomes. More research is warranted to understand the value of ensemble models toward improving performance via complementary information. ADVANCES IN KNOWLEDGE: Using foundational AI and radiomics-based models we were able to identify significant signatures of outcomes for NSCLC patients retrospectively treated on a national cooperative group clinical trial. Associated models will be important for application toward prospective patients.

Radiation Oncology

Yono SS, **Cannella C**, **Gonte M**, **Rama S**, **Zhu S**, **Luker J**, **Evangelista MS**, **Bensenhaver J**, **Walker EM**, and **Atisha D**. Factors associated with breast lymphedema after adjuvant radiation therapy in women undergoing breast conservation therapy. *Breast* 2024; 79:103846. PMID: 39580932. Full Text

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PURPOSE: Breast lymphedema after post-lumpectomy radiation therapy (RT) is poorly defined and difficult to treat. The aim of this study was to define the incidence of breast lymphedema and identify factors associated with the risk of developing breast lymphedema (BL) in women undergoing breast-conserving therapy. METHODS: A retrospective cohort study of patients with early-stage breast cancer who underwent breast-conserving surgery (lumpectomy) followed by RT between January 1, 2014 and July 31, 2019 at a single institution. Women who developed BL, defined as swelling of the breast persisting ≥1 year after RT, were compared with women who did not. Univariate and multivariate regression analyses were used to identify factors associated with risk of BL. RESULTS: A total of 1052 patients were included in the study: 99 (9.6 %) developed BL and 953 (90.6 %) did not develop BL. The mean ± standard deviation age was 62.9 ± 11.1 years and the mean breast volume was 1352.0 ± 744.9 cm(3). Patients with breast volume ≥1500 cm(3) (adjusted odds ratio [aOR] = 2.34; 95 % CI, 1.40-3.91; p = 0.001), Black patients (aOR = 1.78; 95 % CI, 1.12-2.82; p = 0.015), those who received neoadjuvant (aOR = 3.05; 95 % CI, 1.28-7.30; p = 0.012) or adjuvant chemotherapy (aOR = 2.14; 95 % CI, 1.29-3.55; p = 0.003), those with postoperative cellulitis (aOR = 3.94; 95 % CI, 2.20-7.06; p < 0.001), and women who developed arm lymphedema (aOR = 2.94; 95 % CI, 1.50-5.77; p = 0.002) had significantly higher odds of developing BL. CONCLUSION: Patients with larger breast volumes, Black patients, those receiving chemotherapy, and those who develop arm lymphedema or cellulitis may be at higher risk of BL after lumpectomy and RT, suggesting that patients with these risk features may benefit from complementary or alternative surgical approaches and heightened monitoring to avoid BL.

Rehabilitation Services/Physical Therapy/Occupational Health

Koerber SN, **Wager SG**, Zynda AJ, and **Santa Barbara MT**. Scoping Review: Reducing Musculoskeletal Injury Risk Factors for Adaptive Sport Athletes Through Prevention Programs. *Am J Phys Med Rehabil* 2024; 103(11):1045-1050. PMID: Not assigned. Full Text

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The purpose of this scoping review was to identify existing strategies to reduce modifiable risk factors for musculoskeletal (MSK) injury in adaptive athletes. Medline, Embase, Web of Science, and CINAHL were searched. Inclusion criteria required studies written in English, samples of adaptive athletes, and evaluation of any injury prevention programs that would reduce risk factors associated with MSK injury. The literature search resulted in 785 unique articles. Thirty-two full text articles were screened for inclusion. Four studies of wheelchair basketball and wheelchair rugby injury prevention programs were included in the final analysis, and these studies demonstrated increase in shoulder range of motion, decreased shoulder pain, and decreased cumulative traumatic disorders; all of which was proposed to reduce risk of shoulder injury. However, these studies were small and did not include control groups. Future research is needed to implement programs that reduce risk factors of MSK injuries and reduce health disparities for adaptive athletes.

Sleep Medicine

Roehrs T. How openness and inquisitiveness led to a career as a sleep researcher and a broad contribution to sleep science. *Sleep Adv* 2024; 5(1):zpae078. PMID: 39507557. Full Text

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After describing my serendipitous discovery of sleep research as a potential career, I note how my openness and inquisitiveness led to a broad contribution to sleep science. After a PhD in biological psychology, I completed a postdoctoral fellowship in alcoholism and drug abuse. This led to my first studies on rebound insomnia. I then describe early studies on the relation of sleep continuity/sleep time to daytime sleepiness and function. This led to studies of how basal sleep time/sleepiness interacts with the effects of sedating and alerting drugs. Several collaborations led to studies on sleep and hot flashes in perimenopausal women and on sleep and acute and chronic pain.

Sleep Medicine

Van Dongen HPA, Leary EB, **Drake C**, Bogan R, Jaeger J, Rosenberg R, Streicher C, and Tabuteau H. Results of the SHARP Study: A Randomized, Placebo-Controlled, Double-Blind, Repeated-Measures, Crossover, Phase IV Clinical Trial of the Effect of the Wake-Promoting Agent Solriamfetol on Cognitive Function in Obstructive Sleep Apnea With Excessive Daytime Sleepiness and Cognitive Impairment. *Chest* 2024; Epub ahead of print. PMID: 39528111. Full Text

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BACKGROUND: Obstructive sleep apnea (OSA) causes episodes of fragmented sleep and intermittent hypoxia and leads to excessive daytime sleepiness (EDS). Deficits in cognitive function are a troublesome symptom in patients with OSA and EDS. RESEARCH QUESTION: How does solriamfetol affect cognitive function in patients with cognitive impairment associated with OSA and EDS? STUDY DESIGN AND METHODS: SHARP was a phase 4, randomized, double-blind, placebo-controlled, crossover trial. Participants (N=59) were randomized to receive placebo or solriamfetol (75 mg/day for 3 days, then 150 mg/day) for 2 weeks, with crossover separated by a 1-week washout. Efficacy measures included the Coding subtest, comparable to the Digit Symbol Substitution Test, of the Repeatable Battery for the Assessment of Neuropsychological Status (DSST RBANS), the British Columbia Cognitive Complaints Inventory (BC-CCI), Patient Global Impression of Severity (PGI-S), and Epworth Sleepiness Scale (ESS). The primary endpoint was change from baseline in average post-dose DSST RBANS scores. Secondary endpoints were changes from baseline in BC-CCI, PGI-S, ESS, and DSST RBANS scores at 2, 4, 6, and 8 hours post-dose. Safety was monitored by treatment-emergent adverse events (TEAEs). RESULTS: Solriamfetol significantly improved post-dose average DSST RBANS scores compared with placebo (P=0.009; effect size [Cohen's d] 0.37). When evaluated at each 2-hour timepoint, cognitive function was significantly improved at 2, 6, and 8 hours after dosing (all P<0.05). During solriamfetol treatment, there were significant improvements in BC-CCI (P=0.002; d=0.45), PGI-S (P=0.0mixed; d=0.29), and ESS (P=0.004; d=0.40) compared with placebo. The most common TEAEs were nausea (7%) and anxiety (3%). INTERPRETATION: SHARP demonstrated that solriamfetol can improve objective and subjective measures of cognitive function in patients with cognitive impairment associated with OSA and EDS. CLINICAL TRIAL REGISTRATION: NCT04789174; EudraCT: 2020-004243-92.

Surgery

Chowdhury SR, Sirotich E, Guyatt G, Gill D, Modi D, Venier LM, Mahamad S, Chowdhury MR, Eisa K, Beck CE, Breakey VR, de Wit K, Porter S, Webert KE, Cuker A, O'Connor C, DiRaimo JM, Yan JW, Manski C, Kelton JG, Kang M, Strachan G, Hassan Z, Pruitt B, Pai M, Grace RF, Paynter D, Charness J, Cooper N, Fein S, Agarwal A, Nazaryan H, Siddiqui I, Leong R, Pallapothu S, Wen A, Xu E, Liu B, Shafiee A, Rathod P, **Kwon H**, Dookie J, Zeraatkar D, Thabane L, Couban R, and Arnold DM. Treatment of Critical Bleeds in Patients With Immune Thrombocytopenia: A Systematic Review. *Eur J Haematol* 2024; Epub ahead of print. PMID: 39552264. Full Text

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OBJECTIVES: Evidence-based protocols for managing bleeding emergencies in patients with immune thrombocytopenia (ITP) are lacking. We conducted a systematic review of treatments for critical bleeding in patients with ITP. METHODS: We included all study designs and extracted data in aggregate or individually for patients who received one or more interventions and for whom any of the following outcomes were reported: platelet count response, bleeding, disability, or death. RESULTS: We identified 49 eligible studies reporting 112 critical bleed patients with ITP, including 66 children (median age, 10 years), 36 adults (median age, 41.5 years), and 10 patients with unreported age. Patients received corticosteroids (n = 67), IVIG (n = 49), platelet transfusions (n = 41), TPO-RAs (n = 17), and splenectomy (n = 28) either alone or in combination. Studies reported 29 different treatment combinations, the 5 most common were corticosteroids, platelet transfusion and splenectomy (n = 13), corticosteroids and IVIG

(n = 13), or splenectomy alone (n = 13); IVIG alone (n = 11); and corticosteroids, IVIG and TPO-RA (n = 8). Mortality among patients with critical bleeds in ITP was 30.6% for adults and 19.7% for children. CONCLUSIONS: The effects of individual treatments on patient outcomes were uncertain due to very low-quality evidence. There is a need for a standardized approach to the treatment of ITP critical bleeds. SYSTEMATIC REVIEW REGISTRATION: CRD42020161206.

Surgery

Dobesh K, Natour AK, **Kabbani LS**, **Rteil A**, **Lee A**, **Nypaver TJ**, **Weaver M**, and **Shepard AD**. Patients with Acute Lower Limb Ischemia Continue to Have Significant Morbidity and Mortality. *Ann Vasc Surg* 2024; 108:127-140. PMID: 38848889. Full Text

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BACKGROUND: The treatment of acute lower limb ischemia (ALLI) has evolved over the last several decades with the availability of several new treatment modalities. This study was undertaken to evaluate the contemporary presentation and outcomes of ALLI patients. METHODS: We retrospectively analyzed data from a prospectively collected database of all patients who presented to our tertiary referral hospital with acute ischemia of the lower extremity between May 2016 and October 2020. The cause of death was obtained from the Michigan State Death Registry. RESULTS: During the study period, 233 patients (251 lower limbs) were evaluated for ALLI. Seventy-three percent had thrombotic occlusion, 24% had embolic occlusion, and 3% due to a low flow state. Rutherford classification of ischemia severity was 7%, 49%, 40%, and 4% for Rutherford grade I, IIA, IIB, and III, respectively. Five percent underwent primary amputations, and 6% received medical therapy only. The mean length of stay was 11 +/- 9 days. Nineteen percent of patients were readmitted within 30 days of discharge. At 30 days postoperatively, mortality was 9% and limb loss was 19%. On multivariate analysis, 1 or no vessel runoff to the foot postoperatively was associated with higher 30-day limb loss. Patients with no run-off vessels postoperatively had significantly higher 30-day mortality. Cardiovascular complications accounted for most deaths (48%). At 1-year postoperatively, mortality and limb loss reached 17% and 34%, respectively. CONCLUSIONS: Despite advances in treatment modalities and cardiovascular care, patients presenting with ALLI continue to have high mortality, limb loss, and readmission rates at 30 days.

Surgery

Hider AM, Bonham AJ, Petersen S, Stricklen A, Ross R, Finks JF, **Carlin AM**, and **Varban OA**. Analysis of emergent reoperations after bariatric surgery: an important metric for safe same-day surgery. *Surg Obes Relat Dis* 2024; Epub ahead of print. PMID: 39547888. Full Text

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BACKGROUND: Early reoperation after sleeve gastrectomy (SG) and Roux-en-Y gastric bypass (RYGB) is a severe adverse event that may increase the risk of perioperative mortality if there is a delay in care. However, it is unclear what proportion of reoperations occur within 24 hours of surgery and who is at greater risk, which may impact the safety of performing safe same-day surgery. OBJECTIVES: To evaluate the incidence of reoperation in the first 24 hours after primary SG and RYGB. SETTING: Michigan Bariatric Surgery Collaborative, Ann Arbor, Michigan. METHODS: Using a statewide bariatric surgery data registry, patients undergoing primary SG (n = 49,848) and RYGB (n = 11,267) cases were analyzed. Patients who had a subsequent reoperation were identified and reasons for reoperation were compared between those occurring <24 hours versus >24 hours. In addition, patients who underwent a reoperation <24 hours were compared with patients who underwent primary SG or RYGB and did not

experience any complications. RESULTS: The overall rate of reoperation was .72% for SG and 2.1% for RYGB. Reoperation <24 hours of index procedure was 32.0% after SG and 24.2%, after gastric bypass, with the most common reason being hemorrhage (86.15%% and 55.4% respectively). Older age, hypertension, liver disease, and longer operative times were associated with reoperation <24 hours after SG, whereas longer operative times were associated with reoperation <24 hours after RYGB. Concurrent hiatal hernia repair was not associated with increased risk. CONCLUSIONS: Reoperation after primary bariatric surgery is rare but occurs within 24 hours in approximately one third of the cases after SG and one quarter of cases after RYGB. Older patients with significant comorbidities are at increased risk and should be considered poor candidates for same-day surgery given the possibility of an early life-threatening event.

Surgery

Hutchings H, **Lisznyai E**, **Onuoha A**, and **Okereke I**. Inclusion of Underrepresented Groups in Noteworthy Thoracic Oncology Trials. *Ann Surg Oncol* 2024; Epub ahead of print. PMID: 39550480. Full Text

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Surgery

Yono SS, **Cannella C**, **Gonte M**, **Rama S**, **Zhu S**, **Luker J**, **Evangelista MS**, **Bensenhaver J**, **Walker EM**, and **Atisha D**. Factors associated with breast lymphedema after adjuvant radiation therapy in women undergoing breast conservation therapy. *Breast* 2024; 79:103846. PMID: 39580932. Full Text

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PURPOSE: Breast lymphedema after post-lumpectomy radiation therapy (RT) is poorly defined and difficult to treat. The aim of this study was to define the incidence of breast lymphedema and identify factors associated with the risk of developing breast lymphedema (BL) in women undergoing breast-conserving therapy. METHODS: A retrospective cohort study of patients with early-stage breast cancer who underwent breast-conserving surgery (lumpectomy) followed by RT between January 1, 2014 and July 31, 2019 at a single institution. Women who developed BL, defined as swelling of the breast persisting ≥1 year after RT, were compared with women who did not. Univariate and multivariate regression analyses were used to identify factors associated with risk of BL. RESULTS: A total of 1052 patients were included in the study: 99 (9.6 %) developed BL and 953 (90.6 %) did not develop BL. The mean ± standard deviation age was 62.9 ± 11.1 years and the mean breast volume was 1352.0 ± 744.9 cm(3). Patients with breast volume ≥1500 cm(3) (adjusted odds ratio [aOR] = 2.34; 95 % CI, 1.40-3.91; p = 0.001), Black patients (aOR = 1.78; 95 % CI, 1.12-2.82; p = 0.015), those who received neoadjuvant (aOR = 3.05; 95 % CI, 1.28-7.30; p = 0.012) or adjuvant chemotherapy (aOR = 2.14; 95 % CI, 1.29-3.55; p = 0.003), those with postoperative cellulitis (aOR = 3.94; 95 % CI, 2.20-7.06; p < 0.001), and women who developed arm lymphedema (aOR = 2.94; 95 % CI, 1.50-5.77; p = 0.002) had significantly higher odds of developing BL. CONCLUSION: Patients with larger breast volumes, Black patients, those receiving chemotherapy, and those who develop arm lymphedema or cellulitis may be at higher risk of BL after lumpectomy and RT, suggesting that patients with these risk features may benefit from complementary or alternative surgical approaches and heightened monitoring to avoid BL.

Urology

Finati M, **Stephens A**, **Cirulli GO**, **Chiarelli G**, **Tinsley S**, **Morrison C**, Sood A, Buffi N, Lughezzani G, Salonia A, Briganti A, Montorsi F, Busetto GM, **Rogers C**, Carrieri G, and **Abdollah F**. Association of Race and Area of Deprivation Index with Prostate Cancer Incidence and Lethality. *JNCI Cancer Spectr* 2024; Epub ahead of print. PMID: 39576690. Full Text

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BACKGROUND: Socio-economic and demographical factors contribute to disparity in prostate cancer (PCa) outcomes. We examined the impact of area of deprivation index (ADI) and race on PCa incidence and lethality in a North-American cohort. METHODS: Our cohort included men who received at least one PSA test within our Health System (1995-2022). An ADI score was assigned to each patient based on their residential census block, ranked as a percentile of deprivation relative to the national level. Individuals were further categorized into quartiles, where the fourth one (ADI 75-100) represented those living in the most deprived areas. We investigated PCa incidence and lethality, using cumulative incidence estimates and competing-risk regression. An ADIxRace interaction term examined whether the relationship between ADI and outcomes varied based on race. RESULTS: We included 134,366 patients, 25% of whom were NHB. Median (IQR) follow-up was 8.8 (5-17) years. At multivariate analysis, individuals from the third (ADI 50-74, 95% CI: 0.83-0.95) and the fourth quartile (ADI ≥ 75, 95% CI: 0.75-0.86) showed significant reduced HRs for PCa incidence, when compared with the first quartile (ADI < 25, all p < .001). In contrast to the overall cohort, PCa incidence increased with ADI in NHB men, who were persistently at higher hazard for both PCa incidence and lethality than NHW, across all ADI strata (all p < .001). CONCLUSIONS: Living in more deprived areas was associated with lower PCa incidence and higher lethal disease rate. Conversely, PCa incidence increased with ADI for NHB, who consistently showed worse outcomes than NHW individuals, regardless of ADI.

Urology
Stephens A, Morrison C, Lutchka J, Richard C, Hares K, **Tinsley S**, Sood A, **Shannon B**, **Rogers C**, **Shill J**, **Shakir N**, and **Abdollah F**. Prostate Cancer Screening and Diagnoses in the Transfeminine Population. *Urology* 2024; Epub ahead of print. PMID: 39580118. Full Text

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OBJECTIVES: To examine the frequency and rate at which transfeminine patients receive prostate specific antigen testing compared to a matched cisgender cohort. METHODS: Patients with prostates who had encounters in our health system, are currently age 46 or older, and who are alive were included in our study. Transfeminine patients were identified through diagnosis codes and chart review. A 1:5 matched cohort was created based on patient age, race, and area deprivation index. Conditional logistic regression was done to compare odds of receiving any testing and Poisson regression was done to compare the total tests. RESULTS: A total of 275,112 patients were included in the study, of which 315 were confirmed to be transfeminine. A well matched 1:5 propensity matched cohort was created. Our results suggest that transfeminine patients were 0.28 (95% CI 0.20 - 0.38, p<0.001) times as likely as cisgender patients to receive at least one PSA test at our institution and received only 32% (95% CI 27%-37%, p <0.001) as many total PSA tests. CONCLUSION: Until more is known about the best practices for PSA testing in the transfeminine population, these patients should receive PSA testing. However, our results suggest that transfeminine patients are significantly less likely to receive any testing and significantly fewer tests in their lifetimes, which may represent a significant healthcare disparity.

Urology
Tinsley SA, **Stephens A**, **Finati M**, **Chiarelli G**, **Cirulli GO**, **Morrison C**, **Richard C**, **Hares K**, **Lutchka J**, Sood A, Buffi N, Lughezzani G, Bettocchi C, Salonia A, Briganti A, Montorsi F, Carrieri G, **Rogers C**, and **Abdollah F**. Surgery versus radiation for clinically positive nodal prostate cancer in an other cause mortality risk weighted cohort. *Int Urol Nephrol* 2024; Epub ahead of print. PMID: 39528898. Full Text

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PURPOSE: This study examined cancer control metrics between surgery and radiation for clinically positive nodal prostate cancer in an other-cause mortality weighted cohort, to circumvent limitations in previous studies. METHODS: The Surveillance, Epidemiology, and End Results Research Plus database was queried to identify men with clinically positive nodal prostate cancer at diagnosis between 2004 and 2017 who were treated with surgery or radiation. A competing-risks regression model was used to calculate the 10-year other-cause mortality risk using available covariates, including treatment type. Inverse probability of treatment weighting was then used to balance covariates, including other-cause mortality risk. Then, competing-risks cumulative incidence curves and multivariable models, which were

weighted on the calculated other-cause mortality risk, were used to examine the impact of treatment type on cancer-specific mortality, after accounting for covariates. RESULTS: 4739 patients underwent surgery whereas 1039 underwent radiation. The median follow-up was 4.7 years (2.6-8.2). Other-cause mortality was statistically different between treatment arms in the unweighted cohort (Gray's p = 0.005), but that difference disappeared in the weighted cohort (Gray's p = 0.2). At 10 years, the cancer-specific mortality rate was 27.6% (22.2-33.9) for radiation versus 18.1% (16.2-20.3) for surgery (p < 0.001). On competing-risks multivariable analysis, radiation had 1.86-fold (95% CI 1.69-2.12) higher hazard likelihood from one year to the next compared to surgery (p < 0.001). CONCLUSION: Clinically positive nodal patients treated with radiation fare worst cancer-specific mortality than those that underwent surgery, using calculated other-cause mortality risk.

Urology

Wang M, Wilke A, Goorman S, McElroy A, Vercnocke J, Moser AM, Van Til M, Semerjian A, Mirza M, Maatman T, Kozminski M, **Rogers CG**, Lane BR, and Ginsburg K. The use of nephron-sparing intervention does not appear to be compromised after a period of active surveillance for patients with cT1 renal masses. *Urol Oncol* 2024; Epub ahead of print. PMID: 39550302. Full Text

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INTRODUCTION AND OBJECTIVE: It remains unknown whether the use of nephron sparing intervention (NSI) is impacted with delayed intervention after a period of active surveillance (AS) compared with immediate intervention for patients with clinically localized renal masses ≤7cm (cT1RMs). We hypothesized that the proportion of patients undergoing NSI is similar among patients undergoing immediate and delayed intervention for cT1RMs. METHODS: We retrospective reviewed the prospectively maintained Michigan Urological Surgery Improvement Collaborative (MUSIC) registry for patients undergoing intervention for cT1RMs from 05/2017 to 09/2023. The primary outcome was type of treatment received: radical nephrectomy (RN) or NSI (partial nephrectomy, ablation, or stereotactic body radiation therapy). The main independent variable was timing of treatment: immediate (treatment within 90 days) vs. delayed intervention (>90 days). We fit a mixed-effects multivariable logistic regression model to assess for the adjusted association of immediate vs delayed intervention with the receipt of NSI and estimate an adjusted probability of NSI. RESULTS: We identified 2,156 patients, of whom 93% underwent immediate intervention and 7% underwent a period of AS prior to delayed intervention. Median time from initial visit to intervention was 1.4 (IQR 0.9-2.0) and 13 (IQR 7.7-21) months in the immediate vs delayed intervention groups, respectively. In the multivariable model, we did not appreciate a significant association between delayed intervention with receipt of NSI (OR 0.99, 95% CI 0.57-1.70, P >0.9). The adjusted proportion of NSI was 75% and 78% for patients in the immediate and delayed intervention cohorts, respectively. CONCLUSION: Patients undergoing delayed intervention after AS had similar use of NSI compared with those undergoing immediate intervention. Active surveillance for patients with cT1RMs does not appear to compromise the ability to perform nephron sparing interventions.

Conference Abstracts

Cardiology/Cardiovascular Research
Almajed MR, **Saleem A**, **Wexler B**, **Patton J**, **Villablanca PA**, and **Rabbani B**. RECIPE FOR DISASTER: PROSTHETIC AORTIC VALVE FAILURE, BETA-BLOCKERS, AND CALCIUM-CHANNEL BLOCKERS. *J Am Coll Cardiol* 2024; 83(13):2996-2996. Full Text

[Almajed, Mohamed Ramzi; Saleem, Abdulmalik; Wexler, Benjamin; Patton, Julia; Villablanca, Pedro Arturo; Rabbani, Bobak] Henry Ford Hosp, Detroit, MI USA.

Hematology-Oncology
Ghanem A, **Gilbert M**, **Keller C**, **Gardner G**, **Mayerhoff R**, and **Siddiqui F**. (OA08) The role of Radiation for Recurrent Laryngeal Carcinoma in Situ compared to First Line Radiotherapy. *Am J Clin Oncol* 2024; 47(10):S7. Full Text

A. Ghanem, Department of Radiation Oncology, Henry Ford Cancer Institute, Alexandria University, Egypt

Background: Laryngeal carcinoma in situ (CIS) is a common premalignant condition with a risk for multiple recurrences and progression to invasive laryngeal squamous cell carcinoma (SCC). Objectives:We explored the impact of radiotherapy (RT) on outcomes for laryngeal CIS in the first line compared to recurrent cases. Methods: We queried our in-house Head and Neck Cancer database for laryngeal CIS patients treated between 6/2001 and 12/2021. We excluded low-grade dysplasia, CIS with synchronous invasive SCC or metachronous SCC within 3 months of the initial CIS biopsy and cases with inadequate follow up. Patients initially received either definitive RT or other modalities (CO2/KTP transoral laser ablation, PDT or surgery: transoral endoscopic excision/stripping). After 1st line treatment, follow-up includes visits every 3-6 months with laryngoscopy and biopsies as appropriate. For recurrent cases (CIS > 6 months of 1st line treatment), salvage therapies received, and long-term outcomes were reported. We investigated post-RT CIS recurrence free (RFS), invasive SCC free (IFS) and disease free (DFS) survival for patients managed with 1st line RT vs those who received 2nd line RT after recurrence using Kaplan-Meier curves and logrank test. We also compared long term outcomes for RT vs non-RT modalities. Results: 85 CIS cases were included: median age 65 years (IQR: 55-74), 73 males (85%) and 70 white (82.4%). 86% had a history of smoking with median pack year of 38 (IQR: 20-55) and 66% had a history of alcohol use. CIS was glottic in most of the cases (90.6%: 66% unilateral, 21% bilateral & 13% involved anterior commissure); with only 9.4% in the supraglottic region. RT was used in 49.4% (n=42) with median dose of 63 Gy/28 fractions, mainly by 3D conformal RT (76%). Non-RT modalities, 50.6% (n=43): surgery alone (46.5%), CO2/KTP laser (32.6%) or PDT (20.9%). RT and non-RT patients were well-balanced except for Charlson comorbidity index: median 2 (IQR 1-3) in non-RT vs 1 (IQR 0-2) in RT; p= 0.007. After a median follow-up of 4.8 years (IQR 3.5), only 4 cases (9.5%) of RT treated cases had CIS recurrences compared to 31 cases (72.1%) for non- RT candidates of whom 12 cases (34%) received 2nd line RT (Figure 1). After RT, 2nd line RT recipients had non-significantly different 2-year-RFS (100% vs 95.1% (88.8-100), IFS (89% (80-100) vs 81% (60-100)) and DFS (84% (72-97) vs 81% (60-100)) compared to 1st line RT (p >0.05 for all); and this was maintained at 5-years. Overall, IFS and overall survival and were non-different among all treatment modalities and all CIS recurrences were successfully salvaged with ultimate RFS of 100%. Conclusions: Laryngeal CIS can be treated with a wide range of modalities including RT which has better recurrence free survival. Non-RT treatments were more commonly used with frail patients with higher comorbidities and can be salvaged successfully with many options including RT with equivalent long-term results. (Figure Presented).

Hypertension and Vascular Research
Ivanov V, **Arkhipov SN**, and **Pavlov TS**. Role of Pannexin-1/P2X7 Interaction in Kidney Cyst Development. *J Am Soc Nephrol* 2024; 35:648. Full Text

V. Ivanov, Henry Ford Health System, Detroit, MI, United States

Background: Active extracellular ATP release is conducted by ion channel pannexin-1 (Panx1), expressed in the kidney and previously has been shown to be upregulated in both autosomal dominant and recessive polycystic kidney disease (ADPKD, ARPKD) cystic epithelium and coupled with upregulation of P2X7. Mechanism of regulation of Panx1 channel has not well characterized. We hypothesized that activation of purinergic signaling is a major factor of cystogenesis and regulation of this signaling involves an interaction with P2X7. Methods: We used a model of cystogenesis to test if purinergic signaling affects growth of cysts formed by mpkCCDcl4 cells in Matrigel in a presence of Forskolin with further evaluation of protein and mRNA expression. To test the regulation of purinergic signaling and interaction of Panx1 and P2X7, patch-clamp experiments in transfected or co-transfected CHO cells and co-immunoprecipitation has been performed. Results: Stimulation of P2X receptors of mpkCCDcl4 cysts with α, βMe-ATP, an ATP analog drug, stimulates cyst growth (mean cyst size; vehicle 2903 um2 vs 4343 um2 treated<0.001) and Panx1 protein expression ($p<0.05$) with no effect on mRNA level. Co-immunoprecipitation experiments in mpkCCDcl4 cells revealed that P2X7 receptors bind panx1. Treatment of CHO-K1 cells, co-transfected with PANX1 and P2X7 cDNA plasmids, with αβ-MeATP significantly and reversibly stimulated the activity of Panx1 channels. mRNA level of expression of Panx1 and P2X7 in kidney of Pkd1RC/RC mice was increased compared to the normal mice (Panx1 6.79-fold, $p<0.05$; P2X7 3.52-fold, $p<0.05$). Conclusions: Stimulation of P2X7 receptor promote cystogenesis in vitro with subsequent increase of Panx1 protein expression. Activity of Panx1 channel is increased in a similar manner. Giving previously investigated data on Panx1 and P2X7 expression in cystic models, we assume that this mechanism contributes to the ATP release into the cystic space and act as a major factor in cystogenesis.

Internal Medicine
Ahmed H, Ismayl MIM, Mangat MMM, Palicherla APA, Checketts T, **Ellauzi RER**, El-Shaer AEA, Dufani JDJ, Aboeata AAA, Anavekar NAN, and Goldsweig AGA. Outcomes of bariatric surgery in obese patients with heart failure:a meta-analysis. *Eur Heart J* 2024; 45:2. Full Text

[Ahmed, H.; Palicherla, A. P. Anirudh; Checketts, T. K. Thomas Rees; El-Shaer, A. E. Ahmed; Dufani, J. D. Jalal; Aboeata, A. A. Ahmed] Creighton Univ, Med Ctr, Omaha, NE USA. [Ismayl, M. I. Mahmoud; Anavekar, N. A. Nandan] Mayo Clin, Dept Cardiovasc Med, Rochester, MN USA. [Mangat, M. M. Manvir] Trinity Sch Med, Warner Robins, GA USA. [Ellauzi, R. E. Rama] Henry Ford Hosp, Detroit, MI USA. [Goldsweig, A. G. Andrew] Baystate Med Ctr, Springfield, MA USA. Hospital; Baystate Medical Center hasaanahmed@creighton.edu

Internal Medicine
Ahmed H, Ismayl MIM, Mangat MMM, Palicherla APA, **Ellauzi RER**, Kalathil R, Pusapati SPS, Dufani JDJ, Aboeata AAA, Anavekar NAN, and Goldsweig AGA. Unlocking the future: machine learning models for predicting in-hospital mortality after transcatheter aortic valve replacement: a single-arm meta-analysis. *Eur Heart J* 2024; 45:2. Full Text

[Ahmed, H.; Palicherla, A. P. Anirudh; Kalathil, R. K. Ruth Ann; Pusapati, S. P. Suma; Dufani, J. D. Jalal; Aboeata, A. A. Ahmed] Creighton Univ, Med Ctr, Omaha, NE USA. [Ismayl, M. I. Mahmoud; Anavekar, N. A. Nandan] Mayo Clin, Dept Cardiovasc Med, Rochester, MN USA. [Mangat, M. M. Manvir] Trinity Sch Med, Warner Robins, GA USA. [Ellauzi, R. E. Rama] Henry Ford Hosp, Detroit, MI USA. [Goldsweig, A. G. Andrew] Baystate Med Ctr, Springfield, MA USA. Hospital; Baystate Medical Center hasaanahmed@creighton.edu

Internal Medicine
Almajed MR, **Saleem A**, **Wexler B**, **Patton J**, **Villablanca PA**, and **Rabbani B**. RECIPE FOR DISASTER: PROSTHETIC AORTIC VALVE FAILURE, BETA-BLOCKERS, AND CALCIUM-CHANNEL BLOCKERS. *J Am Coll Cardiol* 2024; 83(13):2996-2996. Full Text

[Almajed, Mohamed Ramzi; Saleem, Abdulmalik; Wexler, Benjamin; Patton, Julia; Villablanca, Pedro Arturo; Rabbani, Bobak] Henry Ford Hosp, Detroit, MI USA.

Nephrology

Kaur S, **Mahfouz RT**, and **Reddy S**. The Proteinuria Puzzle of Pregnancy: Membranous Nephropathy Unmasked. *J Am Soc Nephrol* 2024; 35:1159. Full Text

S. Kaur, Henry Ford Hospital, Detroit, MI, United States

Introduction: The evaluation of proteinuria in pregnancy can be a challenge. While proteinuria is commonly associated with conditions like pre-eclampsia during pregnancy, it is important to recognize that there can be other underlying causes as well. Membranous nephropathy is one such cause. Case Description: In this case, a 23-year-old female G5P1031 with a family history of IgA nephropathy presented at 36 weeks of gestation due to oligohydramnios. On admission, she displayed elevated blood pressure (146/82 mmHg) accompanied by headaches, along with facial and leg swelling persisting for several months. Further investigation revealed significant proteinuria, indicating nephrotic syndrome. Tests showed a notably high urine protein to creatinine ratio 11 mg/mg. Diagnosis of preeclampsia with severe features was made, necessitating induced labor. Post-delivery, the patient continued to exhibit nephrotic-range proteinuria. Serum albumin level was low 2.5 g/dL, prompting additional tests that revealed elevated phospholipase A2 receptor (PLA2R) level 17 RU/mL with uptrend to 47 RU/mL. Subsequent kidney biopsy showed positive staining for PLA2R in the glomerular deposits (see figure 1), confirming the diagnosis of primary membranous glomerulopathy. Treatment commenced with ACE inhibitor, leading to favorable response characterized by decreasing PLA2R levels to <2 RU/mL and improved proteinuria. Discussion: This case underscores the intricate relationship between pregnancyrelated complications such as pre-eclampsia and underlying renal conditions like primary membranous nephropathy. Effective management requires a comprehensive approach addressing both maternal and fetal health considerations. (Figure Presented).

Nephrology

Kaur S, and **Sohaney R**. From Health to Harm: Acute Oxalate Nephropathy in a Weightlifter. *J Am Soc Nephrol* 2024; 35:1218. Full Text

S. Kaur, Henry Ford Hospital, Detroit, MI, United States

Introduction: Oxalate nephropathy is a rare condition characterized by deposition of calcium oxalate within the kidney tubules, typically associated with acute tubular injury. This phenomenon arises from an excess of urinary calcium oxalate, leading to the precipitation of insoluble calcium oxalate crystals within the kidney tubules. Case Description: A healthy 33-year-old male presented with four days of nausea and vomiting. Laboratory work up showed his serum creatinine (SCr) was 5.4 mg/dL and BUN was 53 mg/dL, compared to a SCr of 1 mg/dL four years prior. Urinalysis revealed 27 RBC/hpf and no protein; with imaging showing no hydronephrosis. A kidney biopsy demonstrated diffuse acute tubular injury with associated calcium oxalate deposition in tubular lumens (see figure 1), consistent with acute oxalate nephropathy. SCr improved modestly to 4.8 mg/dL after 48 hours of aggressive hydration. The patient reported no prior abdominal surgeries, diarrhea, or vitamin C supplements. Upon further questioning, the patient disclosed a rigorous weight training regimen, along with the use of several supplements including a pre-workout and creatine. He was eating a high protein diet and juicing with an abundance of spinach. He was instructed to discontinue juicing and all supplements. Subsequent investigation post-discharge revealed normal vitamin B6 levels, SCr 3.8 mg/dL, 24-hour urine oxalate 76 mg/day (normal <45 mg/day), urine sodium 528 mmol/volume, urine calcium 216 mg/volume, uric acid 954 mg/volume, creatinine clearance 68 mL/min, and total urine volume 6L/day. Discussion: Secondary hyperoxaluria from excessive ingestion of high oxalate foods is uncommon. Juicing of green leafy vegetables provides large oxalate loads (spinach: ~650mg oxalate/cup). Exercise supplementation, widely used by amateur and professional athletes, is believed to enhance athletic performance yet is largely unregulated. With the escalating popularity of juicing and exercise supplementation, consulting healthcare professionals can help individuals navigate risks and benefits.

Nephrology

Osorio LG, **Onofrey KT**, **Kabbani L**, and **Kumbar LM**. A Novel Use of JETi Thrombectomy Device Mediates Embolic Complication during Graft Thrombectomy. *J Am Soc Nephrol* 2024; 35:626. Full Text

L.G. Osorio, Henry Ford Hospital, Detroit, MI, United States

Introduction: We present a case detailing the use of a novel thrombectomy device to treat acute upper limb ischemia as a complication of percutaneous arteriovenous graft (AVG) thrombectomy. The JETi Hydrodynamic thrombectomy System (Abbot Vascular, Abbot Park, IL) is a mechanical thrombectomy device indicated for peripheral vasculature which has demonstrated efficacy in acute venous thromboembolism1 and acute arterial limb ischemia (ALI)2. Case Description: A 59-year-old female presented with a clotted AVG of 6-day duration. Mechanical rheolytic thromboaspiration using the Angiojet Thrombectomy system (Boston Scientific, Marlborough, MA) was performed followed by angioplasty of venous stenosis. Stenosis at arterial anastomosis was also identified and angioplastied. Completion angiogram showed patent AVG with no residual stenosis. Completion arteriogram also revealed an embolus in the distal brachial artery with no flow distal to the occlusion. Angioplasty and Angiojet thrombectomy interventions proved unsuccessful. Subsequently, the JETi thrombectomy system was employed, leading to the successful retrieval of the clot and restoration of blood flow into the forearm. Discussion: While arterial embolism during percutaneous thrombectomy of dialysis access is a recognized complication, it is uncommon.3 The JETi thrombectomy system integrates clot fragmentation and catheter aspiration.1 Traditionally used for deep venous thrombosis and ALI, this case exemplifies a unique utilization of the of the JETi system in managing a complication from AVG thrombectomy where more traditional methods failed. The JETi thrombectomy system presents a promising alternative for addressing embolic complications resulting from percutaneous AVG thrombectomies and warrants consideration as a primary treatment modality. However, further studies investigating AVG thrombectomies are imperative to ascertain its suitability as a standard of care.

Nephrology

Roche MS, Wild MG, **Mahfouz RT**, **Rajagopal A**, **Osorio LG**, **Mojarrab JN**, Henry-Okafor Q, Liddell T, Fissell RB, Nair D, Prigmore HL, Greevy R, Cavanaugh KL, Tindle HA, and Umeukeje EM. Apathy, Depression, and Hemodialysis Adherence in African American Patients. *J Am Soc Nephrol* 2024; 35:362. Full Text

M.S. Roche, Henry Ford Health System, Detroit, MI, United States

Background: African Americans (AAs) have a four-fold higher prevalence of endstage kidney disease (ESKD), high depression risk, and poor adherence to in-center hemodialysis (HD) compared to Whites. Depression and Apathy, and their association with HD adherence, are greatly understudied in AAs. Methods: Validated surveys assessing depressive symptoms (Center for Epidemiologic Studies Depression scale, [range:0-30], higher scores indicating more depressive symptoms) and trait apathy (Apathy Evaluation Scale, [range:7-28], higher scores indicating less apathy), were administered to a multi-site cohort of AAs at 3 HD clinics. Nonadherence was defined as mean proportion of shortened HD sessions (i.e.,>15 minutes less than prescribed HD), and missed HD sessions over the 3-month post-baseline survey period; and mean number of missed/shortened sessions standardized to 36 sessions. Results: AAs (N = 210; mean age 56; 56% male) had been on HD for at least 90 days. About one-third had a high school education or less; earned $10,000 /year or less; and lived alone. Mean number of missed and shortened HD sessions per 36 sessions was 1.8(±3.24) and 3.24(±5.04) respectively. Prevalence of significant depressive symptoms was 29.0%. Higher depressive symptoms (Fig.1) ($r = 0.23$; $p = 0.001$) and more apathy ($r = -0.15$; $p = 0.029$) correlated with shortened HD but not missed HD sessions. Conclusions: Higher depressive symptoms and more apathy correlated with more shortened sessions in AAs on HD. Motivational strategies to reduce depressive symptoms and apathy, may be a novel way to improve adherence to HD among AAs, curb racial disparities, and promote kidney health equity. (Figure Presented).

Nephrology

Thompson SM, and **Kumbar LM**. A Rare Case of Leukocyte Chemotactic Factor 2 (ALECT2)-Associated Amyloidosis and Membranoproliferative Glomerulonephritis (MPGN) Associated with Cryoglobulinemia. *J Am Soc Nephrol* 2024; 35:754. Full Text

S.M. Thompson, Henry Ford Health System, Detroit, MI, United States

Introduction: Membranoproliferative glomerulonephritis (MPGN) associated with cryoglobulinemia is an uncommon renal condition, often secondary to infectious or autoimmune etiologies. Hepatitis B infection less frequently manifests as cryoglobulinemia compared to hepatitis C. Concurrently, Leukocyte chemotactic factor 2 amyloidosis (ALECT2) is an exceedingly rare form of amyloidosis, characterized by the deposition of leukocyte chemotactic factor 2 protein in the kidneys, with a higher prevalence among individuals of Mexican descent. The simultaneous presence of MPGN from cryoglobulinemia and ALECT2 in a single kidney biopsy represents a rare diagnostic finding. Here, we present a unique case of a patient with hepatitis B induced MPGN associated cryoglobulinemia and concurrent ALECT2. Case Description: We present the case of a 68-year-old male with a medical history notable for hypertension, lower extremity rash with biopsy consistent with leukocytoclastic vasculitis, and post herpetic neuralgia who presented with chest pain and dyspnea attributed to a pericardial effusion and found to have acute kidney injury. Urinalysis revealed hematuria and proteinuria while urine microscopy demonstrated 3-4 dysmorphic red blood cells per high-powered field. Serological investigations revealed positive antinuclear antibodies, positive rheumatoid factor, trace cryoglobulin, and decreased C3 and C4 levels. Steroids were started for a suspected flare of overlap syndrome. Kidney biopsy histopathology revealed features consistent with MPGN Type II cryoglobulinemia and immunohistochemical staining confirmed ALECT2 presence within the amorphous deposits, positive for amyloidosis. The coexistence of MPGN and ALECT2 in the context of cryoglobulinemia secondary to hepatitis B infection was noted as exceedingly rare. The patient was started on Entecavir for hepatitis B treatment. Discussion: This case shows the diagnostic challenges posed by MPGN in the backdrop of active hepatitis B infection and cryoglobulinemia. The additional discovery of ALECT2 raises questions regarding its clinical implications and significance. Further research and case reports are imperative to unravel potential relationships and underlying mechanisms associated with ALECT2 and cryoglobulinemia.

Nephrology

Thompson SM, and **Soman SS**. Critical Importance of Close Monitoring of Sodium and Fluid Balance in Labor and Delivery. *J Am Soc Nephrol* 2024; 35:201. Full Text

S.M. Thompson, Henry Ford Health System, Detroit, MI, United States

Introduction: Hyponatremia (hypoNa) is the most common electrolyte disorder seen in clinical practice; due to its many causes, it can be difficult to diagnose and manage. In this case report, we present a unique case of rapid hypoNa associated with pregnancy and the concurrent use of oxytocin and ketorolac. Oxytocin exerts antidiuretic effects similar to those of vasopressin, leading to water retention and dilutional hypoNa. The risk of oxytocin-induced hypoNa is heightened by concomitant fluid administration, making it a well-recognized but potentially preventable complication in obstetric practice. Ketorolac has also been associated with hypoNa, due to the inhibition of renal prostaglandin synthesis, which affects renal water handling and sodium (Na) balance. Additionally, while healthy women can typically excrete about 900 ml of water per hour, this ability decreases by about 1/3rd in late pregnancy, further complicating the management of fluid balance and hypoNa. Case Description: We present a case of a 35-year-old G1P1 female with a past medical history notable for depression and anxiety who presented 32 weeks pregnant with preeclampsia with severe features. She was started on a magnesium infusion and underwent a cesarian section. During the procedure she had 500 ml blood loss, she received 30 units of oxytocin and 900 ml of lactated ringers (LR). Post procedure she was started on LR at 75 ml/hr and ketorolac every 6 hours for pain control. Eight hours later the patient was found to be lethargic. Stat labs showed a Na of 122 mmol/L (Na was 134 mmol/L on admission). LR was changed to normal saline (NS) and Na further dropped to 119 mmol/L. Urine Na and osmols were 123 mmol/L and 629 mOsm/kg respectively. The patient denied excessive fluid intake and pain. NS and ketorolac were discontinued, and water restriction was initiated. The Na improved to 130 mmol/L within 24 hours. Discussion: This case presents a rare but significant complication of acute hypoNa precipitated by the concurrent administration of oxytocin and ketorolac in a patient population with decreased free water clearance. Prompt recognition and management of hypoNa is vital to prevent serious neurological complications and ensure favorable patient outcomes. This case highlights the need for electrolyte and fluid balance monitoring, particularly in patients receiving medications known to cause hypoNa.

Nephrology

Wallace M, Forbess J, **Roche MS**, Prigmore HL, Greevy R, Faulkner ML, Tindle HA, Nair D, Fissell RB, Cavanaugh KL, and Umeukeje EM. Motivation Associates with Dialysis Treatment Adherence in African American Patients. *J Am Soc Nephrol* 2024; 35:362. Full Text

M. Wallace, Vanderbilt University Medical Center, Nashville, TN, United States

Background: African Americans (AA) comprise 33% of end-stage kidney disease (ESKD) patients, and are more likely to be nonadherent to in-center hemodialysis (HD) compared to Whites. Motivation-based factors informed by self-determination theory (SDT) associate with medication adherence. However, the association with HD treatment adherence in AA is unknown. Methods: In a multi-site prospective study, motivation was assessed via SDT surveys: Autonomous Regulation [(AR) range: 1-7], Health Care Climate Questionnaire [(HCCQ) range: 1-7], and Perceived Kidney Disease Self-Management Scale [(PKDSMS) range: 8-40] Higher scores indicate better 'attitudes', perception of autonomy support from providers, and self-efficacy, respectively. Nonadherence was reported as mean proportion of missed HD minutes and shortened (i.e.,>15 minutes less than prescribed HD) and missed HD sessions over 3-month post-baseline survey period. Mean number of sessions was standardized to 36. Results: Among 210 AAs on HD for at least 90 days (56.2% male; mean age 56 (±13.8), about one-third had a high school education or less, an annual income of $10,000 or less, and lived alone. Mean number of missed and shortened HD sessions per 36 sessions was 1.8 (±3.24) and 3.24(±5.04) respectively. All SDT scores significantly associated with shortened HD sessions; AR being the strongest. Higher PKDSMS scores were inversely and significantly associated with all measures of HD non-adherence (Table 1). Conclusions: SDT measures were associated with HD adherence. Optimizing patients' attitudes may be most effective for improving nonadherence due to shortened HD. Enhancing patients' self-efficacy may significantly impact nonadherence for shortened and/or missed HD. Future research will target better understanding of underlying factors affecting patients' attitudes and self-efficacy to inform motivational strategies for improving HD adherence and kidney health equity. (Table Presented).

Neurosurgery

Hanft S, Elder B, Giglio P, Wu SH, Farrell C, Alnahhas, **Lee IY**, **Walbert T**, Boockvar J, Vojnic M, Zacharia B, Aregawi D, Kim L, Schulder M, Ghatan S, Singer S, Correia CES, Ramakrishna R, Wu J, Jeyapalan S, Magge R, Patel N, Agarwal, Bhatia A, Brennan C, Evans L, Gill B, Sengupta S, Wong ET, Amankulor N, Quinones-Hinojosa A, Neese L, Scott C, Perez-Olle R, and Andrews D. EARLY SAFETY DATA FROM A RANDOMIZED, MULTICENTER, DOUBLE-BLIND, PHASE 2B STUDY OF IGV-001, AN AUTOLOGOUS CELL IMMUNOTHERAPY, VERSUS PLACEBO, IN NEWLY DIAGNOSED GLIOBLASTOMA. *Neuro Oncol* 2024; 26:V67-V68. Full Text

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Columbia University; University of North Carolina; University of North Carolina Chapel Hill; Lifespan Health Rhode Island; Rhode Island Hospital; Brown University; University of Pennsylvania; Pennsylvania Medicine; Mayo Clinic

Neurosurgery
Perry JR, Cloughesy T, Berry DA, Buxton MB, Colman H, Ellingson BM, Gordon GB, Lassman AB, Lim M, Mellinghoff IK, Sulman EP, Weller M, Wen PY, Hyddmark E, **Mikkelson T**, Owen SP, Mason WP, Drappatz J, Blondin NA, and de Groot JF. KS03.5.A EVALUATION OF VAL-083 IN GBM AGILE, A PHASE 3 REGISTRATION PLATFORM TRIAL FOR NEWLY DIAGNOSED AND RECURRENT GLIOBLASTOMA. *Neuro Oncol* 2024; 26:V5-V5. Full Text

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Neurosurgery
Weller M, Berry D, Blondin N, Boulmay B, Buxton M, Chinot O, Colman H, de la Fuente M, de Groot J, Drappatz J, Ducray F, Ellingson B, Galldiks N, Gordon G, Hau P, Hottinger A, Hyddmark, Khasraw M, Kim L, Lassman A, Lee E, Lim M, Mellinghoff, **Mikkelson T**, Nghiemphu P, Perry J, Ronellenfitsch M, Sulman E, Tabatabai G, Tanner K, Touat M, Wen PY, Wick A, Yung W, and Cloughesy T. A GLOBAL EXPANSION OF GBM AGILE: A PHASE 2/3 ADAPTIVE PLATFORM TRIAL TO EVALUATE MULTIPLE REGIMENS IN NEWLY DIAGNOSED AND RECURRENT GLIOBLASTOMA. *Neuro Oncol* 2024; 26:1. Full Text

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System; University of California San Francisco; CHU Lyon; University of California System; University of California Los Angeles; University of Cologne; University of Regensburg; University of Lausanne; Centre Hospitalier Universitaire Vaudois (CHUV); Duke University; Icahn School of Medicine at Mount Sinai; Columbia University; Harvard University; Dana-Farber Cancer Institute; Stanford University; Memorial Sloan Kettering Cancer Center; Henry Ford Health System; University of California System; University of California Los Angeles; University of California Los Angeles Medical Center; David Geffen School of Medicine at UCLA; University of Toronto; Goethe University Frankfurt; Goethe University Frankfurt Hospital; Eberhard Karls University of Tubingen; Eberhard Karls University Hospital; Assistance Publique Hopitaux Paris (APHP); University of Texas System; UTMD Anderson Cancer Center

Obstetrics, Gynecology and Women's Health Services
Abuzeid MI, Joseph SK, **Hitaj J**, and Rizk B. 11656 Reproductive Outcome After Metroplasty of T-Shaped Uterus in Infertile Patients. *J Minim Invasive Gynecol* 2024; 31(11):S99. Full Text

M.I. Abuzeid

Study Objective: To determine reproductive outcome after hysteroscopic metroplasty in infertile patients with T-shaped uterus. Design: Retrospective study. Setting: Fertility Center - Teaching Hospital. Patients or Participants: The study included 35 consecutive patients (2020-2023) who presented with reproductive failure and were found to have T-shaped uterus. 35 patients had infertility with 12 also having recurrent pregnancy loss (RPL). All patients underwent hysteroscopic metroplasty (unilateral or bilateral) for T-shaped uterus; 26 also underwent septoplasty for additional partial septate uterus (PSU) [ESHRE-ESGE classification of Müllerian anomalies, 2013]. Postoperative transvaginal 3D ultrasound scan (TV 3D US) with saline infusion hysterosonogram (SIH) were performed for evaluation of the uterine cavity. Depending on the underling etiology, couples were offered to try to conceive naturally, with fertility medication (Letrozole), intrauterine insemination after controlled ovarian stimulation, or in vitro fertilization. Pregnancy outcome and any intra or postoperative complications were documented. Interventions: Hysteroscopic metroplasty for T-shaped uterus in all patients and hysteroscopic septoplasty in 26 patients. Measurements and Main Results: Mean age (years), BMI (kg/m2), duration of infertility (years) and AMH (ng/mL) were 33.6 + 4.7, 26.2 + 5.5, 3.5 + 4.2 and 4.0 + 4.3 respectively. Metroplasty for T-shaped was unilateral in 74.3% and bilateral in 25.7%. In 26 patients PSU was also present. The mean mid-fundal protrusion length (mm) was 12.1 + 3.0 and 92.3% had an indentation apex angle that was >90 degrees. Septoplasty was performed in the 26 patients who underwent unilateral metroplasty. Postoperative SIH with TV 3D US revealed minimal filmy synechia in 22.9%, requiring a second hysteroscopy and lysis of adhesions. No other intra or postoperative complications were reported. Postoperative pregnancy, miscarriage and best outcome delivery/ongoing rates were 77.1%, 25.9% and 62.9 % respectively. Conclusion: This pilot study suggests that hysteroscopic metroplasty of T-shaped uterus with septoplasty, if PSU is found, may improve reproductive outcome in infertile patients and those with infertility and RPL.

Obstetrics, Gynecology and Women's Health Services
Arruga Novoa y Novoa V, **McNitt Johnson M**, and **Abood J**. 12100 A Case of Sepsis Secondary to an Infected Isthmocele. *J Minim Invasive Gynecol* 2024; 31(11):S128. Full Text

V. Arruga Novoa y Novoa

Study Objective: To illustrate the intraoperative findings of a large infected isthmocele that resulted in sepsis. Design: Stepwise demonstration of surgical technique with narrated video footage. Setting: OR setting, Henry Ford Health, Detroit, Michigan. Patients or Participants: Case report of a 40yo G2P2 female who developed sepsis secondary to an infected isthmocele. Interventions: Diagnostic hysteroscopy to identify isthmocele followed by total laparoscopic hysterectomy, bilateral salpingectomy. The key surgical steps are as follows: • Identification of isthmocele • Review of isthmocele anatomy from hysteroscopic and laparoscopic perspective • Techniques for adhesiolysis in the setting isthmocele adhered to bladder Measurements and Main Results: Ishtmocele is a wedge-shaped defect in the uterus at the previous cesarean hysterotomy site. It can lead to abnormal uterine bleeding, infertility, and infection. Isthmocele can be densely adhered to the bladder, making the hysterectomy challenging.

Conclusion: This video demonstrates the appropriate identification of an isthmocele and the anatomical landmarks and surgical technique involved in the hysterectomy.

Obstetrics, Gynecology and Women's Health Services
Daviskiba S, and **Abuzeid MI**. 12200 Variations in Hysteroscopic Appearances of the Partial Septate Uterus and Arcuate Uterus. *J Minim Invasive Gynecol* 2024; 31(11):S136-S137. Full Text

S. Daviskiba

Study Objective: To provide hysteroscopic examples of arcuate and partial septate uteri to supplement classification diagrams and to emphasize "gray area" of current classification systems that are not inclusive of all patients. Design: This video series represents patients undergoing hysteroscopy for infertility and recurrent pregnancy loss. Hysteroscopy was performed under general anesthesia to ensure adequate cavity distension and optimal visualization, as in-office hysteroscopy may be limited by patient discomfort. Setting: University-associated reproductive medicine center. Patients or Participants: Patients undergoing workup for infertility and recurrent pregnancy loss. Interventions: Diagnostic/operative hysteroscopy. Measurements and Main Results: An ACMI 0° or 12° 7mm hysteroscope lens (Division of Olympus; Maple Grove, MN, USA) was used. Normal saline was used as initial distension media and switched to 1.5% glycine for operative portion. A straight resectoscope loop electrode and hysteroscopic scissors were used for septum measurement and incision. With the hysteroscopic uterine palpator as a reference, standardized measurements of the instruments were established to allow for indirect and direct measurements of the septum length. Indirect measurement was obtained by measuring from the level of the tubal ostia to the apex. Using Pythagorean's theorem, indirect measurement was multiplied by 60% to get an estimate of the septum length. Direct measurement was performed after septum incision by measuring from the apex to the base of the incised septum. Conclusion: There is a wide variety of presentations of the partial septate uterus. ASRM defines a lower proportion of partial septate uteri as compared to ESHRE-ESGE & CUME, leaving a large proportion of patients with neither a diagnosis of an arcuate uterus nor a partial septate uterus. Adopting diagnostic criteria focused on fundal indentation depth rather than apex angle may be more inclusive.

Obstetrics, Gynecology and Women's Health Services
Ewert A, **Moses E**, **McManaman A**, **Arruga Novoa V**, and **Shu MK**. 11425 Referral Patterns for Minimally Invasive Gynecologic Surgery Subspecialists Within an Urban Tertiary Care Network. *J Minim Invasive Gynecol* 2024; 31(11):S84. Full Text

A. Ewert

Study Objective: The objective of this study is to better understand the rationale for MIGS referral in a large urban tertiary care network. Design: This is a retrospective chart review. Setting: Conducted at a university-affiliated community hospital. Patients or Participants: A total of 162 patients referred for consultation with a MIGS subspecialist within an urban tertiary care network, from June 2021 to December 2023. Interventions: No interventions, retrospective chart review. Measurements and Main Results: The primary outcome is percentage of patients referred for the following four conditions: fibroids, endometriosis, complex hysterectomy, or other. The secondary outcomes include the percentage from each of the four aforementioned conditions and whether they were evidence-based consultations (see publication by Shu et al). Of those referrals, 44% were for leiomyomas (n=72). 9.8% were for endometriosis (n=16). 5.5% were for concern of a complex hysterectomy (n=9). 40% (n=65) of consults were for indications not previously aforementioned. Of these referrals for leiomyomas, endometriosis, and complex hysterectomies, 87.5% (n=63), 75% (n=12), and 88% (n=8) were found to be evidence-based, respectively. Of the 65 consults placed for a separate unlisted indication, 3.1% (n=2) were found to be evidence-based. Conclusion: The majority of patients that are referred to MIGS subspecialists include surgery for advanced stage endometriosis and complex hysterectomies. The majority of referrals that were placed for leiomyomata, endometriosis, and complex hysterectomy. These referrals were found to be evidence-based 75% or more of the time. However, a large number of referrals were placed for another indication, specifically 40%, and of that large portion of referrals, only 3.1% are evidence based. It will be critical as MIGS obtains ABOG subspecialty status to create a system for appropriate models, as

well as develop wider scopes for evidence-based referral to a minimally invasive gynecologic surgeon as this may help to evaluate those causes that did not fall into the three previously defined evidence-based categories.

Obstetrics, Gynecology and Women's Health Services
Gear G, **Ezell G**, **Nelson J**, **Rugova A**, **Arruga Novoa V**, **Abood J**, and **Vilkins A**. 12432 The Impact of Chronic Pelvic Pain on Quality of Life. *J Minim Invasive Gynecol* 2024; 31(11):S161. Full Text

G. Gear

Study Objective: This study assesses the influence of Chronic Pelvic Pain (CPP) on quality of life (QOL) utilizing the Flanagan assessment for QOL. We hypothesize that higher levels of CPP will correlate to decreased quality of life. We aim to highlight the need for early and comprehensive care for the CPP patient. Design: This is an IRB approved retrospective chart review of any patients who completed a pain history questionnaire. Setting: A Chronic Pelvic Pain clinic at a large multi-centered health system between 2019 to March 2024. Patients or Participants: The study population is comprised of 102 patients (N=102) whose demographics varied widely across age, race, employment, and insurance status. Interventions: Statistical analyses were conducted using Pearson's Chi-squared test and Fisher's exact test. Statistical significance was pre-specified at $p<0.05$. All analyses were performed using the software R 4.3.2. This data was then reviewed from the perspective of the 2002 Validated Flanagan QOL categories: 1) relationships and material well-being 2) personal, social, and community commitment 3) health and functioning. Measurements and Main Results: Patients with higher levels of pain are less likely to be employed ($P <0.012$) and if employed, they report missing more than 22 days of work in a year due to debilitating pain ($P<0.001$). Patients with a higher pain score are more likely to have less children ($P <0.035$). They are also more likely to utilize behavioral health services ($P<0.044$) and have poorer sleep quality ($P<0.007$). Conclusion: Applying the Flanagan assessment, CPP significantly impacts overall QOL. Recognizing the burden for this patient population should prompt early intervention to minimize the sequelae of delayed diagnosis. This data supports the need for comprehensive care centers for patients with CPP.

Obstetrics, Gynecology and Women's Health Services
Joseph S, Abuzeid Y, **Hitaj J**, Rizk B, and **Abuzeid M**. The accuracy of hysterosalpingogram in predicting partial septate uterus. *Am J Obstet Gynecol* 2024; 230(4):S1297-S1297. Full Text

IVF Michigan Rochester Hills & Flint PC, Rochester Hills, MI USA
Elite IVF, Houston, TX USA

Study Objective: The aim of this video is to illustrate an observation that can increase the accuracy of HSG in screening for partial septate uterus (PSU). Design: Video presentation. Setting: Fertility Center - Teaching Hospital. Patients or Participants: One patient who underwent HSG and hysteroscopy. Interventions: HSG and hysteroscopy. Measurements and Main Results: The video demonstrates that if HSG findings show the balloon of the disposable HSG catheter touching both the uterine fundus and the internal cervical os, a short distance between these points should be suspected. In addition, the video illustrates that a diagnostic hysteroscopy can determine the etiology of such observation for example PSU. The video also demonstrates a technique of septoplasty using hysteroscopic scissors. Conclusion: This video suggests that the findings of the disposable HSG catheter balloon touching both the uterine fundus and internal cervical os may indicate that the patient may have PSU, and therefore, a diagnostic hysteroscopy should be performed.

Obstetrics, Gynecology and Women's Health Services
Joseph SK, **Hitaj J**, Rizk B, and **Abuzeid MI**. 11108 The Accuracy of Hysterosalpingogram in Predicting Partial Septate Uterus. *J Minim Invasive Gynecol* 2024; 31(11):S66-S66. Full Text

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Obstetrics, Gynecology and Women's Health Services
Joseph SK, Pugmire D, Akinpeloye AL, and **Abuzeid MI**. Robotic Assisted Laparoscopic Hemi Hysterectomy After Inappropriate Management of OHVIRA. *J Minim Invasive Gynecol* 2024; 31(11):S39. Full Text

S.K. Joseph

Study Objective: The aim of this video presentation is to demonstrate a technique of robotic assisted laparoscopic hemi hysterectomy in a patient with OHVIRA after inappropriate management with incision of a high and thick vaginal septum and drainage of hematocolpos. Design: Video presentation. Setting: Fertility Center - Teaching Hospital. Patients or Participants: A 13-year-old patient with a diagnosis of OHVIRA with hematocolpos, hematometra and hematosalpnix was managed inappropriately with incision of a high and thick vaginal septum and drainage of hematocolpos at another institution. Interventions: Robotic assisted laparoscopic hemi hysterectomy. Measurements and Main Results: At age of 17 she presented with acute abdomen and fever; CT scan suggested pyosalpinx. EUA revealed the presence of a stenotic opening in a high and thick vaginal septum and the cervix of the left uterus was not visualized. Laparoscopy, lysis of adhesions and left salpingectomy were performed by her OB/GYN, pathology report confirmed acute salpingitis and tubal abscess. Severe chronic pelvic pain continued despite treatment with narcotics. After more than one year of suffering the patient underwent robotic assisted laparoscopic hemi hysterectomy. Post operative course was uneventful and all her symptoms subsided. Conclusion: Hemi hysterectomy should be performed in patients with OHVIRA and a high and thick vaginal septum.Robotic assisted laparoscopic hemi hysterectomy is the surgery of choice in such patients.

Obstetrics, Gynecology and Women's Health Services
Merida MA, Cherouveim P, Joseph SK, Sooknarine C, Cetin E, and **Abuzeid MI**. 11958 Optimizing Fertility: Insights into One-Step Hysteroscopic Myomectomy for Large Submucosal Fibroids. *J Minim Invasive Gynecol* 2024; 31(11):S122. Full Text

M.A. Merida

Study Objective: This study aims to assess the feasibility and safety of performing a one-step hysteroscopic myomectomy for large submucosal fibroids by utilizing the tissue morcellator in combination with the slicing technique with a right-angle loop electrode. Design: Case report, literature review. Setting: Teaching hospital. Patients or Participants: A 35-year-old woman, P0, had a 2-year history of infertility and two failed attempts at hysteroscopic myomectomies. Imaging studies revealed a 4 cm submucosal fibroid that failed to decrease in size after GnRH agonist administration. A tissue morcellator was used to reduce the fibroid's size during the procedure. This allowed for a better evaluation of the uterine cavity and intramural extension of the fibroid. The intramural component was then removed utilizing the slicing technique with a right-angle resectoscope loop electrode with monopolar current, and the fibroid was resected entirely with proper hemostasis. An intrauterine Foley catheter was placed in the uterine cavity for one week to reduce postoperative adhesion formation, and a 6-week course of estradiol with medroxyprogesterone acetate was given during the last ten days of estradiol. Postoperative imaging studies were normal. Six months after the surgery, the patient successfully conceived naturally and had a normal spontaneous vaginal delivery. Interventions: One-step hysteroscopic myomectomy, intrauterine pediatric foley balloon, oral estradiol. Measurements and Main Results: Natural conception six months after the surgery and had a normal spontaneous vaginal delivery at 34 weeks. Currently, the patient is pregnant again. Conclusion: This case report describes a successful one-step hysteroscopic myomectomy of a large submucosal fibroid after two previous failed attempts. The technique used a combination of tissue morcellator and slicing technique with a right-angle loop electrode. It was implemented with minimal intraoperative and postoperative complications and proved effective in improving fertility and allowing for natural conception.

Obstetrics, Gynecology and Women's Health Services

Merida MA, Sharma S, Cetin E, Joseph SK, Holmes J, and **Abuzeid MI**. Navigating False Passages: Strategies for Effective Hysteroscopy Management. *J Minim Invasive Gynecol* 2024; 31(11):S15. Full Text

M.A. Merida

Study Objective: Hysteroscopy represents the gold standard for diagnosing and treating intracavitary uterine pathology. It is rarely associated with complications, but 50% are related to uterine cavity entry. The false passage is correlated with early procedure termination or abortion. The objective is to educate about this pathology and to describe the different management techniques. Design: This is a review of the literature on diagnosing and managing false passage and a video presentation of an innovative technique for hysteroscopic intracervical bridge division. Setting: University-associated community hospital. Patients or Participants: Two patients undergoing hysteroscopy were diagnosed with false passage. Interventions: Diagnostic hysteroscopy, Hysteroscopic bridge division with scissors, hydrodissection, and tilt technique. Measurements and Main Results: False passage was identified during diagnostic hysteroscopy in two patients. In the first case, characterized by an anteverted uterus, a posterior false passage was successfully managed using a combination of hydrodissection and the tilt technique. In the second case, featuring a retroverted uterus, an anterior false passage was effectively addressed through intracervical bridge division with hysteroscopic scissors. Notably, both procedures were completed as planned, showcasing the efficacy of the implemented techniques. Conclusion: False passage during cervical dilation poses multifactorial challenges, potentially leading to premature procedure termination and concerns of uterine perforation. Mitigation and management of this complication require a systematic approach. Various techniques have been explored for its management, among which hysteroscopic division of the cervical bridge with scissors emerges as a practical and easily accessible strategy, offering promise in reducing early hysteroscopic termination and associated abortion rates.

Obstetrics, Gynecology and Women's Health Services

Rugova A, **Nelson J**, **Ezell G**, **Gear G**, **Arruga Novoa V**, **Abood J**, and **Vilkins A**. 12429 Substance Use Behaviors in Patients with Chronic Pelvic Pain. *J Minim Invasive Gynecol* 2024; 31(11):S161. Full Text

A. Rugova

Study Objective: This study investigates the correlation between chronic pelvic pain (CPP) and use of non prescription substances (alcohol, tobacco and marijuana) We hypothesize that severity of pain is associated with higher rates of substance use for self management of CPP. Design: We conducted an IRB approved retrospective chart review on survey questionnaires distributed to new patients initiating care at a chronic pelvic pain clinic. Setting: Outpatient chronic pelvic pain clinic between January 2019 to March 2024. Patients or Participants: Study population is comprised of 102 patients (N=102) initiating care at a large tertiary health center. Interventions: Statistical analyses were conducted using Pearson's Chi-squared test and Fisher's exact test. Statistical significance was pre-specified at $p<0.05$. All analysis were performed using the software R 4.3.2. Pain was measured on a numeric rating scale (NRS). Measurements and Main Results: There was no statistically significant difference between level of pain and tobacco use ($P = 0.123$) There was also no statistically significant difference between level of pain and alcohol use ($P = 0.22$) The data did show a statistically significant difference in level of pain and marijuana use ($p = 0.002$). No patients who reported lower levels of pain (1-3) reported use of marijuana. 53.3% of patients (N =21) who reported high levels of pain (7-10) reported marijuana use. Conclusion: Survey data did not show a correlation between CPP and alcohol or tobacco use. However, there is a positive correlation between cannabis use and severity of chronic pelvic pain which supports the current literature. Cannabinoid receptors responsive to marijuana are expressed in both the nervous system and peripheral organs like the reproductive tracts. Although data on side effects to marijuana is limited, its use among patients with higher reported levels of CPP warrants a valuable investigation into its use as a therapeutic agent.

Obstetrics, Gynecology and Women's Health Services

Thawani N, Merida MA, Joseph SK, Youssef Y, and **Abuzeid MI**. 11658 Fertility Preservation in Patients With a Large Endometrioma: Combined Laparoscopic Technique. *J Minim Invasive Gynecol* 2024; 31(11):S99. Full Text

N. Thawani

Study Objective: To demonstrate a combined technique of partial excision of endometrioma cyst wall and CO2 laser ablation of the remaining cyst wall that was adhered to the hilum. Design: Case Report. Setting: Fertility Center - Teaching Hospital. Patients or Participants: The patient is a 36y/o G0P0 female with primary infertility of one-half years duration with no significant surgical or medical history. Her infertility work up was normal except for possible endometriosis. After laparoscopic left salpingo-ovariolysis and right ovariolysis, we utilized a combined technique of endometrioma wall excision, utilizing blunt dissection, and CO2 ablation of the remaining part of the cyst wall. This was followed by temporary suspension of the right ovary and left fallopian tube to the fascia of the anterior abdominal wall to reduce risk of abdominal adhesions. Interventions: Conservative laparoscopic surgery for stage IV endometriosis. Measurements and Main Results: Postoperative course was uneventful. After the surgery, the patient started her period within 2 weeks and conceived during her subsequent cycle. The pregnancy is ongoing and she is currently at 20 week-gestation. Conclusion: Combined surgical technique allows the patient to receive benefits of both excision and ablation approaches. This can help achieve excellent pregnancy outcomes in some patients. Further investigation to assess the recurrence rate of endometriomas and effect on ovarian reserve with this combined surgical approach is needed.

Otolaryngology – Head and Neck Surgery

Ghanem A, **Gilbert M**, **Keller C**, **Gardner G**, **Mayerhoff R**, and **Siddiqui F**. (OA08) The role of Radiation for Recurrent Laryngeal Carcinoma in Situ compared to First Line Radiotherapy. *Am J Clin Oncol* 2024; 47(10):S7. Full Text

A. Ghanem, Department of Radiation Oncology, Henry Ford Cancer Institute, Alexandria University, Egypt

Background: Laryngeal carcinoma in situ (CIS) is a common premalignant condition with a risk for multiple recurrences and progression to invasive laryngeal squamous cell carcinoma (SCC). Objectives:We explored the impact of radiotherapy (RT) on outcomes for laryngeal CIS in the first line compared to recurrent cases. Methods: We queried our in-house Head and Neck Cancer database for laryngeal CIS patients treated between 6/2001 and 12/2021. We excluded low-grade dysplasia, CIS with synchronous invasive SCC or metachronous SCC within 3 months of the initial CIS biopsy and cases with inadequate follow up. Patients initially received either definitive RT or other modalities (CO2/KTP transoral laser ablation, PDT or surgery: transoral endoscopic excision/stripping). After 1st line treatment, follow-up includes visits every 3-6 months with laryngoscopy and biopsies as appropriate. For recurrent cases (CIS > 6 months of 1st line treatment), salvage therapies received, and long-term outcomes were reported. We investigated post-RT CIS recurrence free (RFS), invasive SCC free (IFS) and disease free (DFS) survival for patients managed with 1st line RT vs those who received 2nd line RT after recurrence using Kaplan-Meier curves and logrank test. We also compared long term outcomes for RT vs non-RT modalities. Results: 85 CIS cases were included: median age 65 years (IQR: 55-74), 73 males (85%) and 70 white (82.4%). 86% had a history of smoking with median pack year of 38 (IQR: 20-55) and 66% had a history of alcohol use. CIS was glottic in most of the cases (90.6%: 66% unilateral, 21% bilateral & 13% involved anterior commissure); with only 9.4% in the supraglottic region. RT was used in 49.4% (n=42) with median dose of 63 Gy/28 fractions, mainly by 3D conformal RT (76%). Non-RT modalities, 50.6% (n=43): surgery alone (46.5%), CO2/KTP laser (32.6%) or PDT (20.9%). RT and non-RT patients were well-balanced except for Charlson comorbidity index: median 2 (IQR 1-3) in non-RT vs 1 (IQR 0-2) in RT; p= 0.007. After a median follow-up of 4.8 years (IQR 3.5), only 4 cases (9.5%) of RT treated cases had CIS recurrences compared to 31 cases (72.1%) for non- RT candidates of whom 12 cases (34%) received 2nd line RT (Figure 1). After RT, 2nd line RT recipients had non-significantly different 2-year-RFS (100% vs 95.1% (88.8-100), IFS (89% (80-100) vs 81% (60-100)) and DFS (84% (72-97) vs 81% (60-100)) compared to 1st line RT (p >0.05 for all); and this was maintained at 5-years. Overall, IFS and

overall survival and were non-different among all treatment modalities and all CIS recurrences were successfully salvaged with ultimate RFS of 100%. Conclusions: Laryngeal CIS can be treated with a wide range of modalities including RT which has better recurrence free survival. Non-RT treatments were more commonly used with frail patients with higher comorbidities and can be salvaged successfully with many options including RT with equivalent long-term results. (Figure Presented).

Pathology and Laboratory Medicine
Bava EP, and **Jaratli H**. Appendiceal Mucosal Schwann Cell Proliferation Associated with Incidentally Detected Goblet Cell Adenocarcinoma of Appendix in a Case of Invasive Adenocarcinoma of Sigmoid Colon- A Case Report. *Am J Clin Pathol* 2024; 162:S39-S40. Full Text

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Pathology and Laboratory Medicine
Bava EP, **Liu W**, **Shen Y**, **Fang X**, **Carey J**, **Gomez-Gelvez JC**, **Inamdar K**, and **Ghosh S**. Composite Lymphoma Comprising of BCL2 Rearrangement Negative, CD23 Positive Follicle Center Cell Lymphoma and Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma: A Case Report. *Am J Clin Pathol* 2024; 162:1. Full Text

[Bava, E. Palathingal; Liu, W.; Shen, Y.; Fang, X.; Carey, J.; Gomez-Gelvez, J. C.; Inamdar, K.; Ghosh, S.] Henry Ford Hosp, Pathol & Lab Med, Detroit, MI USA.

Pathology and Laboratory Medicine
Ghanem A, **Gilbert M**, **Keller C**, **Gardner G**, **Mayerhoff R**, and **Siddiqui F**. (OA08) The role of Radiation for Recurrent Laryngeal Carcinoma in Situ compared to First Line Radiotherapy. *Am J Clin Oncol* 2024; 47(10):S7. Full Text

A. Ghanem, Department of Radiation Oncology, Henry Ford Cancer Institute, Alexandria University, Egypt

Background: Laryngeal carcinoma in situ (CIS) is a common premalignant condition with a risk for multiple recurrences and progression to invasive laryngeal squamous cell carcinoma (SCC). Objectives:We explored the impact of radiotherapy (RT) on outcomes for laryngeal CIS in the first line compared to recurrent cases. Methods: We queried our in-house Head and Neck Cancer database for laryngeal CIS patients treated between 6/2001 and 12/2021. We excluded low-grade dysplasia, CIS with synchronous invasive SCC or metachronous SCC within 3 months of the initial CIS biopsy and cases with inadequate follow up. Patients initially received either definitive RT or other modalities (CO2/KTP transoral laser ablation, PDT or surgery: transoral endoscopic excision/stripping). After 1st line treatment, follow-up includes visits every 3-6 months with laryngoscopy and biopsies as appropriate. For recurrent cases (CIS > 6 months of 1st line treatment), salvage therapies received, and long-term outcomes were reported. We investigated post-RT CIS recurrence free (RFS), invasive SCC free (IFS) and disease free (DFS) survival for patients managed with 1st line RT vs those who received 2nd line RT after recurrence using Kaplan-Meier curves and logrank test. We also compared long term outcomes for RT vs non-RT modalities. Results: 85 CIS cases were included: median age 65 years (IQR: 55-74), 73 males (85%) and 70 white (82.4%). 86% had a history of smoking with median pack year of 38 (IQR: 20-55) and 66% had a history of alcohol use. CIS was glottic in most of the cases (90.6%: 66% unilateral, 21% bilateral & 13% involved anterior commissure); with only 9.4% in the supraglottic region. RT was used in 49.4% (n=42) with median dose of 63 Gy/28 fractions, mainly by 3D conformal RT (76%). Non-RT modalities, 50.6% (n=43): surgery alone (46.5%), CO2/KTP laser (32.6%) or PDT (20.9%). RT and non-RT patients were well-balanced except for Charlson comorbidity index: median 2 (IQR 1-3) in non-RT vs 1 (IQR 0-2) in RT; p= 0.007. After a median follow-up of 4.8 years (IQR 3.5), only 4 cases (9.5%) of RT treated cases had CIS recurrences compared to 31 cases (72.1%) for non- RT candidates of whom 12 cases (34%) received 2nd line RT (Figure 1). After RT, 2nd line RT recipients had non-significantly different 2-year-RFS (100% vs 95.1% (88.8-100), IFS (89% (80-100) vs 81% (60-100)) and DFS (84% (72-97) vs 81% (60-100)) compared to 1st line RT (p >0.05 for all); and this was maintained at 5-years. Overall, IFS and overall survival and were non-different among all treatment modalities and all CIS recurrences were

successfully salvaged with ultimate RFS of 100%. Conclusions: Laryngeal CIS can be treated with a wide range of modalities including RT which has better recurrence free survival. Non-RT treatments were more commonly used with frail patients with higher comorbidities and can be salvaged successfully with many options including RT with equivalent long-term results. (Figure Presented).

Radiation Oncology

Ghanem A, **Gilbert M**, **Keller C**, **Gardner G**, **Mayerhoff R**, and **Siddiqui F**. (OA08) The role of Radiation for Recurrent Laryngeal Carcinoma in Situ compared to First Line Radiotherapy. *Am J Clin Oncol* 2024; 47(10):S7. Full Text

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Radiation Oncology

Park H, Rimner A, Amini A, Chang J, Chun S, Donington J, Edelman M, Gubens M, Higgins K, Iyengar P, Juloori A, **Movsas B**, Nemeth Z, Ning M, Rodrigues G, Wolf A, and Simone C. (OA31) American Radium Society Appropriate Use Criteria: Radiation Therapy in the Multidisciplinary Management of Medically Inoperable Stage I Non-Small Cell Lung Cancer in a Central/Ultra-Central Location. *Am J Clin Oncol* 2024; 47(10):S21. Full Text

Background: Definitive radiotherapy is considered standard therapy for medically inoperable early-stage non-small cell lung cancer (NSCLC). However, for patients with tumors located near to structures like the proximal tracheobronchial tree, esophagus, heart, spinal cord, and brachial plexus, the optimal management regimen is controversial. Objectives: To develop expert multidisciplinary consensus guidelines on the management of medically inoperable NSCLC located in a central or ultra-central

location relative to critical organs-at-risk. Methods: Case variants regarding centrally and ultracentrally located lung tumors were developed by the 15- member multidisciplinary American Radium Society (ARS) Thoracic Appropriate Use Criteria (AUC) expert panel. A comprehensive review of the English medical literature was performed from 1/1/46 to 12/31/23 to inform consensus guidelines. Modified Delphi methodology was used by the panel to evaluate the variants and procedures, with ≤ 3 rating points from median defining agreement/consensus. The guideline was then approved by the ARS Executive Committee and released for public comment per established ARS procedures. Results: The Thoracic ARS AUC Panel identified 93 relevant references and obtained consensus in all variants. Radiotherapy alone was considered appropriate, with additional immunotherapy to be considered primarily in the clinical trial setting. Hypofractionated radiotherapy in 8-18 fractions was considered appropriate for ultra-central lesions near proximal tracheobronchial tree, upper trachea, and esophagus. For other ultra-central lesions near heart, great vessels, brachial plexus, and spine, or for non-ultra-central but still central lesions, 5- fraction SBRT was also considered an appropriate option. Intensity-modulated radiotherapy was considered appropriate and 3D-conformal radiotherapy inappropriate for all variants. Other treatment planning techniques to decrease the risk of overdosing critical organs-at-risk were also considered. Conclusions: The ARS Thoracic AUC panel has developed multidisciplinary consensus guidelines for various presentations of stage I NSCLC in a central or ultracentral location.

Sleep Medicine

Braeckman R, **Drake C**, Guenther S, Gallo D, Vaughn B, and Fattah IA. Safety and Efficacy of KP1077 in a Phase 2, Placebo-Controlled, Double-Blind, Randomized Withdrawal Study in Patients with Idiopathic Hypersomnia. *J Sleep Res* 2024; 33:2. Full Text

[Braeckman, Rene; Guenther, Sven; Gallo, Daniel] Zevra Therapeut, Celebration, FL USA. [Drake, Christopher] Henry Ford Hlth, Novi, MI USA. [Vaughn, Ben; Fattah, Ihab Abdel] Rho Inc, Durham, NC USA.

Surgery

Chamseddine H, **Shepard A**, **Kabbani L**, **Nypaver T**, **Weaver M**, **Kavousi Y**, **Peshkepija A**, **Lee A**, Dandu C, **Kafri O**, and **Onofrey K**. Single-center experience with the JETi Hydrodynamic Thrombectomy System for acute limb ischemia. *Eur J Vasc Endovasc Surg* 2024; 68(5):e65. Full Text

K. Onofrey, Division of Vascular Surgery, Department of Surgery, Henry Ford Hospital, 2799 W Grand Blvd, Detroit, MI, United States

Objective: Acute limb ischemia (ALI) remains a vascular emergency with high morbidity and mortality. While the JETi Hydrodynamic Thrombectomy System (Abbott) offers a percutaneous approach to fragment and aspirate the thrombus in patients with arterial occlusions, data on its efficacy and safety are limited. This study reports our early experience using the JETi device to treat ALI at our institution. Methods: This is a single-center, retrospective review of patients with ALI treated with the JETi device between September 2020 and December 2022. Patients were included if the JETi device was used either as a primary intervention or as an adjunct procedure. The primary endpoint was technical success defined asÂ <50% residual thrombus after intervention. Secondary endpoints included achieving complete resolution of the thrombus on angiogram, acute kidney injury (AKI), major bleeding, 30-day major amputation, and 30-day mortality. Results: A total of 59 JETi procedures for ALI (median age 62Â years [interquartile range: 56-71 years]) were performed on 39 male and 20 female patients. The median time from onset of symptoms to hospitalization was 24Â hours (interquartile range: 4-168 hours). Rutherford classifications were I (10), IIa (27), IIb (14), and undocumented (8). Etiology of ALI was native vessel thrombosis (27), embolism (16), graft/stent thrombosis (14), and iatrogenic (2). A total of 124 vessels were treated, with an average of 2.1 vessels per procedure. The primary outcome was achieved in 86% (107/124) of the arteries, with 82% (102/124) successfully opened using the JETi device alone without the need for any adjunctive therapy. Complete resolution of the thrombus using JETi was achieved in 81% (101/124) arteries, with or without the use of adjunctive therapy. A total of 6.7% (4/59) patients required a major limb amputation within 30Â days despite successful recanalization, and one 30-day mortality was recorded. Complications included distal embolization (5), access site hematoma (2), and AKI (4). No major bleeding, hemolysis-induced AKI, or vessel dissection or perforation was observed.

Conclusions: The JETi device appears to be a safe and effective percutaneous treatment option in the management of ALI. It provides definitive treatment with a high technical success rate of 86% and a good safety profile.

Surgery

Osorio LG, **Onofrey KT**, **Kabbani L**, and **Kumbar LM**. A Novel Use of JETi Thrombectomy Device Mediates Embolic Complication during Graft Thrombectomy. *J Am Soc Nephrol* 2024; 35:626. Full Text

L.G. Osorio, Henry Ford Hospital, Detroit, MI, United States

Introduction: We present a case detailing the use of a novel thrombectomy device to treat acute upper limb ischemia as a complication of percutaneous arteriovenous graft (AVG) thrombectomy. The JETi Hydrodynamic thrombectomy System (Abbot Vascular, Abbot Park, IL) is a mechanical thrombectomy device indicated for peripheral vasculature which has demonstrated efficacy in acute venous thromboembolism1 and acute arterial limb ischemia (ALI)2. Case Description: A 59-year-old female presented with a clotted AVG of 6-day duration. Mechanical rheolytic thromboaspiration using the Angiojet Thrombectomy system (Boston Scientific, Marlborough, MA) was performed followed by angioplasty of venous stenosis. Stenosis at arterial anastomosis was also identified and angioplastied. Completion angiogram showed patent AVG with no residual stenosis. Completion arteriogram also revealed an embolus in the distal brachial artery with no flow distal to the occlusion. Angioplasty and Angiojet thrombectomy interventions proved unsuccessful. Subsequently, the JETi thrombectomy system was employed, leading to the successful retrieval of the clot and restoration of blood flow into the forearm. Discussion: While arterial embolism during percutaneous thrombectomy of dialysis access is a recognized complication, it is uncommon.3 The JETi thrombectomy system integrates clot fragmentation and catheter aspiration.1 Traditionally used for deep venous thrombosis and ALI, this case exemplifies a unique utilization of the of the JETi system in managing a complication from AVG thrombectomy where more traditional methods failed. The JETi thrombectomy system presents a promising alternative for addressing embolic complications resulting from percutaneous AVG thrombectomies and warrants consideration as a primary treatment modality. However, further studies investigating AVG thrombectomies are imperative to ascertain its suitability as a standard of care.

Urology

Hasley H, Stifelman M, Ahmed M, Raver M, Drescher M, Mehrazin R, Badani K, Okhawere K, Patel P, Saini I, Calvo R, Soputro N, Ramos-Carpinteyro R, Noel O, **Wang Y**, Eun D, Crivellaro S, Mansour A, Kaouk JH, Singla N, Porter J, Abaza R, Bhandari A, Hemal A, Pierorazio P, Chung B, and **Rogers C**. Initial Experience with Single-Port Nephroureterectomy Shows Shorter Length of Stay Compared to Multi-port: A Report from the Single- Port Advanced Research Consortium. *J Endourol* 2024; 38(S1):A53. Full Text

H. Hasley, Hackensack Meridian School of Medicine, United States

Introduction: Upper tract urothelial carcinoma is an uncommon malignancy operatively managed with nephroureterectomy. Perioperative outcomes for robotic approaches have been comparable to laparoscopic and superior to open. This study aims to examine perioperative outcomes in robotic single-port (SP) and multi-port (MP) nephroureterectomy. Methods: We utilized a multi-center, prospective IRB database to select patients who underwent robotic nephroureterectomy between 2017 and 2023. Patient characteristics and perioperative outcomes were compared between groups with Welch twosample t-test, Fisher's exact test, and Wilcoxon rank sum test. Results: Table 1 displays the patient characteristics between the SP and MP cohorts and establishes that there were no significant differences across the groups. Table 2 summarizes the various surgical outcomes between patients who underwent robotic SP or MP nephroureterectomy. Of the 96 identified patients, 85 patients were operated on with a MP approach and 11 underwent a SP approach (88.5% vs 11.5%). Table 2 demonstrates there were no significant differences between the 2 cohorts except for a shorter average length of stay in the SP group compared to the MP group (1.41 days vs. 1.99 days respectively, $p = 0.044$). Conclusions: Patients who underwent SP nephroureterectomy had no significant difference in perioperative outcomes compared to patients who underwent MP nephroureterectomy. One potential advantage of SP is the decreased

average length of stay relative to MP. In our early experience with SP nephroureterectomy, it appears to be safe, feasible and reproducible. Further long term studies are underway as the smaller sample size of the SP robotic approach limits application of the data and warrants additional study.