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Parasite Sufficiency Anemia – A Mysterious Cause of Iron Deficiency Anemia

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Parasite Sufficiency Anemia – A Mysterious Cause of Iron Deficiency Anemia

Abstract

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utilized descriptive statistics, ANOVA, and Chi-square.

Results: A total of 2405 AS patient visits and 447 CS visits were analyzed. The CS saw more caucasian patients (86.2% vs. 73.5%, P-value <0.001) and less housing insecurity patients (5.3% vs. 60.7%, P-value <0.001). Mean LOS from the CS, AS, and EPS were

799, 630, and 2273 minutes, respectively. No significant LOS difference between the CS and AS, but a significant difference in the LOS for both CS and AS compared to EPS patients.

Conclusion: We evaluated throughput for patients in the ED for psychiatric complaints. A higher proportion of patients had social

determinants of health factors at the AS. ED LOS was similar between the AS and CS. Patients discharged by EPS had a higher LOS versus the CS.

#7. Assessing the Accuracy of Weights With Stretcher Scales: A Novel Approach to Patient Safety

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Mentor: Abraham Campos

Program: Emergency Medicine - Emergency Medical Services

Type: Original Research

Background: Accurate weight estimation plays a pivotal role in prehospital and emergency medical care, particularly when determining medication dosages. Literature suggests a lack of consensus on standardized weight estimation tools, which poses significant challenges in prehospital settings. Our aim was to determine the accuracy of a prehospital Emergency Medical Services (EMS) scale, and self-reported weights in adults.

Methods: Participants were weighed on a hospital bed scale, prehospital EMS stretcher, and certified standing scale. Volunteers self-reported weights, age, and gender. Evaluations for accuracy were compared to the standing scale. Analysis evaluated for accuracy within 10% and 5%. Equivalence testing was performed on gender and self-reported weights.

Results: Study included 50 adults, 36 females (72%), 12 males (24%), and 2 non-reporting (4%). When comparing accuracy of EMS scale, 50/50 (100%) were within 10% and 49/50 (98%) within 5% of the standing scale. Furthermore, 50/50 (100%) of hospital bed scale weights were within a 10% and 5% difference, 49/50 (98%) of self-reported

weights were within 10% and 45/50 (90%) within 5% of the standing scale. For women, the Test for Equivalence in self-reported weights was within the 90% confidence interval (-1.989, -0.855, p=0.0081). Men were within 90% confidence interval (-2.319, -1.215), but not the equivalence interval (-2.27, 2.27, p=0.0543).

Conclusion: Prehospital EMS and hospital scales demonstrated accuracy when compared to standing scale weights. Accuracy was highest when within a 10% difference. Self-reported weights also showed high levels of accuracy. Additional studies are needed to determine if scale weights can lead to more accurate dosing in weight dosed medications.

#8. Iron Deficiency Anemia in Children With Short Bowel Syndrome

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Mentor: Ruben Quiros

Program: Pediatrics - Gastroenterology

Type: Original Research

Background: Short bowel syndrome (SBS) in children is defined as malabsorptive state, resulting from congenital malformations, significant small intestine surgical resection, or disease-associated loss of absorption. SBS is the leading cause of micronutrient deficiencies in children, especially iron deficiency (ID).

The aim of this study is to determine the prevalence and risk factors of iron deficiency in children with SBS undergoing intestinal rehabilitation.

Methods: Retrospective chart review of patients seen in IRP from Jan. 2017 to Dec. 2021. Variables of interest were compared between iron deficiency status groups separately by visit, but only patients with data available to have their iron deficiency status determined were included in these analyses. Associations between categorical variables were assessed using Chi-Square tests or Fisher's exact tests.

Results: A total of 193 new patients were seen during the period under review, only 94 patients met inclusion criteria. Necrotizing enterocolitis was the most common cause of SBS (43.6%). The prevalence of iron deficiency was 55.3%. Risk factors associated with iron deficiency in our study population

included gestational age, small bowel length, TPN use, ileocecal valve resection, and large bowel resection.

Conclusion: Iron deficiency is the most common nutritional deficiency worldwide, accounting for over half of all anemia cases and the most common nutritional deficiency affecting children with short bowel syndrome undergoing intestinal rehabilitation. These data support the need for prompt monitoring, diagnosis, and aggressive treatment with intravenous iron to prevent effects of iron deficiency on growth and development of children with short gut syndrome.

#9. A Case of Radiation Recall Dermatitis From Zanubrutinib

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Mentor: Vanessa Voss

Program: Dermatology

Type: Case Report

Background: A 66-year-old female with a history of multiple cancers presented to dermatology clinic for acute warmth and color change of her right breast. Her cancer history includes squamous cell carcinoma of the skin over 20 years ago treated with Mohs surgery, marginal zone lymphoma in 2016, and stage IIA invasive ductal carcinoma of the right breast in 2022 treated with a lumpectomy with adjuvant radiation for 5 total fractions and letrozole. Around 3 months after radiation she started to notice discoloration and warmth to the area, which was approximately one week after starting zanubrutinib for relapsed marginal zone lymphoma.

Case: On physical exam, there was a well demarcated erythematous to purpuric plaque with diffuse telangiectasias on the right breast (**Figure 1**). A written photography consent

was obtained from the patient. A skin biopsy revealed conspicuous dyskeratotic keratinocytes at the dermal epidermal junction and above it, amidst mild background lymphocytic perivascular and vacuolar interface dermatitis. Along with the clinical presentation, these findings are altogether compatible with a diagnosis of a radiation recall reaction.

Conclusion: Radiation recall dermatitis is an acute inflammatory reaction that is triggered by medication and occurs in previously irradiated fields. Cases have been reported from various chemotherapy agents including doxorubicin, docetaxel, gemcitabine, sunitinib and sorafenib and less commonly with other medications such as simvastatin and anti-tuberculosis drugs. Zanubrutinib is a Bruton's tyrosine kinase (BTK) inhibitor recently FDA approved for the treatment of various lymphoproliferative disorders. We present a case of radiation recall dermatitis from this new anti-cancer drug.



Figure 1. A well demarcated erythematous to purpuric plaque with diffuse telangiectasias on the right breast consistent with the previously irradiated field which appeared around one week after starting zanubrutinib.

#12. JEDI With Jasmine: Developing and Assessing a GME Curriculum on Justice, Equity, Diversity, and Inclusion

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Mentor: Jasmine Marcelin

Program: Internal Medicine

Type: Original Research

Background: The American Association of Medical Colleges published diversity, equity, and inclusion competencies applicable across the learning continuum in 2022. However, fitting in lectures about justice, equity, diversity, and inclusion (JEDI) along with residency workload without contextualization of the information with clinical work is inadequate. GME programs need regular JEDI curricula complementing clinical and educational missions.

Methods: We developed a monthly Internal Medicine Residency JEDI curriculum with

clinical cases, discussion, and resource review, called "JEDI with Jasmine". The series is an exploration of resident experiences residents where applying JEDI principles would have made a difference. The series incorporates clinical experiences shared by different internal medicine wards teams, discussing them in an interdisciplinary fashion in the form of strategic breakout sessions. We conducted an initial pre-enhancement assessment with standardized measure of intercultural competency using the Miville-Guzman Universality-Diversity Scale-Short Form (MGUDSS), pre & post-tests assessing specific session content.

Results: Of 47 baseline and 37 6-month follow up respondents, 23 completed both assessments. There was no statistically

significant difference between baseline and 6-month MGUDSS scores: Total (72.8±7.95 vs 71.3±7.82), Relativistic Appreciation (24.48±6.04 vs 24.74±3.49), Sense of Connection (24.17±6.36 vs 24.65.3±3.01), Diversity of Contact (20.96±5.86 vs 21.96±3.91). Of these, 18/47 baseline respondents were confident in their ability to address structural determinants of health (SDOH) vs 20/37 6-month respondents; 15/47 were comfortable addressing discrimination or bias at bedside vs 18/37 6-month respondents.

Conclusion: We established baseline resident attitudes to diversity, increased knowledge of resources to reduce inequities with a structured JEDI session. Longitudinal curriculum will aim to refine resident health inequities-related skills.

#14. Parasite Sufficiency Anemia – A Mysterious Cause of Iron Deficiency Anemia

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Mentor: Sarah Malik

Program: Internal Medicine

Type: Case Report

Background: Iron deficiency anemia (IDA) is a common form of microcytic anemia. The etiology of IDA can occur via various mechanisms. One sparsely cited cause is the hematophagous ectoparasites known as *Cimex lectularius* or bedbugs. We present a case of unexplained refractory iron deficiency anemia.

Case: A 65-year-old male presented to the emergency department after frequent falls

and syncopal episodes. On admission, hemoglobin was 6.3, with an MCV of 75. Past medical history was significant for a two-year history of IDA. Previously, the patient underwent endoscopic evaluation including esophagogastroduodenoscopy (EGD) and colonoscopy, revealing *Helicobacter Pylori* infection. Infection was treated and confirmed to be eradicated. Physical exam was significant for bedbugs on skin and clothes, with excoriations. Due to symptomatic IDA, he underwent packed red blood cell transfusion during hospital admission. He was started on oral ferrous sulfate which was continued after discharge.

On follow-up, IDA persisted despite oral supplementation. Intravenous iron sucrose was initiated. However, IDA remained refractory. Physical exam continued to show excoriations on the skin and bedbugs on his clothes. Bedbug treatment of his home and self was initiated with subsequent normalization of his hemoglobin at 13.5 and an MCV of 96.5.

Conclusion: Although rarely cited, clinicians should be aware of *Cimex lectularius* infestation in refractory iron deficiency anemia cases.

#15. A Race Against Time: The Importance of Early Surgical Intervention in Patients With Mycotic Aortic Aneurysms

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Mentor: Scott Lundgren

Program: Internal Medicine

Type: Case Report

Background: Mycotic aneurysm (MA) is a rare but highly fatal condition managed concomitantly with surgery and antibiotics.

Case: An elderly patient with recent COVID-19 infection presented with dyspnea and chest tightness. The patient was tachypneic and tachycardic with otherwise normal vital signs. Computed Tomography (CT) angiogram of chest, abdomen and pelvis showed a 7.2 x 8.1 cm (about the length of the long edge of a credit card) aneurysm of the aortic arch with trachea deviation (**Figure 1A**). PET CT showed hypermetabolic uptake associated with superolateral walls of the aneurysm (**Figure 1B**). The surgical team evaluated the patient and deliberated on surgical versus medical management given the suspicion for MA and presumed stability of the aneurysm.

Preoperative work up was initiated, and antibiotics were started while culture and additional results were pending. The patient was acutely decompensated on day 8 of hospital stay while waiting for a definitive management plan. Repeat CT (**Figure 1C – D**) showed an interval increase in the size of the aneurysm with evidence of impending rupture and mass effect on the esophagus.

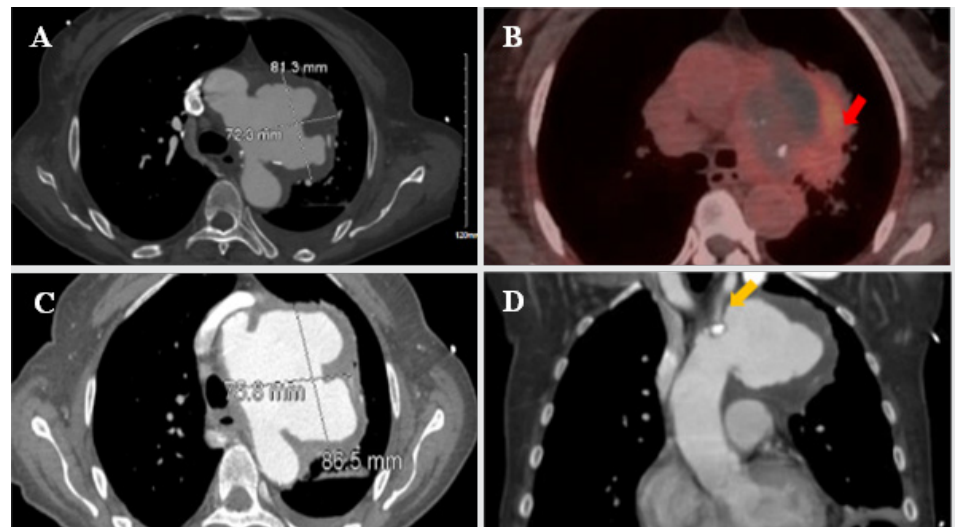


Figure 1. A) CT chest abdomen and pelvis showing aortic arch aneurysm measuring 7.2 x 8.1cm. **B)** PET CT shows hypermetabolic activity (red arrow) of superolateral wall of aneurysm. **C)** showing interval increase in size of aneurysm to 7.5 x 8.6cm on day 8 with impending rupture. **D)** CT chest abdomen and pelvis coronal view of aneurysm with mass effect (yellow arrow) on esophagus.

The patient underwent urgent open surgical repair; however, the postoperative course was complicated by the anastomotic leak and cardiac tamponade requiring multiple operative evaluations. After a prolonged ICU stay, the patient developed a large right middle cerebral artery stroke and later passed away after the patient's family withdrew care.

Conclusion: MA is prone to rupture due to aortic wall instability from inflammation and

infection. This case highlights the importance of prioritizing early guideline-directed surgical intervention to avoid delays in care and fatal outcomes.