APPNA

Association of Physicians of Pakistani Descent of North America

APPNA YPC RESEARCH SYMPOSIUM PROCEEDINGS 2023

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PRESIDENT'S MESSAGE

Dear APPNA Family,

APPNA's core mission is to promote excellence in healthcare, research, and medical education. Towards this end, the Young Physicians Committee (YPC) has been doing a wonderful job.

The organization is most proud of the work YPC has been doing in mentoring medical students and young graduates. This year, under the dynamic leadership of Dr. Nauman Ashraf, the YPC has taken its efforts to new heights.

The research poster competition is an excellent project of the YPC. The poster competition compilation is a great idea, and we are looking at it as the inaugural issue of an APPNA medical journal.

Once again, my most sincere thanks to Dr. Nauman Ashraf and all the members of the YPC for all the hard work they have been doing. Dr. Ashraf has proven himself as a capable leader. The organization expects him and the members of the committee to continue to shine in leadership roles in the future as well.

Arshad Rehan,

President 2023

EDITOR'S MESSAGE

Dear APPNA Members,

The goal of the APPNA YPC is to assist young physicians in navigating the complicated and often overwhelming process of obtaining US residency and fellowship positions. YPC conducts regular monthly online webinars and workshops for the applicants to guide our young physicians in every aspect of their journey to becoming competitive candidates for the training spots in the US. One such activity is the yearly research poster competition.

This year, APPNA YPC conducted a successful residency guidance seminar and a research poster session during APPNA's Annual Summer Meeting, 2023, in Dallas. More than seventy-five young physicians attended this activity. We had a panel of five program directors from different specialties who participated in the interactive Q&A session with the young physicians. Oral and poster presentations followed the Q&A session.

We received thirty-one abstracts for the research session. Those abstracts were peer-reviewed by our esteemed panel of judges. Two out of those thirty-one abstracts were selected for the final oral presentation, and seven were selected for the poster presentation. All winners received a cash prize.

I would like to thank the Chair of the poster session, Dr. Raheel Memon, other members of the poster session committee, all our judges, and the panelists.

I appreciate and thank all my selfless committee members, volunteers, and advisors. I thank the APPNA President, Dr. Arshad Rehan, for his support and mentorship throughout the year. I thank the APPNA Board of Directors, Nicholas Suh, Tipu, and Laiq Siddiqui, for all their support!
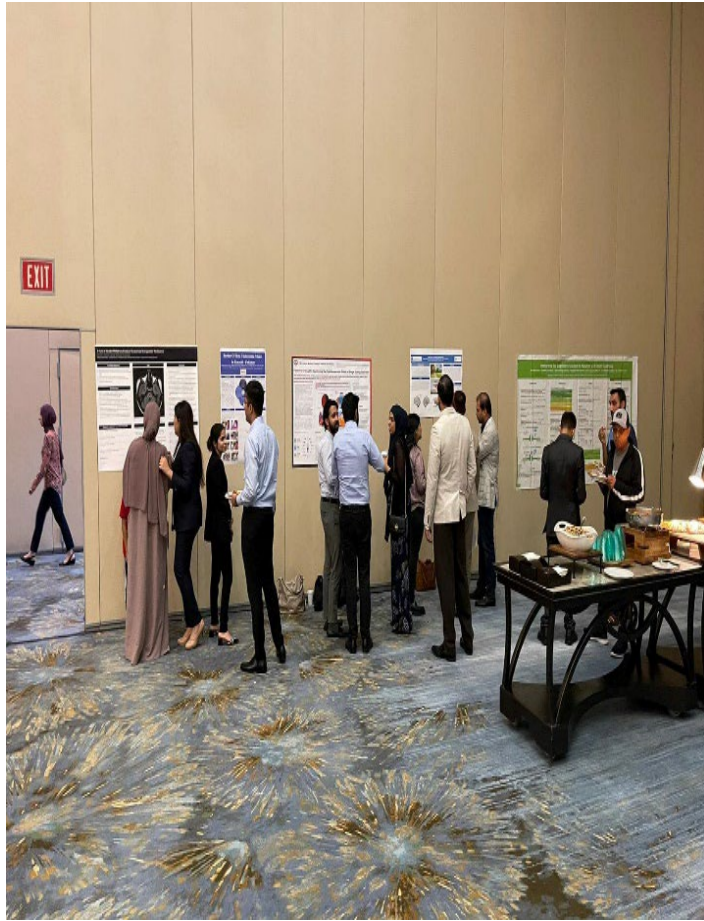
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Addiction Medicine Fellowship Program Director
KCU-GME Consortium/Ozark Center
Associate Professor of Clinical Psychiatry, University of Missouri

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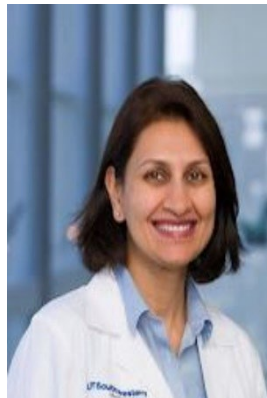**Member**

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JUDGES FOR THE ORAL POSTER SESSION

Tamour Tareen, MD

Naghmana Shafi, MD

ORAL PRESENTATIONS:

Abstract - 1

Title: Efficacy, Safety and Cost-Effectiveness of Vonoprazan vs Proton Pump Inhibitors in Reflux Disorders and H. Pylori

Eradication: A Literature Review

Authors: Haseeb Khan Tareen, Muhammad Shehryar, Rana Uzair Ahmad, Hira Khalid Kareem, Laiba Khan, Muhammad Fawad Ashraf, Ahtizaz Hassan, Sabeena Saeed, Adnan Nazir, Muhammad Aizaz Ashraf. (Mayo Hospital, Anarkali, Lahore, 54000, Punjab, Pakistan)

Introduction: Gastroesophageal reflux disease (GERD) is one of the most prevalent conditions worldwide and is conventionally treated by proton pump inhibitor therapy. However, around 40% of people have reported some form of resistance to this therapy. Vonoprazan has recently been approved for the treatment of GERD. The aim of this literature review was to evaluate the efficacy, safety, and cost-effectiveness of VPZ compared to PPIs in the management of GERD and the eradication of Helicobacter pylori (H. pylori) infection.

Methods: Literature was searched on PubMed. MeSH keywords used were ''vonoprazan, vonoprazan vs PPIs, efficacy of vonoprazan, safety and cost effectiveness of vonoprazan, and Proton Pump Inhibitors (PPIs)''. Studies were selected after applying the following inclusion/exclusion criteria. The inclusion criteria were: 1) Human subjects; 2) Papers published in the English language; 3) Study types that are RCT's. The exclusion criteria were: 1) Non-English literature.

Results: After applying the MeSH keywords, a total of 370 articles were obtained. Of these articles, 70 were removed as they were marked as ineligible by automation tools. 110 articles were removed as they didn't include a topic of interest and 78 were review articles. On secondary screening, 78 articles were not included as they didn't measure all variables of interest; 15 didn't report adverse effects, and 3 articles were not in English. The remaining 16 articles were used for our review article.

Conclusion: This article concludes that VPZ is superior to PPI in terms of efficacy, safety and cost-effectiveness in reflux disorders and H. pylori eradication. Hence, use of vonoprazan should be preferred over conventional PPIs in these disorders. As most of the research was conducted in Japan, studies should be carried out in different regions of the world to explore if these results are extrapolated in those regions. Research is also needed to explore the efficiency of VPZ in scenarios of PPI resistance.

Abstract – 2

Ossifying Pilomatricoma: A rare entity.

Authors: Farrukh N. Ahmed; Talha K. Khan; FNU Veena; Versha Kumari; M. Siddique Khurram, MD (Pathnostics Diagnostic Laboratory, California; Mercy Health, Illinois)

Introduction: Pilomatricoma, or calcifying epithelioma of Malherbe, has an incidence of 0.001% to 0.0031% among dermatopathology specimens and represents about 20% of pilar tumors. These benign lesions mainly occur in the head, neck, and upper extremities, with a majority appearing in individuals during their second decade of life. Pilomatricomas originate from hair follicle matrix cells and exhibit histologic variations based on lesion age. Characteristic features include nests of basaloid cells undergoing abrupt matrical-type keratinization, forming 'shadow cells.' Approximately two-thirds of the lesions undergo calcification around the shadow cells, while about 13% exhibit ossification, a rarer occurrence characterized by florid osseous metaplasia.

Case: Here we present a case of a 28-year-old male with a painless cystic mass on the left calf. The gradually growing mass caused discomfort, leading to its resection with no recurrence. The excised mass measured about 1.7 x 1.0 x 0.8 cm and displayed firm calcification. Histopathological examination revealed a well-circumscribed tumor composed of basaloid and shadow cells with laminated body trabeculae. It was classified as stage 4 Pilomatricoma consistent with the ossifying variant.

Conclusion: Pilomatricomas are commonly found on the head or upper extremities, rarely on the lower extremities. Only 11 cases of ossifying pilomatrixoma have been reported from 2006 to 2023. Ossification is thought to be a continuation of a foreign body reaction triggered by dense keratin deposition within the region of shadow cells. However, the exact underlying mechanism remains a topic of ongoing discussion.

POSTER PRESENTATIONS:

Abstract -1

Title: The Role of Memantine in Slowing Cognitive Decline in Patients with Down syndrome - A Systemic Review and Meta Analysis

Authors: Zarmina Islam; Shamas Ghazanfar; Shazil Ahmed Gangat; Wajeeha Bilal Marfani; S.M. Ashraf; Jahangeer Al'Saani; Zainab Syyeda Rahmat (Dow Univeristy of Health Sciences, Karachi, Pakistan)

Background: Memantine, an NMDA antagonist, has shown to be an effective and well-tolerated pharmacological therapy for the reduction of cognitive decline in the general population with Alzheimer's disease. Individuals with Down syndrome (trisomy 21) have higher rates of cognitive decline than the general population in addition to a greatly increased risk for the development of early-onset Alzheimer's disease. The potential efficacy of Memantine as a therapy for cognitive improvement in DS patients is not well understood.

Objective: To assess the effectiveness of Memantine in comparison to a placebo as a pharmacological therapy for patients with Down syndrome.

Methods: Multiple databases including PubMed, CENTRAL, CDSR, and clinicaltrials.gov were searched with terms including "Memantine Hydrochloride" and "Trisomy 21."Randomized, double-blind, placebo-controlled trials measuring tolerability, efficacy, and safety of memantine in DS patients were used. 3 studies were ultimately included. Standard Mean Difference (SMD), Odds Ratio (OR) and 95% confidence intervals (CIs) were calculated to assess significance of intervention.

Results: No statistically significant therapeutic effect was found upon administration of Memantine relative to placebo in DS patients.

Conclusion: Efficacy of Memantine in DS patients to reduce the risk of cognitive decline was not established. However, larger randomized controlled studies are needed to confirm our results. In subsequent trials, researchers may consider using different administrative routes for Memantine and assessing the serum concentrations as well as additional neurological biomarkers.

Abstract -2

Title: Comparing outcomes of hospitalized patients with Diabetic Ketoacidosis in teaching vs non-teaching Hospitals from 2016 – 2019

Authors: Tehal, Sana MD; Zafar Muhammad Usman MD; Tarar, Zahid Ijaz MD; Sheikh, Shamsuddin MD (Dubai Medical College, UAE, Lehigh Valley Health Network, PA, University of Missouri, CO)

Introduction: Diabetic ketoacidosis (DKA) is a life-threatening emergency. CDC has reported an increase in age-adjusted hospitalizations from DKA (2009 – 2014). However, there was a steady decline in inpatient mortality (from 1.1 to 0.4 percent). Here, we queried the National Inpatient Sample (NIS) to compare outcomes of patients with DKA in teaching vs non- teaching hospitals.

Methods: We performed a retrospective multivariate regression analysis on all hospitalizations with ICD-10 codes for DKA using the NIS database (2016-2019). The primary outcome was inpatient mortality. Secondary outcomes included hospital length of stay (LOS) and cost utilization.

Results: 253,009 hospitalized patients with DKA were included in this study. Mean age in teaching hospitals was approximately 42 years (vs 44 years in non-teaching hospitals) and 49% were males in non-teaching vs. 50% in teaching hospitals. The odds for inpatient mortality in the teaching hospitals were higher (Odds Ratio (OR) 1.43, 95% Confidence Intervals (CI) 1.34 – 1.53). The mortality rate seen is at 2.5% in teaching hospitals (vs 1.86%). Other factors that appear to contribute to higher odds of inpatient mortality include acute kidney injury (OR 2.67, 95% CI 2.5 – 2.85) and weekend admissions (OR 1.08, 95% CI 1.01 – 1.15). Mean length of stay in teaching hospitals was 4.82 (vs 3.92) days (Coefficient (Coef) 0.97, 95% CI 0.91 – 1.03). Total charge in teaching hospitals was also higher (Coef. 13706.41, 95% CI 12453.91 – 14958.91).

Conclusions: Patients with DKA who present to teaching hospitals have higher odds of inpatient mortality, hospital length of stay, and cost utilization.

Abstract -3

Title: Hyponatremia & Frailty: A Cause or Effect?

Authors: Nabiha Batool Musavi; Maaha Ayub; Meher Angez; Syed Tabish Rehman; Deepak Kataria; Rabeea Farhan; Namirah Jamshed (Queens University, Kingston, ON, Canada; University of Texas Southwestern, Dallas, Texas, USA; Shaheed Mohtarma Benazir Bhutto Medical University, Larkana, Sindh, Pakistan)

Introduction: Identifying and treating hyponatremia in older patients holds significant clinical and prognostic implications. Our narrative review aims to discuss the pathophysiology of hyponatremia, its causes, clinical implications & its association with frailty.

Method: We conducted a literature review of articles from 2001 to 2022 using PubMed, MEDLINE, and Google Scholar. Our keywords included "hyponatremia," "frailty," "sarcopenia," "geriatrics," and "aging." Articles were shortlisted on relevance and full-text availability. Articles in English were included.

Results: Hyponatremia is considered both a causative and a prognostic factor. It is associated with a higher risk of fractures, thereby considered a marker of frailty. The underlying cause is often multifactorial such as polypharmacy, factors increasing antidiuretic hormone and "tea and toast" syndrome. When compared to patients admitted with normal serum sodium levels, hyponatremia was associated with an increased risk of falls and fractures, hospital readmission, extended hospital stays, and higher mortality (>50%). Hyponatremia is considered an indicator of the severity of the underlying disease process. The evaluation and treatment may pose many challenges in older people as a detailed history may be difficult to obtain, and clinical examination is often unreliable

Conclusion: Unfortunately, data on the occurrence of hyponatremia and its influence on outcomes in older patients is scarce. Nonetheless, an extensive understanding of the association between hyponatremia and frailty is critical for developing guidelines to prevent adverse outcomes in susceptible geriatric patients. There is a critical need for clinical and interventional studies to study the association between hyponatremia and frailty in susceptible older patients.

Abstract -4

Title: Proposed Novel Classification of Circumscribed Lower-Grade Gliomas (cLGG) vs. Infiltrating Lower-Grade Gliomas (iLGG): Correlations of radiological features and clinical outcomes.

Authors: Ahsan Ali Khan; Muhammad Usman Khalid; Mohammad Hamza Bajwa; Faiza Urooj; Izza Tahir; Meher Angez; Muhammad Waqas Saeed Baqai; Kiran Aftab; Shahabuddin Ansari; Ummul Wara Khan; Ali Azan Ahmed; Syed Ather Enam (Department of Surgery, Aga Khan University, Karachi, Pakistan; Department of Computer Science, GIK Institute of Engineering Sciences and Technology, KPK, Pakistan

Introduction: MRI scan features of Lower-grade-gliomas (LGGs) have demonstrated prognostic significance in differentiating between diffuse (ill-defined borders) and discrete (well-defined) tumors. However, there is insufficient evidence to suggest that LGGs with differing appearances despite having same histopathological diagnosis can impact tumor resectabilty, overall-survival and clinical/onco-functional outcomes.

Method: A retrospective study was conducted and LGG-patients who underwent surgery during a 5-year period were included. Based on MRI-scan parameters LGGs were divided into circumscribed-LGG (cLGG) and infiltrating-LGG (iLGG).
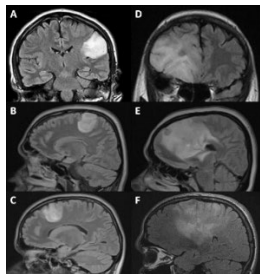

Figure-1 MRI scans of cases showing cLGG (A, B, C) and iLGG (D, E, F)

Results: Out of the 165 patients in our cohort, 30(18.2%) were identified as having cLGG, while 135(81.8%) were having iLGG. The mean age of cLGG and iLGG patients was 31.4 and 37.9 years respectively (p=0.004). There was a significant difference in the mean blood loss between the cLGG (270ml) and iLGG (411ml) groups (p=0.020). The cLGG group had a significantly higher proportion of grade-II tumors (p< 0.001). The mean survival time for the iLGG and cLGG groups was 14.96 ± 1.23 and 18.77 ± 2.72 months respectively. In univariate cox regression analysis, the difference in survival was not significant however, in multivariate regression analysis, cLGG showed a positive correlation with survival (HZ=0.443, p=0.015). Intense contrast enhancement, blood loss, and moderately high Ki-67 were also significant factors in univariate analyses.

Conclusion: cLGG and iLGG are radiologically distinct groups with different outcomes and it would be practical to add cLGG and iLGG classifiers in WHO classification.

Abstract -5

Title: Food for Thought: Examining the Cardiovascular Risks of Binge Eating Disorder

Authors: Fateema Tanveer, Um Ul Baneen. Zehra, Mohammad S. Hussain, Ali Ejaz, Muhammad Ali Lak, Khadeejah Sajwani, Mishkat Aslam (CMH Lahore Medical and Dental College, Pakistan)

Introduction: Binge Eating Disorder (BED) is renowned for its multifaceted etiology and stands as the prevailing eating disorder coexisting with obesity, psychopathology, as well as co-morbidities such as anxiety and depression. Unlike other eating disorders, BED exhibits a harmonious balance in its female-to-male ratio. In the United States, the lifetime prevalence of BED stands at 2.6%. Fortunately, a multitude of efficacious remedies exist for BED, among which cognitive behavioral therapy (CBT) tops all others.

Methods: PubMed, served as the resource for conducting the literature search. The Mesh words and keywords employed encompassed vital terms such as 'binge eating disorder', 'obesity', 'cardiovascular diseases', 'ischemic heart disease', 'coronary artery disease', 'eating habits', 'CVD and eating disorders', and 'cardiovascular disease risk factors'. It is noteworthy that unpublished work and isolated abstracts were intentionally excluded from the analysis to ensure the inclusion of rigorous and comprehensive findings. In adherence to the scope of the study, only complete manuscripts published within the past fifteen years were considered, thereby guaranteeing the incorporation of contemporary research and up-to-date insights.

Results: Of these 48 articles, 32 were excluded based on exclusion/inclusion criteria (full-text and human). Among the 16 reviewed, 02 were case reports, and 05 were irrelevant studies. The final analysis included 09 articles. One of these articles is a cross-sectional, correlational study with a sample of 111 CVD patients, 18% of whom have a binge eating disorder. Thus, showing a positive association between CVD and BED.

Conclusion: Binge Eating Disorder (BED) should be recognised as a significant risk factor for Cardiovascular Disease. In light of this association, it is imperative for physicians to provide guidance on lifestyle modifications and impart knowledge to their patients regarding this connection.

Abstract – 6

Maternal Outcomes After Trauma in Pregnancy: A National Trauma Data Bank Study

Authors: M Siddiqi, K Guiab, A Roberts, C Gweniviere, T Evans, V Patel, F Bokhari (John H Stroger J. Hospital of Cook County Chicago, IL)

Introduction: Trauma is an important non-obstetric cause of mortality in pregnant women. This study aims to evaluate the differences in maternal outcomes between various reproductive age groups sustaining trauma.

Methods: National Trauma Databank was queried between 2017-2018. Pregnant women >20 weeks gestation, who underwent blunt or penetrating trauma were included. They were categorized into different age groups, 12-18, 18-35 and 36-50 years of age. Primary outcome was 30-day mortality. Secondary outcomes were hospital length of stay (HLOS) and complications. Bivariate and Multivariate logistic regression (MLR) models were used for data analysis.

Results: 1,058 pregnant trauma patients were included. Mean age was 26.7 □ 6 years. 94.5% had blunt and 3.8% had penetrating injuries. Median GCS and ISS were 15 (15, 15) and 2 (1, 5). Penetrating trauma patients required more operative intervention (57.5%) than blunt trauma (24.6%).

Univariate analysis comparing age groups 12-18, 19-35 and 36-50 years revealed differences (p<0.05) in ED Systolic BP (110.9□19.7 vs. 117.3 □ 20.3 vs. 129.1 □ 29.3 mmHg, *p* = 0.01) and DM (0.0% vs. 2.7% vs. 6.6% *p*= 0.03). There was no difference in HLOS (p=0.72), complications (p=0.279) and mortality (p=0.32).

MLR analysis revealed that compared to patients 12-18 years old, patients 19 to 35 (p=0.27) or those 35-50 (p=1.0) did not show a significant difference in mortality. Patients with high ISS had higher complication rates (OR, 1.09; 95% CI 1.04-1.15) and prolonged HLOS (OR 1.00; 95%CI 1.07– 1.15).

Conclusion: Pregnant women who presented to trauma centers had minor injuries and maternal age or mechanism of injury did not affect mortality. Despite a low ISS a significant number of these patients required operative procedures.

Abstract - 7

Comparison of Pain Scores among Different Age Groups of Infants Undergoing Circumcision with Local Analgesia

Authors: Farwa Rubab; Naeem Liaqat (Rawalpindi Medical University)

Background: Local analgesia is a common practice for relieving procedural pain in infants undergoing circumcision. However, there is limited research on the effect of age on pain scores among infants undergoing circumcision under local analgesia. The aim of this study is to compare mean pain scores among different age groups of infants who underwent circumcision under the effect of local analgesia.

Methods: This age-stratified clinical trial included 174 healthy infants up to 180 days old who underwent circumcision using a standard plastibell procedure under local anesthesia with Lidocaine as a ring block. Infants were divided into three groups based on age: Group A (≤30 days), Group B (31- 90 days), and Group C (90-180 days). Mean pain scores were assessed using the Neonatal Infant Pain Scale (NIPS).

Results: Moderate to severe pain was experienced by 11.42% of infants in Group A, 42.3% in Group B, and 47.05% in Group C during circumcision at any point. The overall mean NIPS score was highest one minute after the start of the procedure (p=0.000). Group C infants had higher pain scores during circumcision than those in Group B and Group A (p=0.000).

Conclusion: Infants over 3 months old experienced more pain during circumcision despite the administration of local analgesia. This study suggests that infants undergoing circumcision within the first month of life may respond better to pain management.

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