Annual Convention

2023 ACOFPCA Research Abstracts and Poster Competition

This issue of the *Journal of Osteopathic Family Physicians of California* (JOFP-CA) features abstracts from the posters presented at the 20223 American College of Osteopathic Family Physicians of California Convention and Scientific Seminars (ACOFPCA'47), which took place on Saturday, August 5, 2023.

Abstracts submitted by students and residents for the poster competition were judged, and the first- second- and third-place winners are designated below. Abstracts have been edited for basic style only to enhance the readability of this special feature. The content has not been modified; the information provided reflects information that the primary author, including professional degrees and affiliations, submitted. Neither the ACOFPCA nor the JOFP-CA assumes responsibility for the content of these abstracts.

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1st Place winner in ACOFPCA'47 Poster Competition

Median Arcuate Ligament Syndrome: A Rare & Resolvable Condition

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ABSTRACT: Median Arcuate Ligament syndrome (MALS) is a rare condition that occurs when the median arcuate ligament, an arch-shaped fibrous band that connects the diaphragmatic crura at the top of the aortic hiatus, impinges the celiac artery. Although most cases of medical arcuate ligament compression are asymptomatic, symptomatic cases can present with severe abdominal pain, nausea, vomiting, and diarrhea. This condition, when symptomatic, can often severely diminish an individual's quality of life. A case of MALS is seen in a 58-year-old cachectic-appearing female with a history of COPD and hypothyroidism presenting to the emergency room with acute abdominal pain and melena. After undergoing EGD and colonoscopy with no significant findings, a CTA revealed severe celiac artery stenosis due to compression by the median arcuate ligament. The patient was referred to vascular surgery for a minimally invasive procedure to laparoscopically relieve the compressed artery through small cuts in the ligament to restore blood flow. Although rare, physicians and radiologists need to have MALS on the differential for abdominal pain since it can cause severe, chronic pain in patients whose symptoms could otherwise be resolved with safe and relatively simple laparoscopic surgery.

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Support: None

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Informed Consent: Verbal consent given.

2nd place winner in ACOFPCA'47 Poster Competition

A Retrospective Study Assessing the Adequacy of Hospice Consultations in Alzheimer's Dementia Patients in the Inpatient Versus Outpatient Setting

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Background: Hospice care can be a vital component in managing end-stage Alzheimer's dementia patients. Hospice care aims to improve the quality of life by providing comfort and support not only to patients but also to their families. However, research has shown that hospice referrals/discussions for Alzheimer's patients are often delayed or underutilized, resulting in suboptimal end-of-life care (Mitchell *et al.*, 1529). This study aims to compare hospice referrals and/or discussions when appropriately meeting criteria in end-stage Alzheimer's dementia patients in an inpatient vs. outpatient setting at Arrowhead Regional Medical Center.

Objectives: The primary objective of this study is to compare the rates of hospice referrals and/or discussions in the inpatient vs. outpatient settings among end-stage Alzheimer's dementia patients who have met the hospice referral criteria. The study also aims to identify any demographic or clinical factors associated with hospice referrals/discussions.

Methods: This study was a retrospective analysis of medical records conducted on patients aged 55 and above diagnosed with severe or unspecified dementia between March 1, 2022, and December 31, 2022, at Arrowhead Regional Medical Center and the four

Arrowhead outpatient clinics. Two hundred seventy-two patients were identified using ICD-10 codes for dementia, and their medical records were retrieved for further analysis. The severity of Alzheimer's dementia among the identified patients was determined using the Functional Assessment Staging Tool (FAST) scale. Patients with a FAST score of 7 or higher were considered to have severe dementia. These patients were then assessed to determine if they met any of the following clinical criteria within the last 12 months: aspiration pneumonia, pyelonephritis, septicemia, decubitus ulcers (stage 3 or 4), fever after recurrent antibiotics, or inability to maintain sufficient fluid and calorie intake with 10% weight loss during the previous six months or serum albumin <2.5gm/dl.

Results: Among the 272 patients screened from March 1st, 2022, to December 31st, 2022, 86 were found to have severe Alzheimer's disease and met hospice referral criteria. Of these patients, 63 were identified in the inpatient setting, and 27 (42.9%) were referred to hospice services appropriately. In contrast, 23 patients were identified in the outpatient setting, and 9 (39.1%) were referred to hospice services appropriately. There were primarily no correlations between inpatient versus outpatient hospice referrals (p-value = 0.7565), ethnicity, or clinical criteria.

Conclusion: This study found that the rates of hospice referrals/discussions among end-stage Alzheimer's dementia patients were low in both inpatient and outpatient settings. The lack of correlation between inpatient versus outpatient hospice referrals indicates that the setting of care may not be a significant factor in hospice referrals/discussions. However, the low referral rate highlights the need for improved recognition and timely referrals for hospice care in end-stage Alzheimer's dementia patients.

Implications: The findings of this study have significant implications for healthcare providers caring for end-stage Alzheimer's dementia patients. Healthcare providers should prioritize early recognition of end-stage dementia and initiate timely discussions regarding hospice care. Improved education and awareness regarding hospice care and its benefits for end-stage dementia patients can aid in the timely referral and utilization of hospice services.

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Support: None

Ethical Approval: N/A

Informed Consent: N/A

3rd Place winner in ACOFPCA'47 Poster Competition

AWARD WINNER

Omission of Adjuvant Radiotherapy in Low-Risk Elderly Males With Breast Cancer

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Background: Randomized clinical trials demonstrate that lumpectomy + hormone therapy (HT) without radiation therapy (RT) yields equivalent survival and acceptable local-regional outcomes in elderly women with early-stage, node-negative (T1-2N0) hormone-receptor positive (HR+) breast cancer. Whether these data apply to men with the same inclusion criteria remains unknown. We hypothesized that outcomes in males would be comparable to those seen in females, with RT not conferring an overall survival (OS) benefit over HT alone.

Materials/Methods: We conducted a retrospective matched-cohort study using the National Cancer Database for males ≥65 years with pathologic T1-2N0 (≤3 cm) HR+ breast cancer treated with breast-conserving surgery with negative margins from 2004-2019. Patients who received chemotherapy with nodal or distant metastases or unknown follow-up were excluded. Adjuvant treatment was classified as HT alone, RT alone, or HT+RT. Male patients were matched with female patients to facilitate the comparison of outcomes to females. Survival analysis was performed using Cox regression and Kaplan-Meier analysis. Inverse probability of treatment weighting (IPTW) was used to adjust for confounding.

Results: A total of 523 patients met the inclusion criteria, with 24.4% receiving HT, 16.3% receiving RT, and 59.2% receiving HT+RT. Median follow-up was 6.9 years (IQR: 5.0-9.4 years). IPTW-adjusted 5-yr OS rates in the HT, RT, and HT+RT cohorts were 84.0% (95% CI 77.1–91.5%), 81.1% (95% CI 71.1–92.5%), and 93.0% (95% CI 90.0–96.2%), respectively. On IPTW-adjusted MVA, relative to HT, receipt of HT+RT was associated with improvements in OS (HR: 0.641; p=0.042). Again, RT alone was not associated with improved OS (HR: 1.264; p=0.420).

Conclusion: Among men ≥65 years old with T1-2N0 HR+ breast cancer, RT alone did not confer an OS benefit over HT alone. Combined RT+HT did yield improvements in OS, though there are likely significant unmeasured confounders contributing to these outcomes in patients treated with the most aggressive approach. Our findings support further evaluation of RT omission in elderly men with T1-2N0 HR+ breast cancer treated with lumpectomy + HT.

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Informed Consent: N/A

A Puzzling Case of Fever - West Nile Meningoencephalitis

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Introduction: West Nile (WN) Virus, a form of Flavivirus, is maintained in a mosquito-bird-mosquito transmission cycle that was initially isolated from a Ugandan woman in 1937 (WHO) and introduced in the USA since 1999. Twenty percent (20%) of individuals infected by WN Virus develop West Nile Fever manifesting as flu-like symptoms in addition to nausea, vomiting, and a rash with 1 in 150 will develop a rare and likely fatal neuroinvasive disease.

Case: A 55-year-old female with a history of uncontrolled type 2 diabetes and hypertension presented with generalized weakness, nausea, vomiting, and diarrhea for five days associated with fever, headaches, chills, dizziness, and mild dysuria. Her CBC and inflammatory markers were normal on admission. CT and MRI of the brain showed cortical subcortical hypodensities suggesting old ischemia, infarcts, and/or focally increased atrophic changes. CSF showed normal opening pressure with mildly elevated WBC of 63, protein of 82, and glucose of 96. Empiric antibiotics such as vancomycin, ceftriaxone, and acyclovir were initiated and later discontinued after the CSF gram stain showed no organisms and no growth on blood cultures. HSV 1 and 2 PCR were negative. EEG showed no seizures but moderate diffuse encephalopathic changes with neurological dysfunction in the right temporal lobe region. The patient was treated with dexamethasone 10 mg QID for 2 days and IVIG for 2 days for possible autoimmune encephalitis. She continued to spike a fever of up to 40 C, despite normal CBC. She then developed new onset aphasia together with waxing and waning levels of consciousness and urinary retention. West Niles IgM antibody resulted positive on both serum and CSF samples. Treatment with Interferon alpha 2-b or Pegylated interferon (Ropeginterferon alpha-2b) was considered at that time.

However, the former is no longer produced, while the latter has significant black box warning and questionable CNS penetration. She was then treated with high-dose steroid for 5 days, remarkably improving her neurological symptoms such as mentation, aphasia, and urinary retention. However, she remained to have bilateral lower extremity weakness. She was then discharged home with physical therapy.

For about a year, her bilateral lower extremity weakness slowly improved with aggressive in-home and outpatient physical therapy. She then transitioned from being wheelchair dependent to front wheel walker dependent until recent visits. She continues to follow up with Neurology, where nerve conduction studies (NCS) and EMG were recently done, which showed evidence of moderate to severe axonal sensory-motor peripheral neuropathy.

Discussion and Conclusion: WN virus neuro-invasive disease presents as fever in conjunction with meningitis, encephalitis, flaccid paralysis, or a mixed disease pattern. Encephalitis is more commonly reported than meningitis in older age groups, while meningitis occurs more commonly in children. The mortality rate of outpatients with neuro-invasive disease is approximately 10%. Supportive care remains the mainstay of treatment for WN virus infection. Patients with encephalitis should be monitored for signs and symptoms of elevated intracranial pressure, seizures, poliomyelitis-like symptoms, airway protection, and ventilatory support. Corticosteroids may have the potential benefit to inhibit pro-inflammatory mediators, and IVIG may benefit patients with humoral deficiency. Benefit for interferon-alpha therapy had limited data supported the use. Fatigue, memory impairment, weakness, headache, and balance problems can persist and last up to 8 years.

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Support: None

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Informed Consent: Verbal consent given.

A Rare Case of TMP-SMX induced DRESS and Clinical TSS in a Pediatric Patient

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Background: Drug rash with eosinophilia and systemic symptoms (DRESS) is a potentially life-threatening adverse drug reaction. It is most common in adults but may occur in children. Fewer cases of overlap DRESS syndrome and clinical TSS were reported. Here, we present a case of a 14-year-old girl with symptoms and signs initially presented as clinical TSS with later overlapping of DRESS syndrome.

Methods/Results: A 14-year-old Spanish-speaking female presented to the emergency department with a 1-week history of generalized pruritic hyperpigmented rash, fever, and eye/facial swelling. A Spanish-speaking provider collected initial information that revealed a 26-day course of topical Trimethoprim/Sulfamethoxazole brought from their home country. Vitals were remarkable for fever (102.4F), hypotension, tachycardia, and tachypnea. Serology showed elevated WBC, liver enzymes, and CRP. Caregiver was initially hesitant to hospitalization; however, they agreed after an explanation in the language of origin with the same provider. Patient received methylprednisolone without improvement and was transferred to a higher level of care. Physical examination revealed strawberry tongue with perioral impetigo. Meropenem, Vancomycin, and Clindamycin were started. She was transferred to the PICU due to hypotensive shock. Laboratory showed transaminitis and leukocytosis with eosinophilia. Antibiotics were discontinued, and IV solumedrol was started. Vital signs improved, and antibiotics were restarted. Later, an abdominal desquamative rash was noted on physical examination. Patient was adherent to tapering steroids and antibiotics prescribed on discharge.

Discussion/Clinical Significance: Data about DRESS due to TMP-SMX in children is scarce, with the majority coming from case reports. Moreover, studies about overlapping DRESS and TSS in children do not exist. In our case, the patient had a definite DRESS diagnosis. However, during the hospital course, she developed shock-like symptoms and evolving mucosal features, placing clinical TSS high in the differential. It is rare but possible that DRESS and clinical TSS coexist in a pediatric patient. By adapting our management to clinical presentation, the patient had a complete recovery. Moreover, gathering initial information in the patient's language of origin was vital in treatment. Later, understanding patients' barriers to healthcare, translating information into the language of origin, and adapting it to the level of literacy and education aided in adherence to treatment and better health outcomes.

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Informed Consent: Verbal consent given.

Decreasing Opioid Use for the Postpartum Patient

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Background: The opioid crisis is an ongoing and prevalent issue in the United States. Many studies have indicated that the acute use of opioids can trigger long-term opioid misuse. Laboring and postpartum women are particularly relevant due to the high rates of severe pain and prevalence of postpartum opioids provided to initially opioid-naive patients.

In this study, we attempted to demonstrate that introducing a multimodal pain management protocol in the peripartum and postpartum period would decrease postpartum opioid medication use.

Results: Study results demonstrated that the aim of this study was met, and Pomona Valley Hospital Medical Center (PVHMC) had a decrease in the use of postpartum opioid medications. Total Narcotic usage pre-implementation for our postpartum patients in 2019 was 17,935 doses. Our Multimodal Pain Management for Postpartum Patients was implemented in March 2020, and we decreased our opioid use by 41%. In 2021, a further reduction of 37% was noted compared to 2020. Comparing data from our 2019 "pre-implementation" period to our "post-implementation" data from 2021, more than a 60% reduction in narcotic use was noted.

With the implementation of our Nitrous Oxide program, we saw increased patient satisfaction because of the rapid onset and offset of pain relief, and patients directly controlled frequency and dosage. Although nitrous oxide has been around for centuries, this analgesic has only recently started gaining popularity for managing labor pain in the United States. PVHMC is one of the first hospitals in our region to offer this analgesic to our patients to decrease narcotic use. Our results demonstrated a decrease in the usage of opioids in the labor and delivery setting with this new program: 51% of patients who received nitrous oxide did not require IV pain medication during labor. Overall, prior studies have found that nitrous oxide analgesia for labor pain has a safe profile for both the mother and fetus and does not affect mother-infant bonding. Nitrous oxide effectively alleviates pain while awaiting an epidural and can relieve pain during an extensive perineal repair. Other studies have found that while nitrous oxide may not be as effective as an epidural for alleviating labor pain, it is a safe and fairly effective option for patients who want greater control and mobility.

Conclusion: Our study shows that narcotic use is not necessary for postpartum care. There will be breakthrough cases requiring opioid usage, but pain can often be managed via non-narcotic means for most pregnancies. With the opioid epidemic, it is critical for us to lessen the burden narcotics have placed on our society. As a mother's first exposure to opioids is common during and after pregnancy, it is very important to break the cycle and work towards reducing opioid use, abuse, and addiction by tackling the issue early on by encouraging non-narcotic means for pain management.

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Support: None

Ethical Approval: N/A

Informed Consent: Verbal consent given.

Effects of Marijuana Use During Pregnancy

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Objectives: We aim to study the effects of cannabis use during pregnancy on maternal and neonatal outcomes. Methods: We conducted a retrospective review of patient charts via electronic medical records to identify participants who were pregnant within the last three years and met the inclusion criteria of having a positive Urine Drug Screen (UDS) and any ICD code beginning with Z3A indicating gestation. We collected data on participant demographics, THC status, and maternal and neonatal outcomes.

Results: Our analysis revealed significant associations between marijuana use during pregnancy and increased risk of mood disorders and psychotic disorders, with higher levels of these disorders observed in the marijuana-positive group compared to the marijuana-negative group. However, no statistically significant differences in anxiety disorders were found between the two groups. Additionally, we found a significant association between marijuana use during pregnancy and an increased rate of newborn hearing screening failures, with the marijuana-positive group showing higher rates of screening failures than the marijuana-negative group.

Conclusion: Marijuana use during pregnancy was associated with maternal mood and psychotic disorders, as well as neonatal hearing deficits.

Financial Disclosures: The authors have no financial interests to disclose.

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Ethical Approval: N/A

Informed Consent: Verbal consent given.

Gartner Duct Cyst in Pregnancy, Posing as Inevitable Abortion

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Introduction: Gartner ducts are embryological remnants of the mesonephric duct that fail to regress during fetal development, impacting approximately a quarter of adult women. Gartner Duct Cysts (GDC) are formed when fluid collects in the ducts. They are rare, benign vaginal cysts with an average diameter of 2 cm and an incidence of 0.1 to 0.2% in women. When present in pregnancy, the mainstay of treatment is expectant management for asymptomatic cysts or surgery for large symptomatic cysts. Here, we describe the case of a 35-year-old G4P3 who presented at our clinic with a GDC masquerading as an inevitable abortion at 8w1d gestation.

Case Presentation: We describe the case of a 35-year-old G4P3 Hispanic woman who presented to our clinic for hospital discharge follow-up after being diagnosed with an inevitable abortion at 8w1d gestation. Patient had presented to the ER with complaints of gradual onset of intermittent mild sensation of pressure in her vagina. At the time, she was unaware she was pregnant. On pelvic examination, she was noted to have a bulging intact bag. A formal transvaginal ultrasound (TVUS) showed a single live intrauterine pregnancy, small subchorionic hemorrhage, and fluid in the lower cervical canal. She was discharged home with the diagnosis of inevitable abortion.

At the clinic, a bimanual examination revealed a large purple mass in the vagina. Its origin could not be determined. The cervix was closed, and the patient had no signs of active bleeding. A point of care (POCUS) Trans Vaginal Ultrasound (TVUS) confirmed a viable intrauterine pregnancy and closed cervix with an undetermined vaginal cystic mass suspected to be a GDC. A follow-up POCUS was performed transabdominally, which showed a live singleton fetus at 11w2d with a large vaginal cystic mass measuring approximately 6.79 cm x 5.9 cm, which was again suspected to be a GDC. The cervical os remained closed. The patient was referred to Maternal and Fetal Medicine (MFM) for evaluation, and at 15w7d gestation, she was noted by MFM to have a large vaginal mass extending from the posterior portion of the cervical canal measuring. 1.7 cm x 3.7 cm. Mass was, however, thought to be a pedunculated cervical polyp. A follow up MFM evaluation was performed 2 weeks later, where it was confirmed that the vaginal mass was a GDC, now measuring 1.6 cm x 3.2 cm at 19w4d. She was then advised to proceed with expectant management and observation.

Discussion: GDCs have been reported in studies to mimic vaginal prolapses/cystoceles. While cases in these studies presented in the third trimester, our patient presented in the first trimester with a GDC, masquerading as an inevitable abortion. TVUS confirmed this. While surgical excision remains the mainstay of treatment for symptomatic and large cysts, the decision to manage our patient expectantly was made as the patient's symptoms were not unrelenting with cyst shrinkage as pregnancy advanced. Rios *et al.*, in a 2016 case series report, say this can be a safe option for asymptomatic patients. Irrespective of the management modality, we recommend the diagnosis of a Gartner Duct Cyst, which is considered a differential in patients presenting in the early first semester with symptoms suggestive of an inevitable abortion.

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Prepared for Pre-exposure Prophylaxis (PrEP): Evaluating a Lecture-Based Presentation as a Tool for Improving Provider Preparedness to Initiate HIV PrEP Therapy

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Background: The HIV/AIDs epidemic has been a significant cause of morbidity and mortality in the United States (US) since the late 1970s, disproportionately affecting minority groups, specifically, men who have sex with men (MSM) and Black/LatinX communities. Approximately 1.2 million people are living with HIV in the US, and it affects 5,000 people in San Bernardino County. In line with the Centers for Disease Control and Prevention's (CDC) goal of decreasing new cases of HIV, we designed a study to evaluate a lecture-based presentation to improve provider knowledge and increase the comfort of prescribing HIV PrEP therapy in post-graduate trainees. By improving provider confidence and education and assessing the effectiveness of an educational tool, we anticipate that healthcare professionals will be more likely to engage in discussions about HIV prevention, promote higher rates of PrEP prescription, foster rapport with patients to discuss sensitive topics, and ultimately reduce morbidity and mortality associated with HIV.

Methods: The design is an observational, prospective survey study using a Knowledge, Attitude, Practices (KAP) model to assess an educational lecture as a tool for improving provider readiness and comfort in PrEP prescription. Eligible study participants were

resident physicians among Emergency Medicine, Family Medicine, and Internal Medicine GME programs. Study participants were asked to complete an anonymous survey before and after a one-hour lecture on HIV PrEP given by a specialist in the field. Pre and post-lecture data was analyzed for a total of 31 participants.

Results: There was a statistically significant increase in the number of correct or partially correct answers on the choice of medication for PrEP (57.8% vs. 96.8%, p<0.0001), the correct identification of medication with the highest risk for osteoporosis (19.4% vs. 74.2%, p<0.0001), the correct choice of lab which should be checked periodically (25.8% vs 87.1%, p<0.0001), and the correct HIV screening schedule (12.9% vs 77.4%, p<0.0001). Furthermore, there was a statistically significant increase in the comfort level in prescribing/initiating PrEP in the primary care setting (median=0 for pre vs. median=2 for post, p<.0001).

Conclusion: These results were consistent with the hypothesis that lecture-based education is an effective tool in increasing provider knowledge and comfort in prescribing PrEP. Compared to similar studies, this research shows that educating resident physicians earlier may lead to higher PrEP prescription rates during and after their post-graduate training. Future research can expand on specialty-specific provider readiness as well as a comparison of readiness amongst various post-graduate years.

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Refractory Hemorrhage in GAVE Syndrome in a Chronic Cirrhotic at a County Hospital

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Background: Gastric Antral Vascular Ectasia (GAVE) is a rare disease that accounts for 4% of the non-esophageal variceal bleeding found in patients with upper GI bleeding (UGIB).[1,2,3] In GAVE, also known as "watermelon stomach," the blood vessels in the gastric antrum become superficial and prone to bleeding.[1,4] GAVE has been associated with Nonalcoholic Steatohepatitis (NASH), connective tissue disorders, autoimmune disorders, systemic sclerosis, and liver cirrhosis.[2,5] Diagnosis is made by esophagogastroduodenoscopy (EGD), which shows the striae of superficial blood vessels resembling watermelon rinds and/or by gastric antral biopsy.[1] Treatment is widely focused on controlling hemorrhage and other associated symptoms. Multiple long-term treatments have been proposed, including antrectomy, liver transplantation, and/or veg-f inhibitors such as bevacizumab.[6] Given there are multiple possible etiologies for similar presentations of GAVE, a thorough work-up is needed prior to initiating treatment. This case presentation highlights the complexity of managing GAVE syndrome in patients with complications from liver cirrhosis, such as a hypercoagulable state, and the need for continual advocacy for our patients. It also highlights the necessity for a multidisciplinary approach and a higher level of care for patients with extensive comorbidities.

Case Presentation: We report a case of a 57-year-old female who presented to the emergency department with ascites, chronic symptomatic anemia from melena, and an episode of hematemesis three days prior to admission. She has a medical history of three episodes of GAVE status post argon plasma coagulation (APC), Child- Pugh Class 3 liver cirrhosis, status post banding of esophageal varices, diabetes mellitus type 2, hypertension, and focal segmental glomerulosclerosis with chronic glomerulonephritis. Physical examination was significant for hypotension, tachycardia, pallor, tremors, positive fluid wave, and unsteadiness on her feet. Differential diagnoses for her UGIB included gastritis, esophageal varices, portal hypertensive gastropathy, and recurrent GAVE syndrome. Labs were significant for a hemoglobin of 3.5 mg/dL requiring transfusion of two units of packed red blood cells and a paracentesis serum ascites albumin gradient (SAAG) of 1.5 g/dL suggestive of portal hypertension. EGD was significant for extensive active oozing and severe GAVE, which required argon gas plasma coagulation (APC) to control. Status post-APC: the patient stabilized and was discharged from the hospital with a diagnosis of UGIB secondary to GAVE syndrome. Further cirrhosis workup was completed as well, with all non-contributory results—ALT/AST, hepatitis B and C, antinuclear antibody (ANA), Perinuclear anti- neutrophil cytoplasmic antibodies (P-ANCA), IgG Subclass 4 level, anti-smooth muscle antibody, ceruloplasmin level, mitochondrial antibody—to arrive at the diagnosis of NASH as a working etiology for her cirrhosis pending liver biopsy.

Discussion: In our patient, APC had been performed three times within the last two months with recurrent episodes of refractory hemorrhage, dropping her hemoglobin into the 3-4 mg/dL range. In order to better control GAVE and for some of the long-term treatments, it is important to understand the etiology of this patient's liver cirrhosis. As such, a thorough investigation was conducted to eliminate other causes of cirrhosis, such as chronic alcohol use, HCV, HBV, autoimmune hepatitis, Wilson's disease, and primary biliary Cholangitis (PBC). The working diagnosis of NASH was made pending a liver biopsy. It may be more prudent to consider GAVE syndrome in populations with NASH cirrhosis as there has been found to be a significantly increased risk of GAVE in NASH cirrhotic patients. As primary care physicians, ordering a proper workup prior to referral will minimize patient care delays. In low socioeconomic regions, these workups, occurring in multiple follow-ups, tend to be left incomplete. We advocate for a multidisciplinary approach with the primary care provider at the spearhead to improve the ability of our patients to receive the treatment they deserve and need.

References:

1. Nguyen, H., Le, C., & Nguyen, H. (2009). Gastric antral vascular ectasia (watermelon stomach)-an enigmatic and often-overlooked cause of gastrointestinal bleeding in the elderly. The Permanente journal, 13(4), 46-49. https://doi.org/10.7812/TPP/09-055.
2. Kichloo A, Solanki D, Singh J, Dahiya DS, Lal D, Haq KF, Aljadah M, Gandhi D, Solanki S, Khan HMA. Gastric Antral Vascular Ectasia: Trends of Hospitalizations, Biodemographic Characteristics, and Outcomes With Watermelon Stomach. Gastroenterology Res. 2021 Apr;14(2):104-111. doi: 10.14740/gr1380. Epub 2021 Apr 21. PMID: 34007352; PMCID: PMC8110233.
3. Alkhormi AM, Memon MY, Alqarawi A. Gastric Antral Vascular Ectasia: A Case Report and Literature Review. J Transl Int Med. 2018 Mar 28;6(1):47-51. doi: 10.2478/jtim-2018-0010. PMID: 29607305; PMCID: PMC5874488.
4. Jabbari, M., Cherry, R., Lough, J. O., Daly, D. S., Kinnear, D. G., & Goresky, C. A. (1984). Gastric antral vascular ectasia: the watermelon stomach. Gastroenterology; 87(5), 1165-1170.
5. Cleach, A. L., Villeneuve, J. P., Sylvestre, M. P., Huard, G., Giard, J. M., & Ditisheim, S. (2019). Gastric antral vascular ectasia is more frequent in patients with non-alcoholie steatohepatitis- induced cirrhosis. Canadian liver journal, 2(3), 84-90. https://doi.org/10.3138/canlivi.2018-0021.
6. Tekola, B., & Caldwell, S. (2012). Approach to the Management of Portal Hypertensive and Gastric Antral Vascular Ectasia. Clinical Liver Disease, 5(1), 133-176.

The Effect of Osteopathic Manipulation on Diabetic Gastroparesis

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Background: Diabetic gastroparesis is a complication of diabetes and often results in severe symptoms such as nausea, vomiting, retching, multiple emergency department visits, and poor quality of life. There are few treatment options currently available for diabetic gastroparesis. Osteopathic manipulative treatment (OMT) has been shown in a case study to reduce the severity of diabetic gastroparesis symptoms.

Objective: The purpose of this non-randomized pilot study was to investigate the effects of OMT on the symptoms of diabetic gastroparesis as measured by the Gastroparesis Cardinal Symptom Index (GCSI).

Methods: This IRB-approved study [IRB M-2321] recruited participants with a confirmed diagnosis of diabetic gastroparesis. Participants were scheduled for six OMT appointments every two to four weeks. Participants completed the GCSI prior to OMT before visit one, which served as the control, and prior to OMT during visit four. GCSI scores report the severity of gastroparesis symptoms on a scale of one through five, with zero being none and five being the most severe. Descriptive analysis will be utilized to measure differences between the baseline and each treatment period.

Results: These results represent three of the participants. The first participant reported the severity of nausea, retching, stomach fullness, and feeling excessively full after meals as 4/5 during visit one and 1/5 by visit four. Episodes of vomiting improved from 4/5 to 0/5. The second participant reported vomiting, stomach fullness, and feeling excessively full after meals as 3/5 during visit one and 0/5 by visit four. The severity of retching and loss of appetite improved from 5/5 to 1/5. The third participant reported no change in symptoms between visits one and four except the variable 'inability to finish a normal-sized meal,' which improved from 1/5 to 0/5.

Conclusion: Preliminary analysis demonstrates a reduction in the severity of diabetic gastroparesis symptoms after OMT in the first three participants. While early results are promising, the currently small interim sample size limits the generalizability of the results, and this study is ongoing to recruit and complete an analysis for 22 more participants.

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The Use of Biomarkers in Malnutrition Screening in Older Adults

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Background: Frailty in older adults has long been associated with mortality. One modifiable factor contributing to frailty is malnutrition. There are many validated tools to screen and diagnose malnutrition, including the Malnutrition Screening Tool. Upon admission to Arrowhead Regional Medical Center (ARMC) inpatient units, all patients receive an admissions intake, including the Malnutrition Screening Tool (MST). Based on the screening, some had dietary consults during their hospital stay, yet nutrition is rarely a topic followed up in the ambulatory setting after discharge. Ideally, a hospital discharge follow-up visit would be an opportunity to address malnutrition.

Methods: Given that every inpatient individual at ARMC has a MST done, are there associated biomarkers that can help identify malnutrition? We hypothesize that an elevated MST score in our patient population will correlate with the previously researched biomarkers: low total protein, low albumin, low hemoglobin,

and high cholesterol. We collected MST scores and biomarkers of the following population: patients of our family health centers, greater than 65 years old, with hospitalization at ARMC from 03/01/2022-12/31/2022. Patients with a diagnosis of cancer or liver disease were excluded. A Pearson's correlation was used to find a correlation between the MST scores and the different biomarkers. Analysis of variance tests was conducted to assess the difference among the three malnutrition risk groups. All tests were two-tailed.

Results: A total of 519 patients were included in the final analysis. The majority (79.3%) were low risk for malnutrition, followed by 12.4% being high risk and 8.3% being moderate risk for malnutrition. There was a statistically significant difference in albumin (p=0.0026) and BMI (p=0.0006) among the three risk groups. However, no statistically significant differences were detected on HbA1c (p=0.6263), total cholesterol (p=0.1816), total protein (p=0.3250), hemoglobin (p=0.1201), and hospital length of stay (p=0.1145). Albumin was the only clinical biomarker significantly different among the three malnutrition groups. Future projects will implement using albumin as a screening biomarker in conjunction with MST in the ambulatory setting to identify older adults at risk of malnutrition.

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