



14TH ANNUAL SHIFA SCHOLARS DAY

FROM IDEAS TO IMPACT: THE POWER OF RESEARCH

ABSTRACT BOOK

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Shifa College of Medicine

Shifa Tameer-e-Millat University Islamabad

 Shifa Tameer-e-Millat University

Message from the Vice Chancellor



Dr. Mohammad Iqbal Khan

MD, FRCS, MHPE
Professor of Surgery

The 14th Scholars Day is a day to celebrate research, knowledge exchange, and innovation at undergraduate level in STMU. Research and innovation have remained at the heart of our agenda, with our young scholars and faculty members publishing impactful research across diverse fields.

The year 2025 has witnessed enhanced collaborations with international academic and research institutions. These partnerships have opened new avenues for joint research, and global exposure—positioning STMU as an emerging center of excellence in higher education. I would like to take this opportunity to express my deep appreciation to the leadership of Principal Shifa College of Medicine Prof Dr. Mohammed Amir who has been pivotal in fostering such partnerships at undergraduate level in Shifa College of Medicine.

I am very proud of our dedicated faculty members and vibrant student body for their tireless efforts in making STMU a symbol of progress, innovation, and inclusive growth.

As we move forward, STMU remains firmly committed to nurturing future-ready professionals, contributing meaningful solutions to societal challenges, harnessing the potential of research and innovation and upholding the values of excellence, integrity, and service.

Let us continue to build on this momentum and collectively shape a brighter future.

Message from the Principal

It is a moment of immense pride for me to appreciate the hard work and dedication put in this year's Scholars Day. The 14th Scholars Day at Shifa College of Medicine (SCM) is a regular annual event led by the Department of Community Medicine and Public Health under the oversight of the Research Cell Chair.

At SCM, we recognize the profound impact of research and development on shaping the future, and we are steadfast in our commitment to nurturing a dynamic ecosystem that supports excellence amongst our faculty, researchers, and students. We welcome young scholars from across the country, as well as international medical colleges, participating in this event. Research and development serve as foundational pillars in the pursuit of knowledge, cultivation of innovation, and the advancement of socio-economic prosperity. By promoting a healthy research culture, we elevate our academic stature, forge meaningful collaborations, and empower communities.

Prof. Saima Hamid, Head of the department, Dr. Umme Kalsoom, Associate Professor and Chair Research cell of DHPE and the whole faculty of Department of Community Medicine and Public Health deserve special mention in taking this lead role in successfully organizing the 14th Annual Scholars Day. The department's technical support and adherence to excellence is exemplary. I would like to acknowledge with gratitude the unwavering dedication of our faculty and staff, whose efforts continue to propel the college forward. I am thankful to the panel of judges from prestigious institutions including ours for dedicating their time and efforts to assess the quality of the scholar's presentations. I am equally proud of our students, who are the heart of this event and hope for our future.

SCM feels proud to honor significant achievements through research platforms like Scholars Day, underscoring our commitment to promoting a culture of excellence in research and scholarly endeavors.

Together, let us foster academic excellence and serve society.



Dr. Mohammed Amir

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Professor/consultant Surgeon
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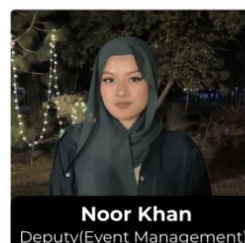
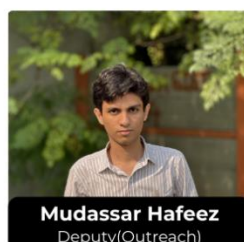
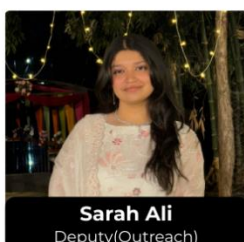
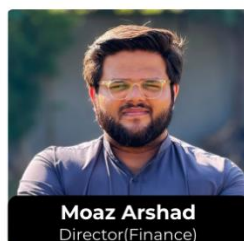
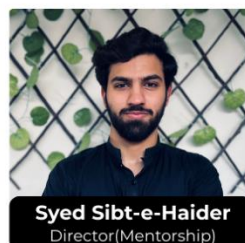
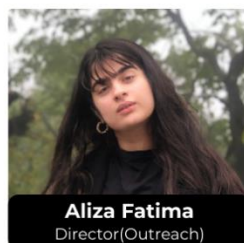
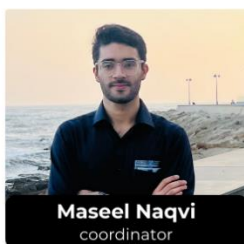
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PRE-SCHOLARS DAY WORKSHOPS

**R.E.A.D.**

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**CLINICAL TRIALS: AN INTRODUCTION
FOR MEDICAL STUDENTS**



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**R.E.A.D.**

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A STEP BY STEP APPROACH**



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**R.E.A.D.**

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A.I. AND DIGITAL TOOLS**



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PRE-SCHOLARS
DAY
WORKSHOPS!**

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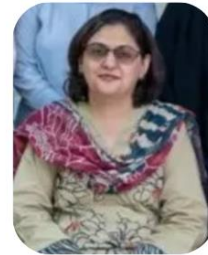
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**denotes oral presentations*

ORIGINAL ARTICLES

HEALTH CARE BARRIERS DURING THE ONGOING CRISIS OF GAZA AT AL-AQSA HOSPITAL - DIFFERENT PERSPECTIVES*

Younis A M Eljila

Eljila Y, Abu-qumbuz A, Alkhaldi M, Halimy M, Muhaisen D, Al-otti F, Ayyad E, Ramdan A, Touman H, Samak A, Derdsawy Y, Zayyan A, Abu-Rmeileh N

Shifa College of Medicine

Gaza's healthcare system is on the brink of collapse due to ongoing Israeli attacks, a prolonged blockade, and severe resource shortages. With only a fraction of hospitals partially functioning and healthcare workers killed or detained, access to essential medical care is dangerously limited. Displacement and repeated infrastructure destruction have left the system overwhelmed and unable to meet the rising needs of a traumatized, predominantly young population. This study explores the major barriers to healthcare access at Al-Aqsa Hospital from the perspectives of patients, doctors, and nurses amid this worsening crisis. Methodology-A qualitative study was conducted at Al-Aqsa Martyrs Hospital - Gaza using semi-structured interviews and focus groups with doctors, nurses, and patients to explore the impact of war on healthcare access and provision. Data were collected from August to September 2024, involving 15 doctors, five nurses, and 25 patients. Interviews were transcribed, translated, and thematically analyzed using MAXQDA. Ethical approval was granted, and informed consent was obtained from all participants.

Results-Healthcare professionals reported displacement, emotional strain, and severe disruptions to work routines and education. Many reported working long, unsupported hours with limited supplies and were forced to perform unfamiliar tasks under pressure. Psychological distress, especially from treating injured children and worrying about their own families, was reported. Patients said they had stable, family-centered lives before the war, which were shattered by bombings causing physical injuries, disabilities, and profound emotional loss. They reported facing overcrowded hospitals, delayed treatments, and poor and limited resources, though many praised the dedication of medical staff. Patients believe that Long-term physical and emotional consequences deeply affect their lives. Despite the hardships, both groups reported resilience: professionals through continued service and collaboration with aid teams, and patients through efforts to recover and adapt. Conclusion-This study exposed damaged infrastructure, medical supply shortages, overwhelming workloads, and the psychological toll on healthcare workers. Moreover, severe delays, overcrowding, and emotional trauma resulting from injuries, displacement, and loss. Doctors emphasized the need for sustained international medical support, mental health services, and training opportunities to improve care under crisis conditions. Patients recommended better access to timely treatment, improved hospital conditions, and psychosocial support. The study highlights the immense

challenges and strengths within Gaza's health system under siege.

ASSESSING MEDICAL STUDENTS' ATTITUDE TOWARD DOCTOR-PATIENT RELATIONSHIP*

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Introduction-The doctor-patient relationship is essential for optimal patient care and is a key element of medical ethics. A firm relationship indicates improved level of patient's compliance to the treatment, reliance toward the doctor and also better disease prognosis. **Objectives:** To assess medical students' attitude toward doctor-patient relationship and to examine differences based on demographic characteristics. **Methodology:** A cross-sectional, quantitative study was conducted among medical colleges in KP (July-October 2024). Convenient sampling was employed with a sample size of 375 with 95% confidence level. The validated 18 item Patient Practitioner Orientation Scale (PPOS) (Cronbach's $\alpha=0.731$) assesses attitudes toward doctor-patient relationship using a 6-point Likert scale and comprises two subscales: Sharing and Caring. Data was collected using google form and analysed in SPSS version 27. Mean and standard deviations were calculated. T test and ANOVA assessed differences across demographic variables. P-value <0.05 was considered significant. **Results:** Among 401 participants, the overall mean score was 3.62 ± 0.45 with sharing at 3.30 ± 0.611 and caring at 3.95 ± 0.57 . A

significant difference was found in sharing scores between private and public sector students. Additionally, gender differences were significant for mean PPOS score and caring sub-scale score. **Conclusion:** An overall higher Caring subscale score reflects a stronger emphasis on emotional and compassionate aspects over shared decision-making. Public sector students scored higher in Sharing, favouring greater patient involvement. Females scored higher in Caring and overall PPOS, reflecting a more patient-centered approach.

NON-PRESCRIPTION ANTIBIOTIC DISPENSING: FINDINGS FROM A SIMULATED CLIENT STUDY*

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Background: Antimicrobial resistance is a growing public health issue and non-prescription antibiotic dispensing by pharmacies is a major contributing factor to it. **Objective:** This study aims to assess the prevalence of non-prescription dispensing, its predictive factors and the most frequently prescribed drugs using a simulated client method.

Methods: A cross-sectional study was conducted in the Islamabad Capital Territory. Trained simulated clients visited pharmacies and presented 3 premade clinical scenarios: upper respiratory tract infection, gastrointestinal tract infection and urinary tract infection. Pharmacist inquiries about

symptoms, past medication history, and allergy status were recorded. The association between antibiotic dispensing behaviour and 5 independent variables (scenario type, pharmacy type, pharmacist availability, and inquiry behavior) was assessed using chi-square tests and multivariate logistic regression. Results: Antibiotics were dispensed without prescription in 83.5% of pharmacies. Dispensing rates were highest for the URTI scenario (97.5%), followed by GIT infection (90.0%) and UTI (63.4%). Among the most frequently prescribed drugs were ciprofloxacin (32.7%) and azithromycin (25.7%). Alarming, none of the pharmacists inquired about the SC's drug allergies and only 14% provided counselling on safe antibiotic use. Multivariate regression analysis indicated that the only predictive factor for dispensing behaviours was scenario type. Pharmacist availability, presence on duty, inquiry and pharmacy type were insignificant in predicting antibiotic dispensing. Conclusions: The wide-spread dispensing of non-prescription antibiotics in the capital city of Pakistan highlights the gap in antimicrobial stewardship. These deficiencies put patient health at risk and heavily contribute to the growing antimicrobial resistance that the world faces.

VIOLENCE AND AGGRESSION TOWARDS DOCTORS IN PAKISTAN; A NATIONWIDE SURVEY*

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Sadia Tazmeez ud din

Nauman

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Introduction: The World Health Organization defines violence as the deliberate application of physical force or power, whether threatened or actual, directed at oneself, another person, or a group or community, which leads to, or has a strong potential to cause, injury, death, psychological harm, developmental issues, or deprivation. Objective: The main aim of this study is to examine the frequency of exposure of doctors to aggression and violence at work, and the effective factors thereon, as well as the effects of violence on doctors. Method: This study has been conducted in multiple hospitals in Pakistan's five provinces (Punjab, Sindh, KPK, Balochistan, and Gilgit Baltistan), the Capital (Islamabad), and Azad Jammu and Kashmir (AJK). The questionnaire prepared by the researchers was filled in through face-to-face meetings by 1003 healthcare professionals who agreed to take part in the study. The resulting data has been assessed and evaluated using the SPSS V27 package program. Results: 77.6% of the respondents reported that they had been exposed to violence in the last 10 months. Among the reported events, the most common form was verbal violence at 70.7%. The most common perpetrators of these cases were

attendants of the patients in 87% of the cases. As an impact of these cases, 87.7% of the respondents felt emotional distress due to violent incidents. In addition, 6.3% reported physical injury, and 6.0% considered leaving their jobs. A statistically significant difference in the frequency of exposure to violence has been detected between age, gender, seniority, and province. The major contributing factors towards violence included lack of communication and lack of facilities along with lack of patient care. Conclusion: Violence and aggression are one of the major issues of healthcare workplaces in Pakistan. Therefore, there is a dire need to improve working conditions, build effective communication, and improve security standards to create safe workplaces for healthcare professionals.

ISCHEMIC HEART DISEASE ATTRIBUTABLE TO HIGH BODY MASS INDEX IN PAKISTAN VERSUS WORLDWIDE: AN ANALYSIS OF THE GLOBAL BURDEN OF DISEASE STUDY 2021*

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Introduction:

Ischemic Heart Disease (IHD) is one of the major causes of cardiovascular-related deaths worldwide. High Body Mass Index (HBMI) is an important risk factor for IHD. Previous studies have evaluated the IHD burden globally, however, very limited literature is available on its burden in Pakistan compared to the rest of the world.

Purpose:

To investigate the effect of HBMI on the global burden of IHD in Pakistan versus globally from 1990 to 2021.

Methods: Age-standardized death rates (ASMR), years of lost life (YLLs), and disability-adjusted life years (DALYs) were calculated from the Global Burden of Disease (GBD) Database 2021. Joinpoint Regression was used to calculate annual percentage changes (APCs) in ASMR, DALYs and YLLs with 95 % uncertainty intervals and identify significant trends over time. Statistical significance was set at a p-value < 0.05.

Results: Globally, the ASMR was 13.77 in 1999, which dropped to 11.71 in 2021 with a significant AAPC of -0.53 (95% UI: -0.72 to -0.32, p < 0.000001, Figure 1), whereas the

ASMR in Pakistan tripled from 5.99 in 1999 to 15.45 in 2021 (AAPC: 3.11; 95% CI: 2.94 to 3.27; $p < 0.000001$, Figure 2). Similarly, DALYs also showed a decreasing trend globally from 300.77 in 1990 to 277.65 in 2021 (APC: -0.26; 95% UI: -0.44 to -0.06; $p = 0.007$) while Pakistan experienced over a twofold increase in DALYs throughout the observed study period (APC: 3.04; 95% UI: 2.85 to 3.23; $p < 0.000001$). In 1990, the Global YLLs were reported to be 296.29, which exhibited a decline to 271.63 in 2021 (APC: -0.28; 95% UI: -0.47 to -0.09; $p = 0.004$). On the contrary, the observed YLLs in 1999 were 166.48 in Pakistan, which displayed a substantial increase to 421.96 in 2021 (APC: 3.05; 95% UI: 2.86 to 3.24; $p < 0.000001$). Conclusions: Our study revealed a sharp rise in the HBMI-associated IHD burden in Pakistan over the past three decades. These trends contrast with the global trends which are on the decrease. These high rates necessitate better public health policies, clinical strategies, early detection, and equitable treatment to ensure sustained progress in combating IHD.

DOES MILD TO MODERATE PULMONARY HYPERTENSION INFLUENCE LIVER TRANSPLANT OUTCOMES?*

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Background: Pulmonary hypertension (PHT) is a known hemodynamic complication often encountered in patients with advanced liver disease. Its a recognized perioperative risk factor in liver transplant patients. This pathophysiological overlap complicates the management of patients undergoing liver transplantation (LTx), as PHT increases the risk of right ventricular failure, intraoperative hemodynamic instability, and poor postoperative outcomes.

Objective: This study investigates whether mild to moderate Pulmonary hypertension (PHT) affects post transplant survival and ICU complications in liver transplant (LTx) recipients.

Methods: A total of 671 patients who underwent liver transplants between 2018–2023 were evaluated. Of these, 230 patients with complete echocardiographic data and follow-up records were selected. They were divided into two groups: 141 without PHT and 89 with PHT. Baseline characteristics were compared using t-test and chi-square test. One-year survival was assessed using Kaplan-Meier curves and log-rank test. Univariate Cox regression identified predictors of survival among age, gender, MELD-Na, BMI, and PHT. ICU stay and complications were analysed using Mann-

Whitney U and chi-square tests. Results: Baseline characteristics were comparable between groups. The one-year survival rate was lower in PHT patients (87.7%) than in non-PHT patients (97.7%) (log-rank, $p=0.005$). Of the variables tested in Cox regression, PHT was the only significant predictor of survival ($p=0.012$). Complications, including prolonged ICU stay, did not differ significantly between groups ($p=0.434$). Conclusion: Mild to moderate PHT raises mortality in LTx but does not affect ICU stay or complications. Many patients lacked echocardiographic data or were lost to follow-up, limiting findings. Larger studies with complete data are needed to assess PHT's true impact.

**POSTOPERATIVE IMPACT OF SHORT-TERM
DUTASTERIDE THERAPY ON BLEEDING
CONTROL AFTER TURP: A CLINICAL STUDY
AT PAKISTAN RAILWAYS HOSPITAL,
RAWALPINDI, PAKISTAN***

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Introduction: Benign prostatic hyperplasia (BPH) is a common condition in aging males, often requiring surgical intervention such as Transurethral Resection of the Prostate (TURP). A notable complication during TURP is perioperative bleeding. Dutasteride, a 5-alpha-reductase inhibitor, reduces intraprostatic vascularity by suppressing dihydrotestosterone levels. This study evaluates whether short-term Dutasteride therapy before surgery can effectively

reduce blood loss during TURP.

Objective: This study aimed to assess the effectiveness of short-term Dutasteride therapy in reducing perioperative blood loss in patients with benign prostatic hyperplasia (BPH) undergoing Transurethral Resection of the Prostate (TURP), compared to a control group receiving no preoperative Dutasteride.

Methodology: A randomized controlled trial was conducted over six months, from February 2, 2024, to August 3, 2024, at the Department of Urology, Pakistan Railways Hospital, Rawalpindi. A total of 130 male patients aged 50–85 years, with prostate volumes greater than 40 grams and an International Prostate Symptom Score (IPSS) above 19, were enrolled. Participants were randomly assigned into two groups: Group 1 ($n=65$) received 0.5 mg of Dutasteride daily for 14 days prior to surgery, while Group 2 ($n=65$) served as the control group with no preoperative Dutasteride.

Results: The mean age of participants was 60.22 ± 4.04 years. The mean IPSS was 23.20 ± 4.00 . The average intraoperative blood loss was 1.85 ± 2.75 in the Dutasteride group and 1.56 ± 1.79 in the control group. Although there was a reduction in blood loss in the Dutasteride group, the difference between the two groups was not statistically significant ($p = 0.468$).

Conclusion: Short-term preoperative use of Dutasteride (14 days) showed a trend toward reduced blood loss during TURP. While the difference was not statistically significant, the findings suggest a potential clinical benefit of Dutasteride in minimizing

perioperative bleeding, warranting further investigation with larger sample sizes.

Keywords:

TURP, BPH, Dutasteride, IPSS, blood loss

FOMO! AN EMERGING EPIDEMIC IN MEDICAL STUDENTS*

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Introduction: FOMO (Fear Of Missing Out) is a fear of not being included in something that others are experiencing. It is an emotional response to the belief that other people are living better, more satisfying lives than you. FOMO is a main type of problematic attachment to social media and is associated with a range of negative life experiences and feelings, such as a lack of sleep, reduced life competency, emotional tension, negative effects on physical well-being, anxiety, and a lack of emotional control. Medical students experience higher levels of mental distress than students doing other degrees due to stigma and concerns regarding career progression. It is not unique to medical students as they are experiencing this fear and may feel compelled to check social media more often to follow their friends' plans and activities that are not in any medical field.

Objective: The objective is to determine the fear of missing out (FOMO) in medical students and make them acknowledge this fear until it leads to serious mental illness.

Methodology: It is a cross-sectional survey conducted among private medical colleges.

Sample size: The study population is a total of 300 medical students calculated via OpenEPI. Study duration: The study duration is 6 months. Ethical approval is taken by the institutional review board at CPMC. Data collection: The method of data collection is through a structured questionnaire given by the FOMO scale, which was proposed by Przybylski, Murayama, DeHann, & Gladwell (2013). This scale refers to the participants between the ages of 18-62. Inclusive criteria: Medical students Exclusive criteria: Students doing other degrees than MBBS.

Results: The questionnaire filled by the participants concludes that most of the medical students are at the verge of getting into FOMO rather than having FOMO. There were 10 questions to evaluate this fear in the medical students, for example 'I fear when my friends have more rewarding experiences than me.', 'When I miss out on a planned get-together it bothers me', 'I get anxious when I don't know what my friends are up to.' Such 10 questions were in the questionnaire and majority of the responses lie in the "slightly true of me".

Conclusion: Irrespective of the huge academic syllabus along with the attendance pressure, the medical students are somehow satisfied and versatile and not as such suffering from FOMO which is the outstanding behaviour of medical students. Other people who are actually going through this fear of missing out should take lessons and motivation from the medical students.

**AWARENESS OF CARDIOVASCULAR
DISEASE AND ITS RISK
FACTORS AMONG PATIENTS WITH TYPE II
DIABETES AND NON-DIABETICS AT A
TERTIARY CARE HOSPITAL: A CROSS-
SECTIONAL ANALYTICAL STUDY**

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Background: The prevalence of type 2 diabetes mellitus and CVD is alarmingly high in Pakistan and is increasing with each passing year. CVDs are highly preventable with sustainable knowledge-based practice but awareness regarding risk factors is sub-optimal. Objective: The objective of our study was to assess the awareness of cardiovascular disease and its risk factors in patients with diabetes and non-diabetics and also to evaluate the association between sociodemographic variables and level of awareness. Study Design: Analytical cross-sectional study. Duration: February to July 2024. Setting: Outpatient departments in PEMH and CMH Rawalpindi, Pakistan. Materials and methods: The sampling method was non-probability purposive sampling. A digital questionnaire and on-ground survey was used to obtain data. Questions from the HDFQ questionnaire were included in it. The data was analyzed using SPSS 26. Results: Overall, more than 65% of the participants were not well aware of the risk factors for developing

cardiovascular disease. Patients suffering from diabetes had a significantly higher knowledge of the risk factors ($p < 0.001$), yet the percentage was not satisfactory. The demographic factors which played a significant role included age ($p = 0.039$), level of education ($p < 0.001$) and area of residence ($p < 0.001$).

Conclusion: The study concludes that a majority of individuals are not well aware of the risk factors of cardiovascular disease. The results concur that there is a great need for increasing the awareness regarding the risk factors of cardiovascular diseases. Either the knowledge being imparted to the population is inept, or they do not understand the serious implications of the lack of control of the risk factors of CVDs.

BODY SHAMING AND ITS ROLE IN BODY DISSATISFACTION AND BODY IMAGE OF PREGNANT AND POSTPARTUM WOMEN IN RAWALPINDI*

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Objectives: The study objectives were to assess body dissatisfaction and body image during pregnancy and postpartum, and identify the effect of body shaming on women's self-esteem. **Materials and methods:** An analytical cross-sectional study conducted amongst 251 women (at 95% CI and 5% margin of error) aged 20-40 years old from March 2024 to August 2024. Data was collected from PEMH and CMH Rawalpindi by using a self-constructed questionnaire, translated to Urdu. Women aged 20-40 years who had undergone at least one pregnancy were asked to fill the questionnaire. Moreover, women who were not willing to fill the questionnaire and didn't give the consent to be included in the research were excluded.

The data collected from the sample was analysed using SPSS 26 software. **Results:** This study investigates the demographic characteristics, experiences, feelings, and self-image of 251 women aged 20-40 regarding body shaming during pregnancy and postpartum. The majority had an undergraduate education. Findings indicate that 77.3% of participants felt bad about their bodies due to body shaming, with significant emotional impacts reported by 73%. Only 17.1% felt comforted after such

experiences. Self-image perceptions revealed that 61.7% were uncomfortable in their skin, and 78.9% felt negatively about their bodies. Statistical analysis showed significant differences in experiences and self-image across different age groups, education levels, and number of children. **Conclusions:** It was concluded how body shaming impacts women's self-perception, especially younger women and those with lower education levels. It shows that regardless of the number of children, women face similar body shaming experiences. Many women are unaware of body shaming during pregnancy/postpartum due to stigma. This research highlights the need for awareness and support to promote self-acceptance and empowerment among women facing body shaming. **Key words:** body shaming, body dissatisfaction, pregnant, postpartum.

**COMPARISON OF BLOOD PRESSURE IN
UPPER ARM AND WRIST AMONG
UNDERGRADUATE MEDICAL STUDENTS: A
CROSS-SECTIONAL STUDY***

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Introduction: Hypertension is one of the most common cardiovascular disorders and a major concern for public health. At present, several techniques are available for measuring the blood pressure. The use of Automatic blood pressure (BP) monitoring devices for self-measurement of blood pressure is increasing day by day in the clinical settings and homes. For screening, diagnosis, and management of hypertension, accurate blood pressure measurement is pivotal. Blood pressure measurement at wrist is more convenient for self-use as compared to upper arm which requires assistance in applying the cuff.

Objective: To compare blood pressure measurements obtained from upper arm and wrist among medical students.

Methods: Blood pressure was first measured from the upper right arm of the subject supported at heart level using Certeza BM-405 Arm-type Digital Blood Pressure Monitor® and then from the right wrist supported at heart level using Certeza BM-307 Wrist-type Digital Blood Pressure Monitor®. All the measurements were recorded by the same investigator under the same conditions. Data were analyzed using IBM SPSS Statistics®. t-test, chi-square test

and Fisher's exact test were used for data analysis. The significance value was set as 0.05.

Results: A total 155 students were included in the study out of which 134 were males and 21 were females. The result shows that there was significant difference in blood pressure (systolic and diastolic) between the arm and wrist reading with p value of <0.001. The readings of arm blood pressure were significantly raised as compared to wrist blood pressure. Also the results show that the BMI has no significant impact on the readings of two blood pressures. Conclusion: Significant arm-wrist BP differences strongly demand standardized clinical measurement thresholds or a conversion factor so that wrist type oscillometric blood pressure monitor, which is easy to use, can be employed with suitable reliability.

**SCRAPING THE TIP OF THE ICEBERG:
PREVALENCE OF UNDIAGNOSED
HYPERTENSION AMONG PATIENTS
PRESENTING TO THE OPD OF PUBLIC
TERTIARY HOSPITALS, RAWALPINDI***

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Muhammad Ibrahim Shahzad, Aiman Latif Qureshi, Maryam Sial, Sidra Hamid*

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Introduction: Hypertension - the "silent killer" - is an ever-increasing global health concern, affecting a massive 1.28 billion adults worldwide. Alarming, over 50% of the hypertensives across the globe are unaware of their elevated blood pressures. This undiagnosed hypertension is a cause for concern, especially in developing countries like Pakistan that face constrained health resources.

Objectives: Our study aims to shed light on the prevalence of undiagnosed hypertension among patients presenting to the Outpatient departments (OPDs) of public tertiary hospitals in Rawalpindi, Pakistan. According to our knowledge, no similar hospital-based study has been conducted in Pakistan before.

Methods:

A descriptive, cross-sectional study was conducted in May, 2024, on 148 OPD patients of three tertiary hospitals in Rawalpindi, Pakistan. All the patients had not been diagnosed with hypertension till the time of conducting the study. Prevalence of hypertension was measured, and its association with different demographic variables of the population was analyzed.

Results: Out of the 148 participants of the study, 76 were females and 72 were males. Majority of the patients were in the age group of 50 to 59 years. Around 30% of the participants were diabetic and 13% were smokers. Undiagnosed hypertension and prehypertension were present in 22% and 40% of the patients, respectively. Gender and diabetes status were significantly associated with hypertension; females and diabetics had a higher mean blood pressure. Females had 2.8 times higher chances of having undiagnosed hypertension than males. A p value of <0.05 and a 95% confidence interval was adopted for all analyses. **Conclusion:** This study concludes that the 22% prevalence of undiagnosed hypertension is alarming. And it should serve as a catalyst for the institution of an adequate blood pressure monitoring set-up in the OPDs of public tertiary hospitals in Rawalpindi, Pakistan.

**SILENT SUFFERING: UNVEILING THE STRESS
EFFECTS OF SOCIAL REJECTION ON
INTERSEX COMMUNITY OF PAKISTAN***

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BACKGROUND AND OBJECTIVES: World Health Organization defines intersex individuals as those whose gender identity and expression diverge from societal norms associated with their assigned sex at birth. Factors such as societal rejection, stigma and economic instability lead to higher rates of mental health disorders (36.2% depression, 40% anxiety), than general population. Our study aimed to clarify the mental health challenges faced by the intersex in Islamabad with objectives to assess frequency of discrimination, rejection, victimization and negative expectations and their association with perceived stress.

METHODOLOGY: In this analytical cross-sectional study, data was collected from 56 transgender individuals in Islamabad using snowball sampling after approval from IRB-FMC and obtaining individual consent from participants. Pre-validated instruments, i.e. the Gender Minority Stress and Resilience Measure and the Perceived Stress Scale, were administered in an Urdu-validated format to assess discrimination, victimization, social rejection and negative expectations and perceived stress. Chi-square and t-test were used to assess the association between qualitative and quantitative variables respectively at 5%

alpha.

RESULTS: The analysis of our data indicates that 7.4% of participants experienced low stress, 70.4% experienced moderate stress, and 22.2% experienced high stress levels. The frequency of discrimination was 85.2%, while both rejection and victimization were reported at 85.2% and 74.1%, respectively. Additionally, the frequency of negative expectations was found to be 96.3%. Among these variables, victimization demonstrated a significant relationship with perceived stress, as indicated by a Chi-square test yielding a p-value of 0.02. Additionally, negative expectations were found to be significantly associated with perceived stress with a p-value of 0.003 in Chi-square test.

CONCLUSION: Our research demonstrated that victimization and negative expectations contribute to perceived stress. In contrast, discrimination and rejection do not appear to have significant impact on perceived stress among them. Societal behaviour significantly impacts stress levels in Pakistan's intersex community. Further research is needed to explore the link between behaviour towards gender-nonconforming individuals and mental health disorders. Evidence based policies must promote inclusivity in healthcare to better support marginalized communities.

KEY WORDS: Transgender, Perceived stress, Discrimination, Rejection, Negative expectations, Victimization

**PROMOTING TELEREHABILITATION
THROUGH VIDEO DEMONSTRATION AND
UNDERSTANDING ITS BARRIERS FACED BY
PATIENTS SEEKING REHABILITATION
SERVICES IN ISLAMABAD***

Zainab Binte Zubair, Esha Anjum Khan,
Ahmad Bin Kashif, Fatima Hussain Awan,
Iqra Farooq, Hamza Khaleeq, Dr. Arshia Bilal
, Dr. Armin Bilquis

Fazaia Medical College

Introduction: Telerehabilitation; the delivery of rehabilitation services via telecom networks or internet services is a promising solution to the increasing demand for rehabilitation, as estimated that in Pakistan, there are less than one rehabilitation professionals for every 10,000 people. Despite this, it has remained underutilized. Therefore, we aimed to understand the reasons for the neglect of telerehabilitation and increase its utilization to harness all possible benefits. **Objectives**

Our objectives were to assess baseline levels of understanding of telerehabilitation among patients, create awareness via an informational video and assess its effectiveness and identify challenges regarding their utilization. **Methodology**

A quasi-experimental study was carried out on 166 participants who required rehabilitation services in the hospitals of Islamabad, recruited through purposive sampling. We identified levels of awareness prior to showing the respondents our informative video through a self-developed questionnaire that was administered via interviews. The proportion of challenges was

computed, and effectiveness of intervention was assessed on SPSS using goodness of fit test at 5% alpha.

Results: Previously aware participants included 23.5% of the total, while only 4.2% had used Telerehabilitation before. The patients also identified the major challenges, such as less care and attention by doctors in online sessions (69.3%), poorly designed website user-interface (47.6%) and difficulty understanding website language (44%). The study found a significant association between various challenges and gender, increasing age and the effect of disability. The informational video was effective (p-value <0.001) and yielded significant change in the desire to use telerehabilitation services in the future. **Conclusions and Implications:** The demonstration of the video was deemed effective; therefore, it shows that mass level awareness campaigns can have a positive effect on the utilization of telerehabilitation. Similarly, the popular challenges that were perceived by the respondents highlight aspects of telerehabilitation requiring improvement to increase utilization and decrease patient burden.

DENTAL HEALTH EDUCATION AND THE CHALLENGE OF SPECIAL NEEDS CARE: A CROSS-SECTIONAL STUDY*

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Background: Individuals with special needs require dental care that often exceeds routine procedures due to physical, developmental, cognitive, or emotional challenges. Despite the growing need, dental education in Pakistan may lack adequate preparation in this area. **Objectives:** This study aimed to assess dental students' preparedness, satisfaction with their education, and attitudes towards treating patients with special needs. **Methods:** A descriptive cross-sectional study was conducted among dental students in Islamabad and Rawalpindi using a pre-validated questionnaire (Susan Parker, Hew JKL, 2013). Data were collected via Google Forms and analyzed using SPSS. Convenience sampling was used, and only complete responses from students in the twin cities were included (n = 104).

Results: Of the 104 participants, 78.8% were female and most were aged 19–21. While 36.6% felt prepared to treat special needs patients, 40.3% did not, and 23.1% were neutral. A significant 86.5% reported no formal coursework in this area. Despite this, 81.8% felt confident treating deaf patients and 72.7% were comfortable treating blind patients. Most students (77.9%) recognized the importance of sensitivity when

managing these patients. **Conclusion:** Although dental students demonstrate willingness and confidence in treating special needs patients, a lack of formal education and training exposes a critical gap. Integration of specialized coursework into dental curricula is essential to ensure comprehensive and inclusive care.

CAREGIVER DEPRESSION IN A LOW-RESOURCE SETTING: SOCIO-DEMOGRAPHIC PREDICTORS OF MAJOR DEPRESSIVE DISORDER AMONG FAMILY CAREGIVERS OF BREAST CANCER PATIENTS IN PUNJAB, PAKISTAN*

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Background: Caregivers of breast cancer patients experience a significant psychological burden, which may lead to Major Depressive Disorder (MDD). However, limited research has explored the prevalence among caregivers in Punjab, Pakistan where patients' responsibility often falls on families with limited mental health support. This study aimed to assess the prevalence of MDD among these caregivers and identify contributing socio-demographic and health-related factors, highlighting the psychological burden they endure. **Methodology:** A cross-sectional study was conducted in tertiary care hospitals of Punjab, Pakistan. The Patient Health

Questionnaire-9 (PHQ-9) was used to screen for MDD, with a score of ≥ 10 indicating a positive diagnosis. Socio-demographic and health-related data were collected through structured questionnaires. Statistical analysis was performed using JAMOV software, incorporating descriptive statistics, chi-square tests, t-tests/ANOVA, and binomial logistic regression to identify factors associated with MDD. Results: Among 384 participants, 40.4% of caregivers experienced MDD, with 26.5% reporting mild, 10.8% moderate, and 3.1% severe depression. Among them, significant association was observed between MDD and uneducated caregivers ($p=0.002$), unemployed caregivers ($p<0.05$), and one with nuclear family structures ($p=0.0047$), indicating higher risk of depression. Logistic regression identified uneducated status as a significant independent predictor of MDD ($p=0.02$). However, factors such as BMI, marital status, and chronic illnesses did not show significant associations with MDD. Conclusion: A considerable proportion of caregivers supporting breast cancer patients in Punjab, Pakistan, suffer from MDD with low education, unemployment, and nuclear family setup are key factors contributors. To mitigate the psychological distress faced by these caregivers, targeted mental health interventions and support programs are urgently needed.

OUTCOME OF PAEDIATRIC RENAL TRANSPLANT IN A TERTIARY CARE HOSPITAL OF PAKISTAN: A RETROSPECTIVE STUDY*

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Renal transplantation is the preferred treatment for pediatric end-stage renal disease (ESRD), offering better quality of life, growth, and survival than dialysis. Objective: To assess 1-year and 5-year outcomes of pediatric renal transplants at a tertiary care hospital in Pakistan from 2002 to 2024.

Methods: A retrospective study at Shifa International Hospital analyzed 96 pediatric transplants. Patients under 16 years, both dialysis-dependent and independent, were included, while ABO-incompatible transplants were excluded. Outcomes were based on graft and patient survival. Results: Demographics: 72.9% male, 27.1% female, mostly aged 9–16 years. Donors: Majority (64.6%) aged 35–50 years. Transplant Type: 21.9% pre-emptive, 72.9% dialysis-dependent. Infections: Occurred in 12.5% of cases (UTIs most common, 5.2%). Survival: At 1 year, 99% had GFR >15 mL/min; at 5 years, 83.7% maintained this level. Mortality was 2.1%.

Conclusion: Pediatric renal transplantation in Pakistan shows excellent long-term

outcomes, with high graft survival at 5 years despite some renal decline.

**THE CHANGING FACE OF MRSA:
ANTIMICROBIAL RESISTANCE TRENDS
OVER 7 YEARS***

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Introduction: Staphylococcus aureus, a Gram-positive bacterium, causes symptoms ranging from moderate skin and soft tissue infections to potentially lethal vascular or deep-seated infections. S. aureus can produce enzymes such as coagulase, hyaluronidase, deoxyribonuclease, and lipase, which enhance its pathogenicity and facilitate its spread throughout the host. The primary aim of the study was to evaluate the antimicrobial sensitivity patterns of Methicillin-Resistant Staphylococcus aureus (MRSA).

Methods: All clinical samples were collected aseptically from various hospital departments and wards, inoculated on blood agar and MacConkey's agar, and incubated for 24 hours at 37°C. The results were recorded and analyzed using Microsoft Excel.

Results: A total of 2,460 MRSA samples were isolated. Vancomycin was found to be effective against approximately 2,446 (99.43%) strains, followed by Linezolid in 1,861 (98.57%) strains. Key antibiotics such as Penicillin, Ceftazidime, Augmentin, Ceftriaxone, Cloxacillin, Imipenem,

Ampicillin, Cefotaxime, Meropenem, and Cephadrine showed no effect on MRSA. **Conclusion:** This study highlights a significant increase in MRSA resistance to several commonly used antibiotics, with over 99% of strains showing resistance to Penicillin, Ceftazidime, and others. Vancomycin remains the most effective, with a 99.43% efficacy rate. The findings underscore the urgent need for stringent antibiotic stewardship and continuous surveillance to manage the escalating challenge of antibiotic resistance.

**DETERMINING THE ACCURACY OF
ARTIFICIAL INTELLIGENCE APP (MEDGIC) IN
DIAGNOSING DERMATOLOGICAL LESIONS
A COMPARATIVE STUDY***

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Introduction: Recent advancements in Artificial Intelligence (AI) have introduced highly accurate diagnostic tools for dermatological conditions, improving access to healthcare and reducing clinic overcrowding.

Objective: This study evaluates the diagnostic accuracy of the Medgic AI app for skin lesions, aiming to enhance early diagnosis and patient care. **Methods** An analytical study was conducted in the Dermatology Outpatient Departments (OPD) of PAF Hospital Units I and II, Islamabad, from February to September 2024. A sample

of 100 participants was recruited using non-probability purposive sampling. After informed consent, images of participants' skin lesions were captured and processed by the AI app. The App-generated diagnoses were compared with those of a classified dermatologist.

Results: The AI app demonstrated an overall diagnostic accuracy of 72%. It achieved 100% accuracy in diagnosing acne vulgaris, warts, and nevi. A statistically significant p-value of <0.001 was obtained using a Binomial Test. However, limitations such as the app's inability to diagnose hair and nail disorders and privacy concerns regarding lesions in sensitive areas affected participation. **Conclusion:** The Medgic AI app shows promising potential for diagnosing skin lesions and could reduce clinic burdens and improve access to dermatological care. Despite limitations, including privacy concerns and app restrictions on hair and nail diagnoses, the findings suggest AI's role in future clinical practice. Further multicentre research is necessary to enhance AI algorithms and address variety of cases.

COMPLICATIONS OF CATARACT SURGERY IN PATIENTS WITH BPH TREATED WITH ALPHA-1A BLOCKERS: FOCUS ON INTRAOPERATIVE FLOPPY IRIS SYNDROME*

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Background: Benign prostatic hyperplasia (BPH) and cataracts are prevalent in aging male populations. Alpha-1 adrenergic receptor antagonists, particularly tamsulosin, are commonly prescribed for BPH but have been strongly linked to intraoperative floppy iris syndrome (IFIS) (a significant complication during cataract surgery). Intraoperative floppy iris syndrome (IFIS) during cataract surgery is characterized by iris fluttering, iris prolapse towards the incisions, and progressive pupillary constriction leading to high rates of complications.

Objective: This study investigates the association between alpha-1A blockers and IFIS, comparing the incidence and severity of intraoperative complications in patients on selective and non-selective alpha-blockers. **Methods:** Medical records of 64 male patients (92 eyes) who underwent phacoemulsification and were on tamsulosin or alfuzosin were retrospectively reviewed. Key indicators of IFIS (iris flaccidity, iris prolapse, and intraoperative miosis) were evaluated alongside surgical complications. An additional analysis compared adverse outcomes in patients with and without recent alpha-blocker exposure.

Results: IFIS was identified in 86.4% of eyes exposed to tamsulosin compared to 15.4% in those on alfuzosin ($P<.001$). Of 17 eyes treated with tamsulosin, 30% exhibited all IFIS characteristics. The adjusted odds ratio for IFIS in tamsulosin users was 32.15. Eyes with IFIS showed significantly higher complication rates, including posterior capsule rupture, and iris trauma.

Conclusion: Alpha 1 antagonist use is strongly associated with IFIS and increases the risk of cataract surgery complications. The incidence of IFIS was significantly higher in patients on tamsulosin. Although not all patients develop IFIS, prescribers should consider cataract risk when initiating alpha-blocker therapy. Multidisciplinary collaboration between urologists, ophthalmologists, and general practitioners is essential. Preoperative disclosure and surgical modifications such as iris retractors and pharmacologic agents can help mitigate intraoperative risks.

MEDICAL STUDENTS' ATTITUDES TOWARD AI IN EDUCATION: PERCEPTION, EFFECTIVENESS, AND ITS CREDIBILITY*

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Background/Introduction: The rapid advancement of artificial intelligence (AI) has revolutionized both medical education and healthcare by delivering innovative tools that enhance learning and improve overall outcomes. The study aimed to assess students' perceptions regarding the credibility and effectiveness of AI as a learning tool and to explore the dynamics of integrating AI in medical education. **Methodology:** A cross-sectional study was carried out across medical colleges in Pakistan. A 26-question survey was developed using Google Forms from previously validated studies. The survey assessed demographics of participants, basic understanding of AI, AI as a learning tool in medical education and socio-ethical impacts of the use of AI. The data was analyzed using SPSS (v 26.0) to derive descriptive and inferential statistics. **Result:** A total of 702 medical students from 22 medical colleges across Pakistan, aged 18 to 26 years (mean age 20.50 ± 1.6 years) participated in the study. The findings revealed a generally favorable attitude towards AI among medical students (80.3%), with the majority considering it an effective

(60.8%) and credible (58.4%) learning tool in medical education. Students agreed that AI learning optimized their study time (60.3%) and provided up-to-date medical information (63.1%). Notably, 65.7% of students found AI more efficient in helping them grasp medical concepts compared to traditional tools like books and lectures, while 66.8% reported receiving more accurate answers to their medical inquiries through AI. The study highlighted that medical students view traditional tools as becoming increasingly outdated (59%), emphasizing the importance of integrating AI into medical education and creating dedicated AI tools (80%) for the medical education.

Conclusion: This study demonstrated that AI is an effective and credible tool in medical education, offering personalized learning experiences and improved educational outcomes. AI tools are helping students learn medical concepts by cutting down on study-time, providing accurate answers, and ultimately improving study outcomes. We recommend developing dedicated AI tools for medical education and their formal integration into medical curricula, along with appropriate regulatory oversight to ensure AI can enhance human abilities rather than acting as a replacement for humans.

QUALITY OF LIFE AND ASSOCIATED FACTORS IN BREAST CANCER PATIENTS UNDERGOING CHEMOTHERAPY AT A TERTIARY CARE HOSPITAL: A CROSS-SECTIONAL ANALYTICAL STUDY*

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INTRODUCTION: Breast cancer is ranked as number 1 among all cancers prevalent in Pakistan. Understanding the impact of adjuvant chemotherapy on the QOL of affected women is crucial for modifying treatment strategies and support services.

OBJECTIVE: This study aimed at evaluating the impact of chemotherapy on the quality of life (QOL) in breast cancer patients in Rawalpindi, Pakistan.

METHODOLOGY: This was an Analytical cross-sectional study conducted among breast cancer women from oncology departments of tertiary care hospital. Sample size was calculated using Rao calculator with a confidence level of 95% and 5% margin of error and was found to be 377. We used non-probability purposive sampling technique. Women aged 25-65 years with breast cancer, receiving chemotherapy for at least 6 months were included while all those who had other co-morbidities were excluded. The EORTC QLQ-C30 and BR23 questionnaires were used to assess QOL. Data analysis was conducted using SPSS. Frequencies and percentages were used for sociodemographic data, and medians and interquartile ranges for different domains of QOL. Chi-square test and Multiple Regression analysis were used to find associations.

RESULTS: The study included 377 females, with the majority (68.3%) in the age group 30-50 years. The median score for Global Health Status was 58.33 with an IQR of 16.67, while that of physical, emotional, cognitive and role functioning was the same i.e.66.66. Significant association of quality of life was found with marital status and socioeconomic class ($p<0.05$), while no association was found with age and educational level ($p>0.05$). Quality of life was positively correlated with sexual enjoyment ($B=0.030$, $p=0.039$), cognitive functioning ($B=0.168$, $p<0.001$) and future perspective ($B=0.183$, $p<0.001$). On the contrary, it was negatively correlated with systemic therapy ($B= -0.316$, $p<0.001$) and breast symptoms ($B= -0.023$, $p=0.005$). **CONCLUSION** The findings show the impact of chemotherapy on different aspects of patients' lives. It emphasizes the requirement for support mechanisms to address both the physical and psychological challenges faced by breast cancer patients undergoing treatment.

ASSESSING THE PREPAREDNESS AND PERCEPTIONS OF MEDICAL STUDENTS FOR TELEMEDICINE: IMPLICATIONS FOR CURRICULUM DEVELOPMENT AND FUTURE HEALTHCARE DELIVERY*

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Background: The rapid evolution of healthcare technology has positioned telemedicine as a transformative force in medical practice, offering potential benefits in accessibility, efficiency, and patient care. Despite its growing relevance, the integration of telemedicine education into medical curricula remains inconsistent, potentially leaving future healthcare professionals underprepared to leverage these technologies. Understanding medical students' knowledge and attitudes towards telemedicine is crucial for developing targeted educational strategies that can bridge this gap and foster a workforce equipped to meet the demands of modern healthcare. **Objective:** This study aims to critically evaluate the current state of telemedicine knowledge and attitudes among medical students, identifying key factors that influence their perceptions. **Methods:** A cross-sectional survey was conducted in February 2024 among MBBS students in Sindh and KPK using a standardized questionnaire. Convenience sampling was employed, and data were

collected via online Google Forms. The questionnaire was validated through expert review and pilot testing. An Exploratory Factor Analysis (EFA) confirmed the construct validity, identifying seven distinct subscales of Knowledge of Telemedicine and one for Attitude of Telemedicine. Descriptive and inferential statistics, including Mann-Whitney U tests, Kruskal-Wallis tests, and Spearman's rank-order correlations, were used to analyze the data. Results: The study included 395 participants, predominantly aged 21-23 years (63.6%) and male (56.2%). A significant majority (75.4%) reported no formal education on telemedicine, and 82.8% indicated that their curriculum lacked telemedicine modules. Familiarity with telemedicine was generally low, with only 5.9% of students considering themselves 'very familiar.' The total knowledge score averaged 32.8%, with the highest scores in 'Chronic Disease Management and Infrastructure' (46.0%) and the lowest in 'Educational Components and Monitoring Alerts' (27.5%). Attitudes towards telemedicine were more positive, with an average score of 62.6%. However, students expressed concerns about the lack of physical examination, security and privacy issues, and technological limitations. Significant positive relationships between familiarity with telemedicine and several knowledge subscales ($p < 0.01$) were observed. Gender differences were notable, with female students scoring lower in certain knowledge subscales and the total attitude score ($p < 0.05$). Formal education and

medical years also significantly influenced knowledge scores. Conclusion: Medical students demonstrate a moderate understanding of telemedicine, with positive attitudes toward its future implementation. However, substantial gaps in knowledge, underscore the need for enhanced curricular integration. Targeted educational interventions, including the incorporation of telemedicine modules, are crucial to prepare future healthcare professionals for the evolving landscape of digital health. Keywords: Telemedicine, Medical students, Knowledge, Attitudes, Curriculum Integration, Medical Education

PREVALENCE OF SEASONAL AFFECTIVE DISORDER AND IT'S IMPACT ON MENTAL HEALTH AND SEASONAL SENSITIVITY AMONG STUDENTS OF RAWALPINDI*

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Introduction: Seasonal Affective Disorder (SAD) is a recurring form of depression that typically emerges during the fall and winter months and subsides in spring or summer although in some regions may occur in reverse. This study aimed to find the prevalence of SAD and its effects on mental health and seasonal sensitivity among university students in Rawalpindi, Pakistan—a region characterized by a distinct Himalayan-influenced climate. Method Utilizing a descriptive cross-sectional design, 172 university students of Rawalpindi aged

18 to 25 were selected through simple random sampling. Data was collected using a validated, self-administered questionnaire incorporating the Seasonal Pattern Assessment Questionnaire (SPAQ) and the ER80 mental health scale.

Results

The study revealed that 13.3% met the Kasper criteria for Seasonal Affective Disorder (SAD), 32.5% showed subsyndromal symptoms, and 54.6% had no significant seasonal affective symptoms. Additionally, 75 participants (43.9%) reported seasonal changes in food preferences. Notably, the majority of students diagnosed with SAD were hostilities, suggesting a possible link between lack of seasonal acclimatization and increased vulnerability to SAD. Most participants reported behavioral patterns that suggest SAD in this population is most likely to occur during the winter months (Dec-Jan), consistent with the classic winter-pattern presentation of the disorder. Conclusion: This study highlights a significant prevalence of Seasonal Affective Disorder among students in Rawalpindi, revealing its notable impact on mental health and seasonal sensitivity. These findings emphasize the need for increased awareness, early identification, and the development of targeted, non-pharmacological interventions to support student well-being during seasonal transitions.

DEPRESSION, ANXIETY, AND STRESS LEVELS IN MEDICAL STUDENTS RESIDING IN HOSTEL VS DAY SCHOLARS: A COMPARATIVE CROSS-SECTIONAL STUDY*

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Introduction: In today's world, more people are stressed than decades ago. A good number of these people are students, due to academics, poor sleep etc. This research aimed at determining whether medical students residing in hostel or day scholars experienced more depression, anxiety and stress.

Objective:

1. To compare the prevalence of depression, anxiety and stress levels between medical students residing in hostel vs day scholars.
2. To determine the association between the type of residence and the score on the Depression Anxiety Stress Scale-21

Methods: The study was a comparative cross-Sectional study. This study was conducted among MBBS students of Al-Nafees Medical College which was the study setting. The duration was 3 months. A total of 219 students were included in the study. The sample was calculated using RaoSoft Sample Size Calculator. The sampling technique was convenience sampling. A questionnaire containing demographic details section and Depression Anxiety Stress Scale-21(DASS-21) was used to collect data. The data was entered and analyzed using Statistical Package for Social Sciences (SPSS) version 27.0.

Results: A total of 219 MBBS students

participated in this study, comprising of 110 males (50.2%) and 109 females (49.8%). 111 were day scholars (50.7%) while those residing in hostel were 108(49.3%). Out of the 219 participants, 57.5% experienced different degrees of depressive symptoms, which ranged from mild to extremely severe. 63.5% participants had different degrees of anxiety, while 54.3% experienced stress at varying levels. Tests of normality showed non-normally distributed data. Chi-square test and Mann-Whitney U test showed no significant differences in depression, anxiety, or stress levels between medical students residing in hostel vs day scholars. Conclusion: This study showed no significant differences between the DASS-21 scores due to residence type.

THE ROLE OF SOCIAL SUPPORT AS A BUFFER FOR IMPOSTER PHENOMENON AMONG MEDICAL STUDENTS: EXPLORING THE MEDIATION AND MODERATION OF ANXIETY AND STRESS*

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Introduction: The imposter phenomenon or imposter syndrome, describes individuals' inability to internalize their success and persistent feelings of being intellectual frauds, despite evident achievements. In Pakistan, the correlation between IS and psychological factors such as anxiety, stress, and social support has not been extensively studied. Objectives: This study aims to investigate the prevalence of IS among medical students in Pakistan and examine the relationships between IS, anxiety, stress, and perceived social support. Specifically, it explores whether stress and anxiety mediate or moderate the influence of social support on IS. Methods: This cross-sectional study was conducted from March 2024 to September 2024 at Fazaia Ruth Pfau Medical College, Baqai Medical University, Nishtar Medical University, and Bakhtawar Amin Medical College. A total of 649 medical students from 1st to 5th year MBBS participated. The Clance Impostor Phenomenon (IP) Scale, Oslo Social Support

Scale (OSSS-3), and Depression, Anxiety, and Stress Scales (DASS-21) were used to measure IS, social support, anxiety, and stress, respectively. Data were analyzed using IBM-SPSS version 26.0, with correlation, regression, mediation, and moderation analyses performed. Results: The mean scores of IS indicated high levels of IS (61.23), severe anxiety (17.25), moderate stress (19.45), and low perceived social support (8.63). Correlation analysis showed that IS was negatively correlated with perceived social support ($r = -0.141$). However, IS correlated positively with anxiety ($r = .536$), and stress ($r = .585$). Hierarchical regression analysis revealed that social support alone explained a small variance in IS ($R^2 = 0.020$), but the inclusion of anxiety and stress significantly increased the explained variance ($\Delta R^2 = 0.356$, $p < 0.001$). Mediation analysis indicated that social support reduced IS indirectly by lowering anxiety and stress. Moderation analysis found that anxiety and stress did not significantly moderate the relationship between social support and IS. Conclusion: Higher social support is associated with lower IS, primarily by reducing anxiety and stress. However, when anxiety and stress are prominent, the direct effect of social support on IS diminishes. Interventions to enhance social support and address anxiety and stress are crucial for mitigating IS among medical students. This study contributes to the understanding of the complex interactions between social support, anxiety, stress, and IS, providing a

basis for future research and practical applications in medical education.

COMPARISON OF POSTOPERATIVE COMPLICATIONS AFTER TONSILLECTOMY: CAUTERIZATION VS DISSECTION*

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Background: Tonsillectomy is one of the most commonly performed otolaryngologic surgeries worldwide. The palatine tonsils, part of the Waldeyer's ring, play a critical role in immune defense but are prone to inflammation, leading to conditions like tonsillitis. This inflammation often necessitates surgical removal to improve breathing, prevent infections, and manage symptoms such as snoring and obstructive sleep apnea. Tonsillectomy can be performed using various techniques, including conventional cold dissection, mono and bipolar electrocautery, cryosurgery, thermal welding, ultrasonic scalpel, radiofrequency, and laser. However, the most common methods are cold dissection and electrocautery. While cold dissection has traditionally been the standard approach, electrocautery provides benefits such as reduced intraoperative blood loss and shorter operative time. However, it is associated with increased postoperative pain and complications, which can hinder recovery. This study aims to compare these two methods by assessing postoperative complications, particularly pain and bleeding, in patients undergoing

tonsillectomy via cauterization versus dissection.

Methodology: This prospective comparative study was conducted over three months at the ENT department of RMU Allied Hospitals. A total of 104 patients diagnosed with recurrent tonsillitis were assigned to two groups: traditional dissection tonsillectomy (n=50) and cauterization tonsillectomy (n=54). Written informed consent was obtained from each patient or their guardian prior to participation in the study. Demographic data were recorded, and postoperative complications, including pain, bleeding (reactive and secondary), and food intake (solid and semi-solid), were compared between the two groups. Pain intensity was measured using the Visual Analogue Scale (VAS), while the timing of food intake was tracked as a recovery indicator. **Results:** Intraoperative complications were minimal in both groups, with no adverse events. Patients in the dissection group had a significantly higher rate of postoperative bleeding—both reactive and secondary—compared to the cauterization group (88% vs. 40.7% for reactive bleeding, 12% vs. 0% for secondary bleeding; $p=0.000$). Cauterization patients resumed food intake earlier, with the majority starting within the first 24 hours, whereas patients in the dissection group experienced a longer delay in resuming both solids and semi-solids ($p=0.008$). Pain levels were similar between groups during the first 24 hours; however, 63% of cauterization patients reported severe pain, and 18.5% experienced the

worst pain, compared to 52% and 12%, respectively, in the dissection group. **Conclusion:** Cauterization tonsillectomy demonstrated advantages in reducing postoperative bleeding and facilitating earlier resumption of food intake. However, it was associated with slightly higher pain levels in the immediate postoperative period. Traditional dissection, while resulting in less pain, led to more significant bleeding complications. The findings suggest that cauterization may be a preferable option for minimizing bleeding risks, but careful pain management is necessary to optimize patient recovery.

EFFECT OF KNOWLEDGE ON PRACTICE OF ANTIMICROBIAL STEWARDSHIP: INVESTIGATING THE MEDIATING ROLE OF ATTITUDE AMONG UNDERGRADUATE MEDICAL STUDENTS; A CROSS-SECTIONAL STUDY*

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Introduction: Antimicrobial resistance is a global health problem. Antimicrobial stewardship(AMS) refers to using antimicrobials to conserve antimicrobial potency while ensuring their accessibility in need.

OBJECTIVES: Assess Knowledge, Attitude and Practice of Medical Students towards AMS

- Find association of Gender, Year of Education with Practice of AMS
- Determine the effect of knowledge on

practice towards AMS mediated by students' attitudes. METHODS: It is a cross-sectional study conducted at RMU from June to August 2024 using non-random convenient sampling. The sample size was 384 with a population proportion of 50%. Medical students from all five years of MBBS were included. A validated antimicrobial stewardship questionnaire was used. SPSS version 27 was used to apply descriptive statistics, and linear regression between AMS practice and predictors. Hayes process macro model 4 was used to apply mediation analysis between AMS knowledge, attitude, and practice scales. RESULTS: The majority of the respondents had good knowledge (92%), moderate practice (67.8%), and poor attitude (66.4%) towards antimicrobial stewardship. Age ($B = 0.850$, $p = 0.006$), having a family member working in healthcare ($B = 0.316$, $p = 0.004$), gender ($B = -0.545$, $p = 0.027$), and year of study ($B = -0.306$, $p = 0.021$) had a significant association with practice. Attitude ($B = 0.0476$) does not affect the relationship between knowledge and practice of antimicrobial stewardship when used as a mediator ($B = 0.2739$, CI: 0.1152, 0.4327).

CONCLUSION: There is no mediating effect of poor attitude on the relationship between knowledge and practice of antimicrobial stewardship. Age, gender, year of study, and having a family member in healthcare were significant predictors of antimicrobial stewardship practice. Incorporating AMS practice in curriculum can overcome this gap.

ASSOCIATION BETWEEN ORTHOREXIA NERVOSA TENDENCY, EATING ATTITUDES AND ANXIETY STUDIED AMONG MEDICAL STUDENTS OF RAWALPINDI MEDICAL UNIVERSITY: A CROSS-SECTIONAL STUDY*

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INTRODUCTION: Orthorexia nervosa is a clinical condition in which the person has a fixation on healthy eating. These people are concerned about the quality instead of the amount of food, unlike other eating disorders. OBJECTIVES: The objectives of this study are to evaluate the frequency of orthorexia nervosa among students of Rawalpindi Medical University and to determine the relationship between orthorexia nervosa, eating attitudes, and anxiety. METHODS: This cross-sectional study was conducted on 283 medical students of Rawalpindi Medical University, selected by random sampling method. Data was collected through a questionnaire using ORTO 15, the Hamilton Anxiety Scale, and the Eating Attitudes Scale 26. RESULTS: There were 283 participants out of which 177 (57.7%) were females and 106 (34.5%) were males. The mean age was 20.12 ± 1.5 years. According to the research statistics, 193 (62.9%) had scores below 40 which means they have the ON tendency. On comparing the mean scores, it was observed that anxiety scores were slightly higher in the group with higher ON scores (lower orthorexic tendencies) while the eating attitudes scores were lower in that group. On

the other hand, the differences in the scores were not statistically significant ($p>0.05$).

CONCLUSION: According to our study, there was no critical relationship observed between the ON tendencies and the presence of anxiety and eating attitudes. Thus, these two were not concluded as risk factors. Nevertheless, further research and clinical investigations on people belonging to diverse races, ages, professions, etc. ought to be carried out on a larger scale to determine all the possible risk variables related to ON.

KEYWORDS: orthorexia nervosa, eating attitudes, anxiety, eating disorders, medical students.

**PATIENT'S COMPREHENSION ABOUT
INFORMED CONSENT REGARDING
THERAPEUTIC AND DIAGNOSTIC
INTERVENTIONS IN TERTIARY CARE
HOSPITALS, RAWALPINDI***

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Background: Informed consent is a fundamental ethical principle ensuring patient autonomy and decision-making in medical treatment. Patients must be aware of this autonomy and properly counseled to make informed decisions about their medical interventions. **Objectives:** To evaluate patients' understanding of their medical interventions and the role of healthcare professionals in explaining procedures.

Operational Definition: Informed consent refers to how well a patient is informed about their medical interventions (therapeutic and diagnostic) and the extent of their understanding. **Methodology** A cross-sectional quantitative study surveyed 250 patients in tertiary care hospitals in Rawalpindi from March to August 2024. The study assessed patients' understanding of their procedures, awareness of potential complications and benefits, and knowledge of their rights to refuse or agree to interventions. **Results:** The study involved 250 participants with a mean age of 30.7 ± 9.65 years. Regarding time given for consent, 79 (31.6%) reported adequate time. High levels of comprehension were noted for benefits (201, 80.4%), potential complications (183, 73.2%), procedure reasons (193, 77.2%), and associated risks (136, 54.4%). Females exhibited superior recall abilities ($p = 0.009$). Significant differences were noted between education levels ($p = 0.027$ to 0.045). The consent form was best understood when attended by a consultant (161, 64.4%). **Conclusion** The study highlights that most of the participants were adequately informed and comprehended the benefits and risks of their procedures. Addressing gaps through regular training of healthcare providers on communication skills can enhance patient empowerment and maintain high standards.

**COMPARATIVE ANALYSIS OF
PSYCHOSOCIAL IMPACT OF
ANDROGENETIC ALOPECIA AMONG
DIFFERENT AGE GROUP OF MALE OF
PESHAWAR***

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BACKGROUND: Androgenetic alopecia (AGA), a common form of hair loss, affects individuals worldwide, impacting both physical appearance and psychological well-being. While genetic and hormonal factors are well-documented, the psychological impact remains underexplored, particularly in Peshawar. This study examines the psychosocial impact of AGA among males across different age groups in the general population of Peshawar.

OBJECTIVE: This study aims to (1) assess the psychosocial impact of AGA on males aged 18–30, 31–50, and 51+ years in terms of self-esteem, anxiety, and depression and (2) compare the psychosocial impact across these age groups, focusing on emotional distress and self-esteem. **INTRODUCTION:** Androgenetic alopecia (AGA), or pattern baldness, is a progressive condition influenced by dihydrotestosterone (DHT) and genetics. Beyond its physical effects, AGA is linked to psychological distress, including anxiety, low self-esteem, and social withdrawal. While its biological causes are well-understood, limited research explores its mental health consequences, particularly in younger individuals. This study provides

insights into the psychological impact of AGA to inform intervention strategies.

METHODOLOGY: A cross-sectional descriptive study was conducted among males aged 18–30, 31–50, and 51+ years in Peshawar. Data were collected using a structured, pre-validated questionnaire with a hair skin-specific index scale. A sample of 101 participants was determined at a 95% confidence level. Inclusion criteria were individuals with visible signs of AGA in the defined age categories. Those with severe preexisting mental health conditions or significant hair restoration treatments were excluded. **RESULTS:** Findings revealed a high prevalence of hair loss, particularly in the front and crown areas. Most participants (86.1%) had a family history of AGA. Significant hair loss was common, with 35.6% in Grade 4 and 23.8% in Grade 5. Younger participants experienced greater psychosocial impact, while longer hair loss duration correlated with poorer quality of life. Older participants and those with advanced AGA reported increased distress. **CONCLUSION:** This study highlights a high prevalence of AGA among males in Peshawar, with significant hair loss affecting self-esteem and mental well-being. Younger individuals faced greater psychosocial distress, while longer hair loss duration and advanced alopecia grades were linked to poorer quality of life.

INSOMNIA AND ITS ASSOCIATION WITH EXCESSIVE INTERNET USE AND DEMOGRAPHIC FACTORS AMONG MEDICAL STUDENTS IN PAKISTAN*

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Insomnia is usually 1.5 to 2 times greater in females and mostly goes unreported with not more than 30% of those afflicted with insomnia have ever sought medical help for it. Insomnia is associated with a variety of complications such as increased risk of obesity, diabetes, heart disease and stroke.

Objective: To determine frequency of insomnia and its association with internet use and demographic characteristics among medical university students.

Methods: This Cross-sectional study was conducted from June 2024 to September 2024 among students of Rawalpindi Medical University, Pakistan. Internet usage was assessed by using Internet Addiction Test whereas Insomnia was accessed through Insomnia Severity Index. Data was analyzed by using IBM SPSS Statistics version 27.

Results: The study had 151 medical students in total, with 68.9% were male. The average age was 21.07 ± 1.49 years. One hundred fourteen (75.5%) of the students were determined as internet addictive; of them, 62.3% had mild, 33.3% had moderate, and 4.4% had severe internet addiction. we identified 79 students (52.3%) who had insomnia, of whom 59.5% had mild insomnia and 40.5% had moderate insomnia. There

was significant association of insomnia with age group, field of study, year of study and internet addiction.

Conclusion: Our findings revealed a high prevalence of internet addiction among the students whereas Insomnia was also prevalent, affecting more than half of the students. Male students were more likely to experience insomnia compared to female students, Students under the age of 20 were less likely to experience insomnia compared to those above 20 years. Importantly, students without internet addiction were significantly less likely to experience insomnia compared to those with internet addiction.

PERCEPTION OF MEDICAL STUDENTS ON IMPLEMENTATION OF CLERKSHIP MODEL IN COMMUNITY MEDICINE (A QUALITATIVE RESEARCH)*

Lt col Shamaila Mohsin

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*Members: **Memoona Ajmal** (Student)*

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Background: A crucial phase in medical education is clerkship, which acts as a link between clinical theory and actual application. While existing studies have predominantly concentrated on clinical clerkships, our research uniquely delves into the underexplored terrain of Community Medicine. This study finds possible

improvements in teaching methods, student learning experiences, and programme efficacy by examining the implementation of novel clerkship model.

Objectives: To explore the perceptions of 4th year medical students about Clerkship in Community medicine and to assess challenges faced by students enrolled in this community clerkship programme.

Methodology: A qualitative study design employing non-randomized purposive sampling was used. Fifteen guideline-based interviews were conducted among 4th-year students of Army Medical College, which were audio-recorded and transcribed using Otter.ai. All participants had completed their six-week Community Medicine clerkship during the study duration, from January to April 2024. Ritchie and Spencer's framework for thematic analysis was applied to analyze the data. **Results:** Data from 15 audio-recorded interviews lead to identification of four key themes; 1) innovative learning, 2) conduct of clerkship, 3) personal skill and growth, 4) met challenges during this module. **Conclusions:** From our findings, it is evident that the clerkship module significantly enhances students' practical skills and empathetic understanding, which suggests that engaging and well-structured experiential learning opportunities are crucial for comprehensive medical education. Addressing the identified challenges through targeted improvements will further enhance the effectiveness of the program. Overall, students found the experience satisfactory but expressed a

desire for further improvements, such as smaller group sizes and flexible scheduling, to enhance the program's overall effectiveness.

Key words: Challenges, Experiential learning, Facilitator role, Innovative learning, Practical skills, Student Perceptions.

KNOWLEDGE AND ATTITUDES OF MEDICAL STUDENTS TOWARDS GERIATRIC CARE: A CROSS-SECTIONAL STUDY*

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Background: The global increase in the elderly population presents significant challenges to public health, particularly in countries like Pakistan, where the proportion of individuals aged 60 years and above is expected to rise dramatically. Despite the growing need for specialized geriatric care, medical education curricula often lack comprehensive training in this area, thus underscores the need for medical professionals to be well-prepared for geriatric care. Despite this, geriatrics is often underrepresented in medical education curricula, raising concerns about the readiness of future healthcare providers.

Objectives: This study aims to assess medical students' knowledge and attitudes towards geriatric care to identify educational gaps and inform curriculum development.

Methods: This cross-sectional study was conducted at Fazaia Ruth Pfau Medical College from March to June, following ethical approval. A convenience sample of 440 medical students across all academic years participated, with data collected through a structured questionnaire. The Knowledge of Geriatric Medicine Questionnaire (KGMQ) and Geriatrics Attitudes Scale (GAS) were used to evaluate students' knowledge and attitudes, respectively. Descriptive statistics summarized the data, while non-parametric tests and Spearman correlation analysis assessed relationships between demographic variables and knowledge/attitude scores. Ethical considerations included informed consent and data confidentiality.

Results: The study included 440 participants, predominantly females (56.5%) aged 21-23 years. Overall, 46.4% demonstrated poor knowledge, while 53.6% exhibited good knowledge of geriatric medicine. Notably, 60% of students had a negative attitude towards geriatric care. Knowledge subscale scores indicated moderate understanding of physical health (44%) and elderly characteristics (45.7%), but lower scores in mental health (26.1%). Attitude scores averaged 63.6%, reflecting relatively positive perceptions. Significant associations were found between age, gender, year of study, and knowledge/attitude scores. Age correlated positively with knowledge subscales, while gender (female) negatively correlated with mental health knowledge but positively with attitudes.

Conclusion: The study highlights moderate to low knowledge of geriatric medicine among medical students, despite relatively positive attitudes. Key areas needing improvement include mental health and physiological changes related to aging. The findings suggest a need for enhanced geriatrics education in medical curricula to better prepare future healthcare providers for the growing elderly population. Future research should focus on developing and evaluating targeted educational interventions to address these gaps.

IMPACT OF EMOTIONAL INTELLIGENCE ON LEADERSHIP STYLE OF MEDICAL PRACTITIONERS OF PEMH AND CMH RAWALPINDI*

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Objectives: This study aims to identify the Leadership Styles and Trait Emotional Intelligence (TEI) of physicians, addressing whether these vary by gender, age, and experience, and if there is an association between TEI and leadership styles. **Methodology:** This analytical cross-sectional study was conducted from 1st December 2023 till 31st May 2024 at PEMH and CMH Rawalpindi. The study included medical practitioners. The sample size was 377 calculated with Raosoft sample size calculator with a 95% confidence interval and a 5% error margin, purposive sampling technique was used. Data was collected

through self-administered questionnaires and Google Forms via SMS, after informed consent. Two validated questionnaires were used, TEIQue for emotional intelligence and MLQ for leadership styles. ANOVA and T-test were used for ordinal and nominal variables while Pearson correlation was used to find association between continuous variables. Results: No significant differences in TEI or leadership styles were found between genders. Age and experience duration showed positive correlations with self-control as well as the adoption of Transactional/Passive Leadership. TEI factors were consistent across designations, while leadership styles varied, with higher ranks showing increased transformational and transactional/passive leadership. A positive correlation was found between TEI and leadership traits. Conclusion: The study concludes that while TEI remains stable across professional designations, leadership styles evolve with experience and rank. High TEI is positively correlated with effective leadership traits, emphasizing EI's importance in leadership development among medical practitioners. Further research is needed to explore the influence of environmental factors and different leadership measurement tools on these findings.

KNOWLEDGE, ATTITUDE AND PREVENTION PRACTICES TOWARDS SUN EXPOSURE, SKIN CANCER, AND VITAMIN D AMONG MEDICAL STUDENTS*

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Vitamin D, the "sunshine vitamin" is important for bones, mood, immunity, cell growth, and reduces inflammation. Dietary sources are limited to fish, fish oils and egg yolks. However, excessive sun exposure can lead to skin darkening, premature aging, and increased risk of skin cancer. Avoidance of sun exposure has led to a Vitamin D deficiency globally. Research shows that although students are knowledgeable about the risks of sun exposure, they misinterpret the connection between age and sun exposure and have limited awareness of UV risks and environmental factors. Methods: A descriptive cross-sectional study was conducted at Shifa College of Medicine Islamabad, Pakistan. The data collection tool was a structured questionnaire with 39 questions to determine the students' demographics, knowledge of skin cancer risk factors, knowledge of vitamin D, sun exposure impact on the skin, and attitudes and practices to prevent skin cancer. The data was collected via an anonymous online Google form. For data analysis, SPSS software 26 was used. Results: The study involved 323 participants. Most students considered themselves knowledgeable about skin cancer (77.1%), however only 14.9% correctly identified basal cell

carcinoma as the most common type of skin cancers. Most students (84.8%) identified sun exposure without protection as a risk factor. Less than half correctly identified UV rays for Vitamin D synthesis and best natural sources. Suboptimal sun protection practices were seen, with only 13.9% avoiding sun exposure between 10am and 4pm. Conclusions: Most participants knew the importance of sun protection. Inadequacy of knowledge existed in the specific UV rays needed to synthesize vitamin D and skin cancer types.

EVALUATION OF ANTIMICROBIAL ACTIVITY OF LIQUID HAND WASHES AND SOAPS*

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Introduction:

Soaps and hand washes are an important part of our hygiene practices as they keep human body clean and also have bactericidal activity. The rise in prevalence of antimicrobial resistance necessitates a deeper knowledge of the effectiveness of common hygiene products. Even after their widespread use, limited data exist on their comparative efficacy against common pathogens. This study evaluates the antimicrobial activity of five commercial soaps and five hand washes against common pathogens like *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, *Enterococcus faecium*, and *Candida albicans*.

Methodology: The disc diffusion method was employed to evaluate antimicrobial

activity by measuring inhibition zones after incubation. Bacterial and fungal strains were cultured on Müller-Hinton and Sabouraud agar, respectively. Results and Discussion Palmolive soap exhibited the highest overall activity (inhibition zones = 10.9mm-11.3mm) against *Staphylococcus aureus* in all the concentrations, while Protex was the least effective soap (inhibition zones 7.7mm-7.7mm). Hand washes exhibited superior antimicrobial activity compared to soaps. Palmolive hand wash exhibited the largest inhibition zone (30 mm) against *Staphylococcus aureus*. Dettol hand wash performed exceptionally well against *Pseudomonas aeruginosa* with an inhibition zone of 27 mm. Limited antimicrobial activity was observed in almost all products against *Escherichia coli*, suggesting that gram-negative may be more resistant than gram-positive ones. Conclusion Hand washes outperformed soaps in antimicrobial effectiveness. While soaps provide moderate protection, hand washes are recommended for enhanced hygiene, particularly against resistant pathogens. This study provides valuable insights to achieve better hygiene, thus improving public health outcomes.

EFFECT OF TELEHEALTH MESSAGES ON THE UNDERSTANDING OF SENIOR CITIZENS' HEALTH-BASED PROBLEMS*

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Objective: This study aimed to assess the impact of telehealth messages on the comprehension of health-related issues among senior citizens and caregivers in Pakistan in 2024. **Methodology:** A six-month one-group quasi-experimental study was conducted to deliver telehealth messages via WhatsApp to 415 senior citizens selected through non-probability convenient sampling to fulfill the 384-sample calculated using the Epi Info Software version 7.2. Participants provided informed consent, were Urdu literate, and had smartphone access. Pre- and post-study questionnaires collected data on common illnesses, self-management practices, and prior knowledge. Three telehealth videos on osteoporosis, diabetes, and hypertension were delivered over the span of three weeks. Data analysis employed paired T-tests using IBM SPSS Software version 29. **Results:** Out of 415 participants initially contacted for the pre-test, 324 completed the post-test. After excluding 16 participants due to ineligibility of meeting the set criteria, 308 responses remained, with 172 males and 136 females. The average score increased from 16.1 in the pre-test to 20.7 in the post-test, with a significant improvement ($p < 0.05$) in understanding.

Conclusion: The findings indicate that telehealth messages relayed in the video format significantly enhance understanding of geriatric individuals aged 60 and above in Pakistan regarding health issues. These results highlight the potential of telehealth interventions in improving health literacy and self-management practices among senior citizens, contributing to better healthcare outcomes and overall well-being in the aging population.

Keywords: Telehealth, Telemedicine, Geriatric Care, Non-Communicable Diseases

IMPACT OF PSYCHOSOCIAL AND PHYSICAL WELLBEING ON THE MENTAL HEALTH OF ORPHANS LIVING IN ORPHANAGES: AN INTERVENTIONAL STUDY*

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Background: According to UN Pakistan has over 4.6 million orphans. (1) Their poor mental health is linked to lower educational attainment, reduced self-esteem, and social difficulties, further exacerbating the cycle of poverty. This study aims to investigate the impact of physical activity, perceived stigmatization, neglect, and absence of parental care on their mental health. **Methodology:** An interventional study was conducted on orphans living in public and private orphanages in Islamabad. Pre-intervention data was collected using quota sampling then simple random sampling.

PHQ9 and a self-structured questionnaire was used after informed consent and FMC IRB approval. The sample size of 97 was equally divided into three age groups of 10-13 years, 14-17 years, 18 years, and above including an equal number of males and females. After that interventions were provided to all the individuals over two months. The orphans who were screened positive for depression and anxiety initially were then reassessed for their depression levels using PHQ9 Urdu. SPSS'23 was used for data entry and analysis. Chi Square test and paired test were applied. Results: 25% Girls and 46.9% of boys screened positive for depression. Within girls when PHQ-9 was cross tabbed with variables, cravings for food, difficulty in making friends, talking to themselves, looking forward to having meals, activity level and group/individual activities had p-value 0.01, 0.001, 0.008, 0.002, 0.005, 0.005 respectively. Similarly, among boys' food cravings and difficulty in making friends had p-value 0.01, 0.04 respectively. When paired t-test was applied on pre and post intervention PHQ9, p-value was <0.001, which was highly significant. Conclusion: By incorporating healthy interventions, we can create more supportive environments that can enhance the mental health of orphans, contributing to their overall well-being and productivity.

ASSESSMENT OF THE RELATION OF ATYCHIPHOBIA WITH STRESS AND CERTAIN DEMOGRAPHIC FACTORS AMONG UNDERGRADUATE MEDICAL STUDENTS OF RAWALPINDI MEDICAL UNIVERSITY*

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This study explores the relationship between atychiphobia (fear of failure), stress, and demographic factors among medical students at Rawalpindi Medical University. The findings aim to help educators and mental health professionals develop strategies to manage academic anxiety. Methods: A cross-sectional study was conducted from May 2024 to November 2024 among 254 MBBS students (146 Females, 108 Males) from First to Final year. The Performance Failure Appraisal Inventory (PFAI) questionnaire assessed atychiphobia, while the Perceived Stress Scale measured stress. PFAI includes five domains: fear of upsetting important others (FUIO), fear of important others losing interest (FIOLI), fear of experiencing shame and embarrassment (FSE), fear of devaluing one's self-esteem (FDSE), and fear of having an uncertain future (FUF). Linear regression analyzed the association between stress and fear, while t-tests examined demographic differences across domains. Results: Females reported higher levels of FDSE (p=0.05), FUF (p=0.013), FSE (p=0.001), and FUIO (p=0.04), with no significant difference in FIOI. Fear of failure peaked among third-year students, those with previous academic

failures, and those scoring below 50% in professional exams. Stress was significantly associated with FSE ($p=0.000$), FUF ($p=0.03$), and FUIO ($p=0.03$). Conclusion: Atychiphobia varies by gender, academic progress, and past academic setbacks, influencing student experiences and stress levels. Addressing these factors is essential for improving student well-being in medical education.

HEMATOLOGICAL PARAMETERS OF IUGR NEONATES IN TERTIARY CARE HOSPITAL OF PAKISTAN*

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Background: Intrauterine Growth Restriction (IUGR), also referred to as Fetal Growth Retardation (FGR), is a multifactorial pregnancy complication in which the fetus fails to reach its genetic growth potential. It remains a major challenge in neonatal care, particularly in Pakistan's tertiary hospitals. Hematological parameters—such as hemoglobin levels, platelet counts, and white cell counts—play a critical role in assessing the overall health of IUGR-affected neonates.

Objective: To evaluate the hematological profile of neonates diagnosed with IUGR in tertiary care settings across Pakistan.

Methodology: This analytical cross-sectional study included 300 neonates, selected using

non-probability convenience sampling. Data were collected over seven months from the NICUs of CMH Rawalpindi and PEMH Rawalpindi. Complete blood count (CBC) reports were obtained after parental informed consent. Neonates not meeting IUGR criteria or lacking consent were excluded. The sample size was determined using the WHO sample size calculator. Data were analyzed using SPSS. Results: The mean platelet count was $115.11 \times 10^9/L$, with a significant proportion showing decreased levels ($71.2 \times 10^9/L$). Neutrophils averaged 30.9%, with a notable decrease (16.5%), and lymphocytes averaged 25.75% (15.9%, decreased). Hemoglobin levels averaged 15.97 g/dL (normal to slightly elevated), while the mean total leukocyte count (TLC) was $9.07 \times 10^9/L$ (normal range). These findings suggest that IUGR neonates are predisposed to bleeding, infection, and immune suppression due to thrombocytopenia, neutropenia, and lymphopenia. Elevated hemoglobin may indicate fetal adaptation to chronic hypoxia. Conclusion: IUGR neonates exhibit significant alterations in hematological parameters, warranting close monitoring and timely medical intervention to prevent complications like infection, anemia, and immune dysfunction. Keywords: IUGR, hematological profile, thrombocytopenia, neonates, fetal growth restriction, neonatal immunity.

**TURNAROUND TIME AND PATIENTS'
PERCEPTIONS REGARDING THE
PATHOLOGY LABORATORY OF HOLY FAMILY
HOSPITAL, RAWALPINDI: A CROSS-
SECTIONAL STUDY***

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Introduction: Turnaround time (TAT) is a significant indicator of laboratory efficiency. There is a wide disagreement between clinicians and laboratorians regarding the definition and the acceptable limit of TAT. Intra-laboratory TAT is the time from sample collection to report generation and verification. TAT varies with the laboratory, type and complexity of the sample, and healthcare utilization variables like shift of day, day of week, and type of laboratory visit. TAT is an important determinant of patients' perceptions about laboratory services.

Objectives: Our study aims to find determinants of both TAT and patients' perceptions as well as a correlation between them.

Methodology: A cross-sectional study was conducted on patients visiting the pathology laboratory of a tertiary care hospital in Rawalpindi, Pakistan. Data were collected from 300 participants using a questionnaire covering demographics, TAT and patients' perceptions. Descriptive statistics included frequencies, medians and interquartile ranges. Inferential statistics involved the Mann-Whitney U test, Kruskal-Wallis H test and generalized linear models to assess the association of TAT and perception with

demographics, as well as Spearman's rank correlation between TAT and perception.

Results: The median TAT was 115 minutes with an interquartile range of 90-145 minutes. TAT was significantly associated with shift of day ($p=0.012$) and type of sample ($p<0.001$). The median patients' perception score was 63 (55-66.75). A total of 37.67% of participants were satisfied with the laboratory services. Perception was significantly associated only with the type of sample ($p<0.001$). The correlation between turnaround time and perception was significant ($p<0.001$) with Spearman's correlation coefficient of -0.307.

Conclusion: The laboratory should issue guidelines on TAT targets for different tests offered. This will allow quality checking and improvement programs to be implemented efficiently. The laboratory should also optimize workflow processes to prevent delays in TAT. Reducing waiting times will enhance patient trust, improving overall perception.

ANALYTICAL STUDY OF EFFECTIVENESS OF STEM CELL THERAPY IN CEREBRAL PALSY*

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Introduction: Cerebral palsy (CP), a non-progressive motor disability linked to complications during the perinatal period, premature birth or low birth weight. Studies have suggested an association between stem cell therapy and improving cerebral palsy. Conventional treatments aim at symptom management, whereas stem cell therapy (SCT) presents as a future treatment option for CP patients. **Objective:** This study aimed to evaluate the efficacy and safety of stem cell therapy (SCT) in improving motor function and quality of life in patients, spasticity, and neurophysiological changes. **Methods:** A systematic literature search was conducted across PubMed and EMBASE databases to identify relevant randomized controlled trials (RCTs) and meta-analysis. The study analysed eight RCTs, with five studies included in the meta-analysis. Data was collected from different parameters, for instance: Gross Motor Function Measure (GMFM), fine motor skills, spasticity reduction and EEG or MRI findings. This study examined the adverse effects on patients. Statistical analysis was performed using IBM SPSS version 22 to calculate the outcome percentages for both the stem cell and control groups; the analysis assessed

outcomes at both the 6th month and the 12th month follow-up.

Results: The study comprised a total of 282 patients. Patients who underwent stem cell therapy improved gross motor performance by 23-30% compared to the control group, which improved by 8-12%. The treatment group showed a 19-25% increase in fine motor performance, while the control group showed a 6-10% improvement. Spasticity was reduced in 10-15% of patients treated with stem cell therapy, compared to 3-7% in control individuals. Furthermore, 35-40% of patients in the therapy group demonstrated good effects on EEG/MRI. Adverse effects were modest, with fever at 8%, headache at 5%, nausea at 3%, and low back pain at 2%, with no serious adverse effects reported.

Conclusion: This study proposes that SCT, including neural stem cells, umbilical cord mesenchymal stem cells, and bone marrow-derived mononuclear cells, offers a novel approach for the treatment of CP patients via improving motor function and reducing spasticity in CP. Further high quality RCTs with long-term follow-up are warranted to confirm these results and establish standardized protocols to maximise therapeutic potential.

**A SEVEN-YEAR CROSS-SECTIONAL STUDY
OF EMERGING ANTIMICROBIAL
RESISTANCE IN SERRATIA MARCESCENS:
INSIGHTS FROM A TERTIARY CARE
HOSPITAL IN RAWALPINDI, PAKISTAN***

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Introduction:

Serratia marcescens is a formidable opportunistic pathogen with intrinsic resistance to multiple antibiotics, posing significant challenges in clinical management. Its ability to acquire additional resistance mechanisms, including carbapenemases and efflux pumps, has led to increasing treatment failures worldwide. In Pakistan, limited data exist on the resistance patterns of *S. marcescens*, necessitating comprehensive surveillance to guide antimicrobial stewardship.

Objectives: This seven-year surveillance study (2017–2023) at Fauji Foundation Hospital (FFH), Rawalpindi, aimed to assess emerging resistance trends in *S. marcescens* isolates, evaluate antimicrobial susceptibility profiles, and identify high-risk departments to inform infection control strategies.

Materials and Methods: A total of 108 non-duplicate *S. marcescens* isolates were collected from various clinical specimens, including pus (47.2%), blood (20.4%), and respiratory samples (16.7%). Antimicrobial susceptibility testing was performed using disk diffusion and interpreted per CLSI guidelines. Data were analyzed for resistance

patterns across departments (Medicine, Surgery, ICU, Gynecology) and age groups. Results:

High resistance was observed to ampicillin (94.2%), amoxicillin-clavulanate (97.3%), and cephalosporins (ceftazidime: 58.2%; ceftriaxone: 57.8%). Carbapenem resistance was notable (imipenem: 24.1%; meropenem: 21.7%), while tigecycline retained efficacy (94.7% susceptibility). Aminoglycoside resistance varied (amikacin: 23.2%; gentamicin: 49.1%). The ICU and Medicine departments contributed the highest isolates (21.3% and 39.8%, respectively), with pus cultures being the predominant source (47.2%). A surge in isolates was noted in 2022–2023 (74.1%), suggesting rising incidence or improved detection.

Conclusions: This study highlights alarming resistance rates in *S. marcescens*, particularly to beta-lactams and carbapenems, underscoring the need for robust antimicrobial stewardship and infection control measures. Regional variations in resistance patterns emphasize the importance of local surveillance to guide empirical therapy. Tigecycline and minocycline remain effective alternatives, but vigilance against emerging resistance is critical to mitigating treatment failures in high-risk settings.

**INFLUENCE OF CYBERBULLYING ON
DEPRESSION AND ANXIETY AMONG
UNDERGRADUATE MEDICAL STUDENTS OF
NUMS**

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INTRODUCTION: With rise in social networking and online access, individuals are exposed to varying opinions, supportive or derogatory, thus online abuse escalates, leading to mental health issues like depression, anxiety, and self-harm.

OBJECTIVES: We aim to conduct a study to find out prevalence of cyberbullying and to find its association with mental health and with socio-demographic characteristics of medical students among NUMS University undergraduates in Pakistan.

METHODOLOGY: A four-month analytical cross-sectional study was conducted from January to April 2024 among first and second-year students in three medical colleges of NUMS. Sample size of 323 was calculated using Raosoft calculator, with a 95% confidence interval, 5% margin of error, and 50% population proportion. Using non-probability convenient sampling, data was collected via google forms based on a validated questionnaire comprising CYBVICS, GAD-7, and PHQ-9 scales. SPSS 27 was used to analyze relations. Chi-square test was applied to assess the association between categorical variables. p-value of less than 0.05 was considered statistically significant.

RESULTS: Among 323 medical students,

62(19%) were victims of mild cyberbullying, whereas 67(20.7%) and 81(25%) had experienced moderate and severe cyberbullying, respectively. Among all participants, 184(57%)(Chi square=164, $p < 0.001$) and 173(53.5%)(Chi square=120, $p < 0.001$) screened positive for depression and anxiety, respectively. Older participants ($p = 0.07$), females ($p < 0.001$) and participants belonging to upper middle socioeconomic class ($p < 0.001$) reported significantly higher exposure to cyberbullying.

CONCLUSION: Cyberbullying is prevalent among medical students significantly impacting their psychological well-being with increased depressive and anxiety symptoms. Additionally, older students, females and students from upper-middle socioeconomic backgrounds were more frequently affected.

KEYWORDS: Cyberbullying, Depression, Anxiety, Medical Students

**OPTIMIZING DENTAL CLINICS: A SURVEY
BASED APPROACH AND PRACTICAL
ADVICE***

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Background: Dental practices play a crucial role in maintaining oral health and well-being. However, the design, layout, and functionality of clinical spaces significantly impact the health of dental professionals as well as the patient experiences and treatment outcomes. Objectives: This research aims to evaluate operational clinical spaces and then provide actionable recommendations for future dental practices. Methods: The study design was cross-sectional descriptive study, and sampling technique used was non probability convenience sampling.

A total of 50 registered dental clinics were randomly selected from the cities of Rawalpindi and Islamabad. Their dimensions were physically measured and total square area was calculated also the spaces around the dental unit were measured and recorded on a graph paper. The measurements were analyzed using the SPSS 21 software. Results: The results showed that 72% of dental clinics had adequate space and did meet the recommended standards

(American Dental Association Standards [ADA]), however only 40% percent of dental clinics had their dental units optimally placed and hence they failed to meet the ADA Standards. The results also showed that there is no co-relation between the total area of a dental clinic and the placement of the dental unit. Conclusion: The statistics have shown that although majority of the dental clinics do have adequate space but still they failed to follow the recommended standards while placing their dental units in the operational clinical spaces. It is therefore recommended that the relevant government bodies should make and implement the policies in the best interests of both the dentists and the patients.

**WHEN BREATHING BECOMES
DEBILITATING: TRACING THE TIMELINE
FROM SMOG EXPOSURE TO STROKE***

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Introduction: Air pollution is recognized as the world's largest environmental risk factor for disease. There is substantial evidence linking air pollution to cerebrovascular accidents, prompting an investigation into whether smog, a form of air pollution, has a similar impact. It is crucial to conduct this study in Pakistan, where seasonal smog poses a significant public health emergency every winter.

Objective: To investigate the correlation between smog levels and the incidence of stroke in Islamabad, Pakistan. **Methods** This study utilizes a time series analysis to determine the relationship between smog and incidence of cerebrovascular accidents. Secondary data was gathered from SIH stroke admissions records from 2019 to 2025, and air quality data was obtained from the Ambient Air Quality Reports published by the Pakistan Environmental Protection Agency. A Poisson time regression model analyzed the relation of pollutants with daily stroke incidence. Lag models determined delayed effects of smog. **Results** During smog season in Islamabad, PM_{2.5} levels were raised well above the WHO-recommended daily levels of 15 µg/m³. The

maximum recording being 230.4 µg/m³ (very unhealthy AQI). PM_{2.5} was shown to Granger-cause the incidence of stroke most strongly on a 1-day lag (p=0.0379), and this relationship weakened as the lag increased. According to our findings, the relative risk of stroke admission increased by 0.52% (95% CI: 0.21-0.83%) on a 1-day lag per 10 µg/m³ increase in PM_{2.5}.

Conclusion: Our study highlights that the alarming rise in particulate matter may be significantly related to stroke incidence. Although our data shows a modest uptick in relative risk per 10 µg/m³ increase in PM_{2.5}, the daily levels are known to exceed the recommended daily limit by more than ten-fold on certain days, hence, this increase becomes significantly. Our study may serve as a template for replication with larger datasets in other centers for stronger findings.

**IN SEARCH OF A BETTER MORROW:
PREVALENCE OF JOB DISSATISFACTION
AND TURNOVER INTENTIONS AMONG
YOUNG DOCTORS IN ISLAMABAD***

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In recent years a stark surge in medical brain drain as well as an increase in turnover intentions has been observed in physicians and residents in Pakistan. Already struggling with a gigantic gap in doctor to patient ration which has mounted to 1:1300 in 2023, turnover intentions can prove to be lethal for an already crumbling healthcare system. Hence, this study attempts to explore the relationship between job dissatisfaction and turnover ratio in a tertiary care setting in Pakistan. A qualitative study based on in-depth interviews was conducted with sixteen young medical doctors, aged 25-30 years, who had studied medicine in Pakistani Medical universities, were Pakistani nationals, and were employed at various hierarchical levels i.e., House Officers and Residents in a tertiary level hospital in Islamabad. After being transcribed the data obtained was analyzed using NVIVO software. The study involved the deduction of four themes from the IDI: Experience, Demotivating Factors, Turnover Intention and Working Environment. Many of the Interviewees were of the view that after being exposed to the hospital environment, they observed a change in their perspective from idealistic as a med student to being a realist as a professional. They described how the working environment was an

impediment in their growth with long working hours and less pay. Another factor mentioned was the lack of cooperation from the senior professionals who were often quoted to resort to brusque behavior, gate-keeping and being one of the chief demotivators. Many of the interviewee's affirmed their turnover intention whether in terms of shifting their field altogether i.e., CSS, moving towards teaching or applying for residency abroad. In conclusion, Turnover intentions among young doctors is directly proportional to job dissatisfaction stemming from lack of facilities as well as a frustrating working environment. In order to curb such drain of physicians, policies on governmental level need to be introduced in order to facilitate young doctors in establishing their careers. Less working hours, proper adherence of shift schedule, congeniality among hospital colleagues and administration might be observed in order to create an adequate work-life balance for doctors in public health sector in Pakistan.

PERCEPTION OF SOCIALIZATION IN INTERPROFESSIONAL PRACTICE AMONG HEALTHCARE PROFESSIONALS IN TERTIARY HOSPITAL SETTING*

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OBJECTIVES: To analyze the perceptions of health science professionals from a variety of fields (Anesthesia, Radiology, Gynecology, Surgery, and Orthopedics) on inter-professional socialization in a clinical setting determining any potential disparities between educational training and the actual practice to identify gaps that may exist.

MATERIAL & METHODS: After obtaining ethical approval and informed consent, a cross-sectional study was conducted from April to June 2023 on 150 health professionals (Residents anesthesiologists, radiologists, gynecologists, surgeons, orthopedic surgeons) working at CMH/PEMH. Non-probability convenience sampling was utilized to collect the data. The researcher administered a closed-ended questionnaire with Interprofessional Socialization and Valuing Scale (ISVS) to the participants, providing proper instructions through both hard copy and Google Forms. SPSS version 25 was used to calculate mean values and standard deviation for interpretations of descriptive analysis.

RESULTS: Study results revealed that participants developed recognition of the advantages of inter-professional collaboration with the highest score of valuing of patient-centered care followed by self-perception of team responsibility and the lowest score of comfort in working with others. **CONCLUSION:** This research gives a unique perspective on the experiences of health science professionals from various fields (Anesthesiology, Gynecology, Orthopedics, Radiology, and Surgery) in Interprofessional socialization. It suggests the need for additional methods to facilitate the change from Interprofessional education (IPE) to Interprofessional practice (IPP).

MUSCULOSKELETAL SYMPTOMS IN PAKISTANI SURGEONS: A HIDDEN CONCERN*

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Introduction & Objectives: Surgeons face a high risk of developing musculoskeletal symptoms due to their demanding working conditions; however, data on Pakistani surgeons remain limited. This study aimed to determine the prevalence of musculoskeletal symptoms among surgeons across Pakistan and identify the factors associated with these symptoms.

Methods: A cross-sectional study was conducted with ethical approval, collecting data from hospitals across multiple cities in Pakistan, including Peshawar, Rawalpindi, Islamabad, Quetta, Sindh, Sargodha, Lahore, Karachi, etc. The standardized Nordic Musculoskeletal Questionnaire was used to collect data on demographics, musculoskeletal symptoms, workload, and physical activity. Out of 266 participants, 230 were included in the final analysis after applying exclusions. **Results:** Among the 230 surgeons, 170 were male and 60 were female. The provincial distribution of surgeons included 100 from Punjab, 52 from Sindh, 34 from Khyber Pakhtunkhwa, 29 from Rawalpindi/Islamabad, and 15 from Balochistan. The most prevalent musculoskeletal symptoms were reported in the lower back (53.9%), neck (49.6%), and shoulders (38.7%). These symptoms negatively impacted surgical abilities in 36.5% (n=84) of surgeons and daily life activities in 50.4% (n=116). A significant association was found between gender and musculoskeletal symptoms in all body areas (except the upper back, elbows, and knees), with females being more affected ($p < 0.05$). Logistic regression analysis revealed that increased exercise hours were significantly associated with reduced neck pain ($p = 0.012$, $B = -0.094$, $\text{Exp}(B) = 0.910$) and lower back pain ($p = 0.002$, $B = -0.121$, $\text{Exp}(B) = 0.886$). **Conclusion:** Musculoskeletal symptoms are highly prevalent among surgeons in Pakistan, negatively affecting their professional and personal activities. However, exercise has

been shown to play a protective role against these issues. Implementing preventive strategies, such as ergonomic interventions and on-site fitness facilities, may help mitigate these symptoms and improve surgeons' well-being.

EXAMINING THE SHIFT: WHY MORE WOMEN ARE PURSUING CAREER IN DENTISTRY

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Introduction

Dentistry, once a male-dominated field, is experiencing a rise in female participation. This reflects changing societal norms and the appeal of dentistry as a flexible, fulfilling profession.

Objectives: This study aims to identify key motivating factors for choosing dentistry as a profession, evaluate the significance of job stability and financial rewards, and assess cultural and societal influences.

Methodology: A cross-sectional descriptive study using a pretested Likert-scale questionnaire was conducted on 100 female dental students and house officers at Shifa College of Dentistry. Data were collected via Google Forms over a time period of 2 weeks and analyzed using SPSS Version 23. **Results:** Key motivators included self-employment (46.5%), flexible work schedules (47.5%), and the desire to help others (49.5%). Family support (50.5%),

departmental flexibility ($p < 0.001$), and financial rewards ($p = 0.001$) were also influential. Conclusion Women are drawn to dentistry for its flexibility, independence, and intellectual and personal fulfillment.

META-ANALYSIS AND SYSTEMATIC REVIEWS

DIGITAL TWIN APPLICATIONS IN AI-DRIVEN DENTAL RESEARCH: A META-RESEARCH SYNTHESIS

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Objectives:

Digital twins—virtual representations of physical entities—are increasingly used in healthcare. They facilitate in-silico experiments, personalized treatment planning, and predictive modeling through patient-specific anatomical and physiological data. This study aimed to (1) map existing applications of digital twins in medical and dental healthcare, particularly those leveraging AI; (2) analyze publication trends and identify research gaps; and (3) assess the methodological quality and bias in this emerging field.

Methodology:

A systematic review was conducted following PRISMA guidelines. The study focused on digital twin applications in dentistry, general medical diagnosis, biomedical engineering, and dental education technology. Multiple databases were searched for studies published between 2021 and 2024. Data on study design, AI integration, clinical application, and study limitations were extracted. Narrative synthesis and descriptive trend analysis were performed.

Results:

Eleven studies met the inclusion criteria. The primary applications included surgical and treatment planning, medical device design,

patient-specific simulation, and diagnostic support. Publication trends showed an increase from 2023 to 2024. However, methodological quality varied, with most studies being case series with small sample sizes. The main limitations included a lack of clinical validation and concerns over data privacy.

Conclusion:

Digital twin applications in healthcare are rapidly expanding, with dentistry being an early adopter. However, existing evidence base remains limited in terms of methodological rigor and validation. Future research should prioritize large-scale clinical trials to assess efficacy and safety. Additionally, frameworks must address interoperability, bias, and ethical concerns to fully leverage AI-driven digital twins in personalized medicine.

STUDY ON EXPLORING THE LINK BETWEEN PERSONALITY TRAITS AND FUTURE SPECIALTY CHOICES AMONG MEDICAL STUDENTS

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Introduction: Personality traits are known to influence various life choices, including career paths. In medical education, understanding how different personality types align with specialty preferences can provide valuable insights for both students and academic advisors. This study was conducted to explore the connection between personality traits and specialty

selection among medical students of HBS Medical and Dental College, Islamabad. Objectives: To identify the most prevalent personality traits among medical students at HBS Medical and Dental College. To evaluate the association between personality traits and students' future specialty preferences.

Methodology: This analytical cross-sectional study was carried out over a period of six months, from May 2024 to November 2024, at HBS Medical and Dental College, Islamabad. A validated Big Five Inventory (BFI) questionnaire was used to assess personality traits. The questionnaire was distributed via social media platforms, and a quota-based non-purposive sampling technique was employed. Descriptive statistics including frequencies and percentages were calculated for demographic variables and specialty preferences. ANOVA was applied to compare the mean scores of personality traits across different specialties, and the Tukey HSD post hoc test was used to identify specific group differences. A p-value < 0.05 was considered statistically significant.

Results

A statistically significant association was observed between gender and specialty selection ($p = 0.033$). Among the Big Five personality dimensions, agreeableness had the highest mean score (Mean \pm SD: 3.77 ± 0.52). Furthermore, both agreeableness and openness were significantly associated with the students' chosen specialties ($p = 0.05$). Findings: Agreeableness emerged as the

most dominant personality trait among the students surveyed.

There was a notable association between personality traits (specifically agreeableness and openness) and the choice of medical specialty.

Gender differences played a significant role in influencing specialty preferences among students.

Conclusion: The study conducted at HBS Medical and Dental College, Islamabad, highlighted a clear link between personality traits and specialty selection among medical students. The results underscore the importance of considering individual personality profiles in career counseling and academic planning. Future research is encouraged to further explore the dynamic factors influencing specialty decisions, including the long-term impact of personality traits on career satisfaction and performance.

**SEMAGLUTIDE IN PATIENTS WITH TYPE 2
DIABETES AND CHRONIC KIDNEY DISEASE:
META-ANALYSIS OF ITS EFFICACY ON
RENAL PROTECTION, GLYCEMIC CONTROL,
AND CARDIOVASCULAR RISK**

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Background and Objective: Semaglutide, a glucagon-like peptide-1 receptor agonist (GLP-1RA), has shown potential renal protective effects in previous cardiovascular studies and holds promise in slowing the progression of chronic kidney disease (CKD) in patients with Type 2 diabetes. Several clinical trials have reported significant improvements in glycemic control, reductions in albuminuria, and weight loss, all of which are critical factors in preventing kidney damage. The aim of our study is to further analyze the efficacy of Semaglutide in CKD patients with Type 2 Diabetes. **Methodology:** We conducted a comprehensive systematic review of randomized controlled trials and observational studies by searching PubMed, Cochrane, and Web of Science databases from their inception until November 3, 2024. The process included study selection, quality assessment, and data extraction. Our primary outcomes of interest were adverse events, adverse kidney events, major cardiovascular events, urine albumin-to-creatinine ratio (UACR), serum creatinine, HbA1c, estimated glomerular filtration rate (eGFR), weight loss, mean systolic blood

pressure (MSBP), and mean diastolic blood pressure (MDBP). Statistical analysis was carried out using Review Manager 5.2 meta-analysis software. This study is also registered with Prospero (CRD42024603838).

Results: A total of four studies involving 3,895 patients with T2DM and CKD were included in the meta-analysis, comprising three randomized controlled trials and one retrospective cohort study. Semaglutide significantly reduced weight (-2.34 kg, 95% CI [-4.14, -0.54], $p=0.01$), UACR (-0.28mg/g, 95% CI [-0.46, -0.10], $p=0.003$), major cardiovascular events (OR 0.82, 95% CI [0.71, 0.95], $p=0.007$), HbA1c (-0.68%, 95% CI [-0.91, -0.46], $p<0.00001$), and adverse kidney events (OR 0.77, 95% CI [0.65, 0.90], $p=0.001$). The reductions in systolic blood pressure (-4.54 mmHg, $p=0.06$) and serum creatinine (-0.09mg/dL, $p=0.06$) showed favorable trends but they were not statistically significant. There was no significant improvement observed in Diastolic Blood Pressure, eGFR or Adverse events. Despite the variations in heterogeneity across outcomes, the results predominantly favored Semaglutide in managing critical parameters in patients with CKD and T2DM.

Conclusion: Semaglutide displayed notable benefits in reducing weight, UACR, HbA1c, cardiovascular events, and adverse kidney events in patients with T2DM and CKD. While some parameters showed favorable trends without achieving statistical significance, the overall findings highlight the potential of

Semaglutide as a therapeutic option. These results support Semaglutide as a promising approach for these comorbidities.

SURGICAL VS NON-SURGICAL INTERVENTIONS IN PEOPLE WITH ADOLESCENT IDIOPATHIC SCOLIOSIS

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Study Design: Narrative Review

Objectives: To evaluate the relative advantages, drawbacks, and long-term outcomes of surgical and non-surgical treatment methods for adolescent idiopathic scoliosis (AIS), based on data from 72 publications identified through a PRISMA-guided search.

Methods: A comprehensive literature search was conducted, synthesizing findings from 72 studies on the management of AIS. Both surgical and non-surgical treatments were analyzed, including posterior spinal fusion, anterior vertebral body tethering (VBT), Schroth technique exercises, and bracing systems such as the Sforzesco and Lyon braces. The effectiveness of neuromuscular stabilization methods and exercise-based therapies was also reviewed.

Results: Surgical interventions, including spinal fusion and VBT, are recommended for severe AIS cases (Cobb angle $\geq 40-50^\circ$) and provide conclusive curvature correction. However, they are associated with risks such as infection, hardware failure, and lengthy recovery periods. In contrast, non-surgical

treatments, including specialized exercises and bracing systems, have demonstrated effectiveness in slowing curve progression, particularly for mild to moderate AIS. The success of these conservative therapies depends largely on patient adherence. Conclusions:

A customized treatment strategy based on curve severity and patient-specific factors is crucial for AIS management. Early-stage non-surgical treatments can delay or prevent the need for surgery, although surgical intervention remains the gold standard for severe cases. Future research should focus on improving adherence and optimizing conservative treatment strategies to enhance patient outcomes.

IMPACT OF PROTON PUMP INHIBITOR USE ON EFFICACY OF DUAL ANTIPLATELET THERAPY IN POST-PCI PATIENTS: A META- ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Background: Dual antiplatelet therapy (DAPT) is a standard treatment following percutaneous coronary intervention (PCI), significantly reducing ischemic events but increasing gastrointestinal (GI) bleeding risk. Proton pump inhibitors (PPIs) are frequently co-prescribed to mitigate this risk, yet concerns persist regarding potential interactions with P2Y₁₂ inhibitors—

particularly clopidogrel—that may compromise cardiovascular outcomes. Objective: The objective of this meta-analysis is to assess the impact of proton pump inhibitor (PPI) use on the efficacy and safety of dual antiplatelet therapy (DAPT) in patients who have undergone percutaneous coronary intervention (PCI). By analyzing data from randomized controlled trials (RCTs), this study aims to determine whether concurrent PPI therapy alters cardiovascular outcomes or provides gastrointestinal protection without compromising antiplatelet effectiveness. Methods: A systematic search of PubMed, Embase, Cochrane Library, and Web of Science identified RCTs comparing DAPT with and without concurrent PPI use in PCI patients. Five RCTs met the inclusion criteria. Primary outcomes included major adverse cardiovascular events (MACE), myocardial infarction (MI), stroke, and GI events. Data were synthesized using a random-effects model, and heterogeneity was assessed via the I^2 statistic.

Results: PPI use was associated with a significantly increased risk of MACE (OR: 1.12; 95% CI: 1.04–1.21), MI (OR: 1.20; 95% CI: 1.10–1.31), and stroke (OR: 1.15; 95% CI: 1.02–1.29), while significantly reducing GI events (OR: 0.75; 95% CI: 0.68–0.83). Subgroup analyses indicated heightened cardiovascular risk in high-risk patients and those on prolonged DAPT or omeprazole. Heterogeneity was low to moderate across outcomes.

Conclusion: While PPIs offer substantial GI

protection in patients on DAPT post-PCI, their use may elevate cardiovascular risk, particularly with clopidogrel and long-term therapy. These findings support personalized risk-benefit assessment and the cautious selection of PPIs in this patient population.

ASSESSING THE POTENTIAL OF THYMOL IN TREATING ALZHEIMER'S DISEASE: A NARRATIVE REVIEW

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Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by cognitive decline, memory loss, and synaptic dysfunction, primarily driven by the accumulation of amyloid- β plaques, oxidative stress, and neuroinflammation. Current pharmacological treatments, including acetylcholinesterase inhibitors and NMDA receptor antagonists, provide only symptomatic relief and are associated with side effects, necessitating the exploration of safer, more effective alternatives. Thymol, a naturally occurring monoterpenoid phenol found in thyme and other medicinal plants, has emerged as a promising candidate for AD therapy due to its neuroprotective properties.

This narrative review synthesizes preclinical evidence on thymol's therapeutic potential, highlighting its ability to attenuate amyloid- β -induced neurotoxicity, enhance synaptic plasticity, and improve cognitive performance in AD models. Thymol exerts its beneficial effects through multiple

mechanisms, including antioxidant activity that reduces oxidative stress, inhibition of acetylcholinesterase to enhance cholinergic function, and modulation of signalling pathways such as nuclear factor erythroid 2-related factor 2 (Nrf2), protein kinase C (PKC), and the reelin pathway, all of which contribute to neuronal survival and cognitive function. Additionally, thymol has been shown to counteract neuroinflammation by downregulating pro-inflammatory cytokines, further supporting its role in AD management.

Despite these promising findings, clinical studies evaluating thymol's efficacy and safety in human populations remain limited. Further research, including well-designed clinical trials, is essential to validate its therapeutic potential and determine optimal dosing strategies. If substantiated, thymol could serve as a natural, cost-effective alternative or adjunct therapy for AD, addressing both disease progression and symptom management.

SENSITIVITY AND SPECIFICITY OF ULTRASONIC ASSESSMENT OF AXILLARY LYMPH NODE FOR BREAST CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS.

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Background

Breast cancer is included among the worldwide list of commonly diagnosed cancers and contributes to the highest mortality rate worldwide. Prompt detection assisted with accurate diagnostic investigations are truly required for determining the course of disease and managing it.

Objective: This systematic review and meta-analysis is targeted to evaluate the sensitivity, specificity, and diagnostic reliability of Axillary Ultrasound (AUS) in detecting axillary lymph node involvement in breast cancer patients.

Methods: The study was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses of Diagnostic Test Accuracy Studies (PRISMA-DTA) guidelines. On May 17, 2024, a systematic search was performed in PubMed and Embase in accordance with the inclusion criteria of the study. The index test consisted of ultrasonographic diagnostic methods and Fine Needle Aspiration (FNA)-guided Axillary Ultrasound, whereas the reference standard was Sentinel Lymph Node Biopsy (SLNB). For risk of bias assessment, QUADAS 2 tool was used. Diagnostic accuracy measures i.e., meta-

analysis of sensitivity, specificity and diagnostic odds ratio were calculated using R Software.

Results

Out of 124 studies, 20 studies met the inclusion criteria. The pooled sensitivity, specificity and diagnostic odds ratio of axillary ultrasound were 65.25%, 87.18%, and 0.27 respectively. The subgroup analysis in risk of bias and publication year yielded no significant difference for sensitivity, specificity and diagnostic odds ratio except for a significant difference in specificity due to risk of bias.

Conclusion

AUS is undoubtedly more efficient for assessing axillary lymph node involvement but should not be relied upon as a definitive diagnostic method. It is recommended for general evaluation, with further confirmatory testing required for accurate diagnosis.

EFFICACY OF ORAL FOLINIC ACID SUPPLEMENTATION IN CHILDREN WITH AUTISM SPECTRUM DISORDER: A SYSTEMATIC REVIEW

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BACKGROUND:

autism spectrum disorder (ASD) is a neurodevelopmental condition with limited treatment options to address its core behavioral challenges. Emerging evidence claims to suggest that folinic acid, a bioactive

form of folate, may help improve communication and behavior in children with ASD. This systematic review consolidates current findings on the effectiveness of folinic acid as an adjunctive treatment for the outcomes shown. OBJECTIVES:

To determine the Efficacy of oral folinic acid supplementation in children with Autism.

MATERIALS AND METHODS:

A comprehensive search was conducted across major scientific databases including PUBMED, COCHRANE and Embase, to identify studies examining the impact of folinic acid on communication and behavioral symptoms in children with ASD. Our systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and registered with PROSPERO (CRD42024603694). Studies were selected based on their assessment of primary outcomes like Global ADOS Score, improvement in verbal communication, Mean Change in Inappropriate Speech Subscale Score, Autism Severity and Reciprocal Social Interaction. The secondary outcomes were hyperactivity, irritability, repetitive behaviors, and social withdrawal. Extracted data were synthesized to evaluate the comparative effects of folinic acid versus placebo.

RESULTS:

A total of 256 articles were screened out, of which 4 original studies (double-blind randomized control trials) with the population exposed with folinic acid from 2mg/kg/day to 5mg/day were included.

Review of the 4 studies indicated that folinic acid significantly improved mean Global ADOS score by -2.78 points ($P=0.02$), mean inappropriate speech score by 1.714 points ($P=0.045$) and mean verbal communication score by 7.3 points ($P=0.02$). In secondary outcomes, children receiving folinic acid showed notable improvements in hyperactivity, irritability, reduction in repetitive behaviors, and improvement in daily living skills, with no substantial impact observed lethargy or social withdrawal. Treatment with folinic acid was generally well-tolerated with no significant treatment related adverse effects compared to placebo.

CONCLUSIONS:

Folinic acid shows promise as an additional therapy for children with ASD, with observed benefits in specific communication and behavioral domains. Improvements were particularly evident in speech and behavioral regulation, though further research with larger sample sizes and longer follow-up duration is recommended to establish treatment guidelines and dosing standards.

COMPARING FOSFOMYCIN AND CIPROFLOXACIN FOR UNCOMPLICATED UTI TREATMENT IN ADULTS: BETTER BACTERIAL ERADICATION BUT NON-SIGNIFICANT CLINICAL REMISSION – A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction and rationale: Urinary tract infections (UTIs) are common in young children and women and even more so in pregnant women. Ciprofloxacin has been a long-used regime to treat UTIs, although recently the paradigm has shifted towards Fosfomycin. This shift is driven by rising antibiotic resistance, safety concerns with fluoroquinolones, and the need for alternative treatments with broader efficacy and fewer adverse effects. This systematic review and meta-analysis assess the effectiveness and safety of Fosfomycin compared to Ciprofloxacin for treating urinary tract infections in adults.

Methodology:

A systematic search was conducted across PubMed, EMBASE, Cochrane Library, Web of Science, Google Scholar, and Scopus using search strings combining "Fosfomycin," "Ciprofloxacin," and "urinary tract infections." Study selection and screening were managed using Covidence, with duplicates removed. Four randomized controlled trials met the inclusion criteria following primary and secondary screening.

Data analysis was performed using Review Manager (RevMan), with results presented as forest plots. A random-effects model was applied in cases of significant heterogeneity. The outcomes assessed included clinical remission, bacterial eradication, and adverse effects, based on data from three of the included studies. Results:

For bacterial eradication, the total number of patients was 334 patients, bacterial eradication during 10 days was achieved in 143 participants in the fosfomycin group and 110 participants in the ciprofloxacin group. Bacterial eradication was significantly higher in the fosfomycin group compared to the ciprofloxacin group (OR=2.03, 95% CI 1.22-3.36, $p=0.006$). For clinical remission, no significant difference was found in 3 studies in a total of 278 patients (OR=1.26, 95% CI 0.72-2.21, $p=0.42$). Out of a total of 356 patients, 74 experienced adverse effects in the fosfomycin group and 46 in the ciprofloxacin group. The appearance of adverse effects was significantly higher in the fosfomycin group (OR 2.66, CI 1.53-4.62, $p=0.0005$).

Conclusion:

The results of our meta-analysis show that bacterial eradication was significantly higher in the Fosfomycin group compared to the Ciprofloxacin group. There was no difference between the two drugs in terms of clinical remission. The appearance of adverse effects was significantly higher in the Fosfomycin group. Hence it was deduced that Fosfomycin is more effective than Ciprofloxacin for bacterial eradication in the treatment of urinary tract infection.

EFFECTIVENESS OF NON-INVASIVE VENTILATION VS. INVASIVE VENTILATION IN ACUTE COPD EXACERBATION: A META-ANALYSIS OF RANDOMIZED AND OBSERVATIONAL STUDIES

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Background: Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) often lead to acute respiratory failure, requiring ventilatory support. While invasive mechanical ventilation (IMV) is traditionally used, non-invasive ventilation (NIV) has emerged as a promising alternative with potentially fewer complications. This meta-analysis aimed to compare the effectiveness of NIV versus IMV or standard care in managing AECOPD.

Methods: A systematic literature search was conducted across PubMed, Scopus, Embase, and Web of Science for studies published up to March 2024. Randomized controlled trials and observational studies comparing NIV with IMV or standard therapy in adult AECOPD patients were included. The primary outcomes were intubation rate, in-hospital mortality, and hospital length of stay. Statistical analyses were performed using Review Manager (RevMan) version 5.4, applying a random-effects model. Risk of bias was assessed using the Cochrane RoB 2.0 and Newcastle-Ottawa Scale.

Results: Three studies were included, comprising 70,141 patients. NIV significantly reduced the risk of intubation (RR: 0.34; 95% CI: 0.33–0.35; $I^2 = 0\%$) and in-hospital mortality (RR: 0.43; 95% CI: 0.30–0.64; $I^2 = 3\%$) compared to IMV or standard care. However, no statistically significant difference was observed in hospital length of stay (MD: 0.81 days; 95% CI: –5.79 to 7.42; $I^2 = 79\%$). Funnel plots suggested minimal publication bias.

Conclusion:

NIV is significantly more effective than IMV or standard care in reducing both intubation rates and in-hospital mortality in AECOPD patients. While its impact on hospital stay remains inconclusive, these findings support NIV as a frontline strategy in acute COPD management. Further high-quality research is needed to assess long-term outcomes and optimize patient selection.

Keywords:

COPD, Non-invasive ventilation, Invasive mechanical ventilation, Meta-analysis, Acute exacerbation, Mortality, Intubation

**COMPARISON OF EFFECTIVENESS OF
STATIN PLUS EZETIMIBE VS. STATIN
MONOTHERAPY IN ACUTE CORONARY
SYNDROME PATIENTS UNDERGOING
PERCUTANEOUS CORONARY
INTERVENTION: A SYSTEMATIC REVIEW
AND META-ANALYSIS**

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Introduction:

Acute coronary syndrome (ACS) is a major contributor to global cardiovascular morbidity and mortality. Effective lipid-lowering therapy is essential for secondary prevention in patients undergoing percutaneous coronary intervention (PCI). While statins are the cornerstone of treatment, the potential added benefit of combining ezetimibe with statins remains under investigation.

Objective: To compare the efficacy of statin monotherapy versus combination therapy with ezetimibe and statins in improving lipid profiles and reducing cardiovascular events in patients with ACS undergoing PCI. Methods: This meta-analysis was conducted in accordance with the PRISMA guidelines. A comprehensive search of PubMed, EMBASE, and Cochrane databases was performed to identify relevant studies published up to January 2025. The primary outcomes assessed were changes in LDL-C, HDL-C,

triglycerides, total cholesterol, and the incidence of major adverse cardiovascular events (MACE). Data analysis was carried out using Review Manager Version 5.4. A random-effects model was used to calculate standardized mean differences (SMD) and risk ratios (RR), with 95% confidence intervals (CI).

Results: Eight studies with a combined total of 4,588 patients were included. Combination therapy significantly reduced LDL-C levels (SMD -0.32; 95% CI: -0.50 to -0.15; $P < 0.001$) and total cholesterol (SMD -0.27; 95% CI: -0.53 to -0.01; $P = 0.05$) compared to statin monotherapy. No significant differences were found in HDL-C (SMD 0.05; 95% CI: -0.13 to 0.23; $P = 0.59$) or triglycerides (SMD 0.09; 95% CI: -0.27 to 0.08; $P = 0.30$). The incidence of MACE was also similar between the two groups (RR 1.61; 95% CI: 0.75 to 3.47; $P = 0.22$).
Conclusion: Ezetimibe-statin combination therapy provides superior lipid-lowering benefits compared to statin monotherapy in ACS patients undergoing PCI. However, further high-quality studies are required to evaluate its impact on long-term cardiovascular outcomes.

NIACIN'S DUAL IMPACT: ENHANCING LIPID PROFILE & MINERAL BALANCE IN DIALYSIS PATIENTS – A META-ANALYSIS

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Introduction: Patients undergoing dialysis frequently experience metabolic disturbances, including dyslipidemia, calcium-phosphorus imbalance, and hematological abnormalities, contributing to increased cardiovascular morbidity and poor clinical outcomes. Niacin, a lipid-modifying agent, has shown promise in improving lipid profiles and modulating mineral metabolism. This meta-analysis evaluates the efficacy of niacin supplementation in modifying lipid profiles, calcium-phosphorus balance, and other biochemical markers in dialysis patients.

Objectives: This meta-analysis aims to assess the effects of niacin supplementation on key metabolic parameters — including HDL cholesterol, LDL cholesterol, total cholesterol, triglycerides, calcium, phosphorus, platelet count, and uric acid levels—in patients undergoing dialysis.
Methodology: A comprehensive literature search was conducted across major scientific databases to identify randomized controlled trials (RCTs) evaluating niacin's effects on metabolic parameters in dialysis patients.

Studies meeting the inclusion criteria were pooled for meta-analysis. Weighted mean differences (WMD) with 95% confidence intervals (CI) were calculated, and heterogeneity was assessed using the I^2 statistic. Risk of bias was assessed using the Cochrane Risk of Bias Tool, covering key domains such as randomization, blinding, and outcome reporting. Results: A total of 10 randomized controlled trials were included. Niacin supplementation significantly increased HDL cholesterol levels (pooled mean difference: 11.60, 95% CI: 7.06 to 16.15, $p < 0.00001$, $I^2 = 16\%$) and serum calcium levels (pooled mean difference: 0.11, 95% CI: 0.07 to 0.15, $p < 0.00001$, $I^2 = 0\%$). Additionally, it significantly reduced serum phosphorus levels (pooled mean difference: -0.83, 95% CI: -1.03 to -0.64, $p < 0.00001$), although substantial heterogeneity was observed ($I^2 = 90\%$). No significant effects were observed for LDL cholesterol ($p=0.57$), total cholesterol ($p=0.67$), triglycerides ($p=0.86$), platelet count ($p=0.05$), or uric acid levels ($p=0.3$).

Conclusion: Niacin supplementation shows promising efficacy in improving HDL cholesterol and serum calcium levels while significantly reducing serum phosphorus levels in dialysis patients. However, its impact on LDL cholesterol, total cholesterol, triglycerides, platelet count, and uric acid levels remains statistically insignificant. The high heterogeneity observed in phosphorus outcomes highlights the need for further investigation to account for variations in dialysis modalities, niacin dosages, and

patient-specific factors. Future large-scale, well-controlled studies are essential to validate these findings and optimize niacin's therapeutic role in this patient population.

SPINAL SURGICAL ROBOTICS: A REVIEW OF CURRENT CAPABILITIES AND POTENTIAL IMPACT

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INTRODUCTION:

Each year, more than 4.83 million spine surgeries are performed worldwide, with pedicle screw placement for spinal fusion being one of the most commonly used procedures. However, these techniques had several disadvantages, including low precision, high surgical risks, significant radiation exposure, and limited accessibility. Robotic technology in spine surgery offers a promising advancement in enhancing surgical precision, improving navigation capabilities, and optimizing patient outcomes while minimizing complications.

OBJECTIVES:

This study aims to explore the role of robotics in spine surgery, compare it to conventional free-hand techniques, evaluate its impact on radiation exposure and intraoperative blood loss.

METHODS:

This review comprises 12 articles that summarised the performance metrics of 8 robotic models. The studies that aimed to describe the safety and accuracy levels of

robotics in spine surgery were included.

RESULTS:

A total of 842 patients participated in these studies that had implantation of pedicle screws at various levels. The average accuracy of robot-assisted models and free-hand fluoroscopy-assisted techniques is 95.8% and 90.2% respectively. The average radiation dose in robot-assisted and free-hand techniques was $21.7 \pm 11.5 \mu\text{sv}$ and $70.5 \pm 42.0 \mu\text{sv}$ respectively. Moreover, a significant reduction in intraoperative blood loss is noticed. CONCLUSION: Spine surgery has evolved with the innovations in robotics and greater accuracy and safety levels can be observed in pedicle screw placement. These advancements have led to a reduction in radiation exposure and intraoperative blood loss. However, a sharp learning curve is seen and a lack of external validation is also noticed. We can enhance quality by integrating AI and augmented reality and long-term follow-up of patients to improve surgical procedures.

COMPARING NEUROENDOSCOPY AND CRANIOTOMY FOR SPONTANEOUS SUPRATENTORIAL INTRACEREBRAL HEMORRHAGE: A META-ANALYSIS AND META-REGRESSION OF RANDOMIZED AND NON-RANDOMIZED STUDIES

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Background

Supratentorial spontaneous intracerebral hemorrhage (ICH) is a critical condition with high morbidity and mortality rates warranting urgent surgical evacuation. This systematic review and meta-analysis compares the safety and efficacy of neuroendoscopy (NE) versus traditional craniotomy (CR) for managing ICH. Methods:

From inception until July 2024, a comprehensive literature search was undertaken on PubMed, Cochrane Central, ScienceDirect, and Clinicaltrials.gov. Risk ratios (RR) and weighted mean differences (WMD) were pooled for categorical and continuous outcomes under the random effects model in Review Manager. Leave-one-out sensitivity analysis, Egger's regression, GRADE assessment, and meta-regression were performed to evaluate the heterogeneity, publication bias, certainty of evidence, and effect size variability, respectively.

Results:

Our meta-analysis included 8 clinical trials

and 20 cohort studies with 9,437 patients. NE outperformed CR in terms of favourable neurological outcomes (RR=1.59, 95% CI :[1.30,1.94]; $p<0.00001$; I²=90%), mortality (RR=0.62, 95% CI:[0.48,0.81]; $p<0.0004$; I²=51%), hematoma evacuation rate (WMD=7.17,95% CI :[4.68,9.65]; $p<0.00001$; I²=94%) operating time (WMD=-102.08,95 CI :[-120.29,-83.87] min; $p<0.00001$; I²=98%), blood loss (WMD=-255.51,95% CI :[-383.61,-127.41]ml ; $p<0.0001$; I²=100%), length of hospital stay (WMD=-3.34,95% CI :[-5.05,-1.64]days ; $p<0.0001$; I²=62%), ICU stay (WMD=-2.85,95% CI :[-5.13,-0.57]days ; $p<0.01$; I²=96%), meningitis(RR=0.58, 95% CI :[0.36,0.95]; $p<0.03$; I²=10 %), infections (RR=0.49, 95% CI :[0.35,0.67]; $p<0.0001$; I²=51%), residual hematoma volume (MD=-2.22; 95%CI:[-3.37,-1.07]; $p<0.0002$;I²=90%) and overall complications (RR=0.52, 95%CI:[0.40-0.67]; $p<0.00001$; I²=70%). In addition, re-bleeding was found to be comparable between the CR and NE groups ($p=0.08$)

Conclusion:

NE for spontaneous ICH is associated with favorable neurological outcomes, declined mortality, less operating time, decreased blood loss and residual volume, shortened length of hospital and ICU stay, reduced infections, meningitis, and overall complications, but the re-bleeding rate was found to be comparable.
Keywords: Neuroendoscopy, Craniotomy, Intracerebral hemorrhage, Meta-analysis, Supratentorial

EFFICACY OF PIRFENIDONE IN FIBROTIC HYPERSENSITIVITY PNEUMONITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS*

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Introduction:

Fibrotic hypersensitivity pneumonitis (HP), a progressive and irreversible interstitial lung disease (ILD), carries a significant risk of morbidity and mortality due to a narrow range of therapeutic options available. The role of anti-fibrotic drugs for this disease entity has been called into question and the results of various studies have been unclear so far. Objective: This meta-analysis evaluates the efficacy of the drug pirfenidone, an anti-fibrotic agent in fibrotic HP, to document a clear consensus of the benefits in disease outcomes. Methods: PubMed, Scopus, and MEDLINE were searched for the randomized control trials (RCTs) evaluating the efficacy of pirfenidone in fibrotic HP against a placebo. Data were extracted from the RCTs which met the inclusion criteria, and pooled analysis was performed to evaluate the significance of % Predicted FVC (forced vital capacity), % Predicted DLCO (diffusion capacity of carbon monoxide), and change in SGRQ (George's respiratory questionnaire) at the completion of the intervention.

Results: No significant change was observed in the % predicted FVC [Mean difference (MD): 3.65; 95% Confidence interval (CI): -1.63, 8.94; P: 0.18] and the % predicted DLCO [MD: 7.64; 95% CI: -1.46, 16.74; P: 0.10]. However, there was a significant decrease in the SGRQ score at the end of the intervention [MD: -5; 95% CI: -6.88, -3.12; P < 0.00001].

Conclusion:

Pirfenidone was not associated with a significant change in the lung function metrics, but it has been shown to improve the quality of life, as evidenced by a significant decrease in SGRQ score.

LONG-TERM (>5 YEARS) OUTCOMES OF CURRENT DRUG-ELUTING STENTS IN PATIENTS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION: A NETWORK META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Background

Various drug-eluting stents (DES) are currently used for percutaneous coronary intervention (PCI). Trials have shown inconsistent results in head-to-head comparisons of long-term outcomes with different DES, highlighting the need for a comprehensive network meta-analysis.

Methods

We conducted a search for randomized controlled trials (RCTs) reporting outcomes of 5 years or longer for DES and performed a network meta-analysis using a frequentist random-effects model. We calculated odds ratios (ORs) and ranked different DES using P-scores, focusing on outcomes such as definite/probable stent thrombosis and all-cause mortality. Analyses were performed using R software (version 4.4.1), with statistical significance set at $p < 0.05$.

Results

We included 29 RCTs involving 46,502 patients, comparing six different DES (Orsiro, Xience, Resolute, Nobori/BioMatrix, Synergy, and Promus) with each other, as well as with bare-metal and first-generation stents. No statistically significant differences were observed between the stents in terms of all-cause mortality or stent thrombosis. Synergy ranked highest for definite/probable stent thrombosis ($P = 0.85$) and all-cause mortality ($P = 0.76$).

Conclusion: The analysis revealed no significant differences in 5-year outcomes among the various DES, but Synergy ranked highest for definite/probable stent thrombosis and all-cause mortality, suggesting its potential for favorable performance in clinical practice.

CLINICAL OUTCOMES WITH OPTICAL COHERENCE TOMOGRAPHY VERSUS ANGIOGRAPHY OR INTRAVASCULAR ULTRASOUND GUIDED PERCUTANEOUS CORONARY INTERVENTION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Background: Angiography-guided Percutaneous Coronary Intervention (PCI) in Myocardial Infarction. Intravascular ultrasound (IVUS) and Optical Coherence Tomography (OCT) are emerging techniques for improving PCI outcomes. **Objective:** To conducted a systematic review and meta-analysis of randomized control trials (RCTs) comparing OCT-guided PCI with Angiography- or IVUS-guided PCI. **Methods:** PubMed and Cochrane Library were searched until March 2025 for RCTs comparing OCT-guided PCI vs. Angiography- or IVUS-guided PCI. The outcomes were minimal stent area (MSA), all-cause and cardiovascular mortality, major adverse cardiac events (MACE), target vessel revascularization (TVR), myocardial infarction (MI), target lesion revascularization (TLR) and Stent thrombosis (ST). Results were reported as odds ratios (ORs) with 95% confidence intervals and pooled using a random-effects model. **Results:** 14 RCTs enrolling 1210 participants were included. A significant increase in MSA was observed with OCT-guided stent implantation compared to angiographic-guided implantation [MD: 0.36 (0.22, 0.50);

$P < 0.00001$; $I^2 = 0\%$]. OCT-guided procedures were also associated with significantly reduced all-cause mortality [RR = 0.59 (0.50, 0.95), $P = 0.02$, $I^2 = 0\%$] and cardiovascular mortality [RR = 0.46 (0.26, 0.81), $P = 0.007$, $I^2 = 0\%$]. Point estimates significantly favored OCT relative to angiography in MACE [RR = 0.80 (0.65, 0.99), $P = 0.04$, $I^2 = 0\%$], MI [RR: 0.78 (0.64, 0.97); $P = 0.02$; $I^2 = 0\%$] and ST events [RR: 0.50 (0.32, 0.77); $P = 0.002$; $I^2 = 0\%$]. No significant differences were observed in TVR [RR: 0.79 (0.46, 1.34); $P = 0.80$; $I^2 = 0\%$], or TLR rates [RR: 0.71 (0.46, 1.10); $P = 0.13$; $I^2 = 39\%$]. OCT was associated with a non-significant reduction in MSA [MD: -0.19 (-0.51, 0.13); $P = 0.24$; $I^2 = 0\%$] in comparison to OCT. There was no significant difference in rates of all-cause mortality [RR= 0.83 (0.50, 1.36); $P = 0.46$; $I^2 = 0\%$], cardiovascular mortality [RR= 0.56 (0.21,1.47); $P = 0.24$; $I^2 = 0\%$] MACE [RR: 0.91 (0.62, 1.34); $P = 0.64$; $I^2 = 0\%$], TVR [RR= 1.12 (0.77,1.61); $P = 0.55$; $I^2 = 0\%$], MI [RR= 0.73 (0.45,1.16); $P = 0.20$; $I^2 = 0\%$], TLR [RR= 0.87 (0.56,1.35); $P = 0.53$; $I^2 = 0\%$], ST [R= 0.59 (0.12, 2.97); $P = 0.52$; $I^2 = 0\%$] between OCT-guided and IVUS-guided PCI. **Conclusion:** OCT-guided procedures achieved larger MSA and reduced all-cause mortality, cardiovascular mortality, MACE, MI and ST risk compared to angiography. OCT's ability to optimize stent implantation and enhance safety supports its wider adoption in PCI.

TIROFIBAN SAVES ISCHEMIC STROKE

PATIENTS:

A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Acute ischemic stroke (AIS) is a leading cause of morbidity and mortality globally. Standard antiplatelet therapies, while partially effective, do not fully inhibit all pathways of platelet aggregation, leaving patients at risk of recurrent thrombotic events. Tirofiban, a glycoprotein IIb/IIIa receptor inhibitor, has shown promise as an adjunctive treatment in AIS. **Methods:** A comprehensive search was conducted in PubMed, ClinicalTrials.gov, and Cochrane Library from inception to July 2024, following PRISMA guidelines. Inclusion criteria comprised randomized controlled trials (RCTs) and comparative observational studies where tirofiban was used as an adjunct to standard antiplatelet therapy. Primary outcomes included symptomatic intracranial hemorrhage (sICH) and favorable modified Rankin Scale (mRS) scores at 90 days. Secondary outcomes included National Institute of Health Stroke Scale (NIHSS) scores and all-cause mortality. Data was analyzed using Review Manager v5.4.1, with random-effects models employed for all outcomes.

Results: Fifteen studies, comprising 4,457

patients, were included. Tirofiban significantly improved the likelihood of achieving favorable mRS scores (OR 1.65, 95% CI [1.29, 2.11], $p=0.0001$), with moderate heterogeneity ($I^2=57\%$, $p=0.006$). Tirofiban also significantly reduced NIHSS scores (MD -2.08, 95% CI [-2.77, -1.39], $p<0.00001$). There was no significant difference in the incidence of sICH between the tirofiban and control groups.

Conclusion: Tirofiban as an adjunct to standard antiplatelet therapy in AIS patients significantly improves functional outcomes and reduces neurological impairment without increasing the risk of sICH.

EFFICACY OF TAK-003 VACCINE AMONG HEALTHY POPULATION: A SYSTEMATIC REVIEW & META-ANALYSIS

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Objectives: Dengue fever, caused by the dengue virus transmitted primarily by Aedes mosquitoes, poses a significant global health threat with widespread morbidity and mortality. The primary objective of this systematic review is to evaluate and summarise the results of a multiple randomized, double-blind, placebo-controlled, phase 3 trials on the efficacy of TAK-003 dengue vaccine in healthy population.

Methodology: This systematic review follows PRISMA guidelines and includes studies

identified through PubMed, Google Scholar, and ICTRP databases. Eight randomized, doubleblind, placebo-controlled trials evaluating TAK-003 in healthy population of dengue endemic areas were included. Data extraction and quality assessment were performed using Cochrane RoB 2 tool. Results: A total of 1,39,939 participants across multiple dengue-endemic regions were included in the analysis. Pooled analysis showed a vaccine efficacy of 63% (95% CI: 66% – 60%) against virologically confirmed dengue, with substantial heterogeneity (I² = 83%). Publication bias assessment indicated minimal asymmetry in funnel plots. TAK-003 demonstrated significant efficacy in reducing severe dengue cases and hospitalizations, particularly against DENV-2 and DENV-1. The vaccine's performance varied based on prior dengue exposure, showing higher efficacy in seropositive individuals

Conclusion: This systematic review establishes TAK-003 as an effective tool in dengue prevention, with robust evidence supporting its use in endemic regions. Ongoing monitoring and future research are crucial to assess long-term efficacy and address remaining challenges in global dengue control efforts. Recommendations are for vaccine administration and further research implications.

THE IMPACT OF GESTATIONAL DIABETES MELLITUS ON FETAL NEURAL DEVELOPMENT: A SYSTEMATIC REVIEW

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Background: Gestational diabetes mellitus (GDM) is a common complication among pregnant women associated with short and long-term complications for both the mother and child. We aimed to find the impact of GDM on fetal neural development. Methods: We searched PubMed, Cochrane and Clinicaltrials.gov from inception up until October 2024 to find articles with MeSH terms and relevant keywords related to 'gestational diabetes' and 'fetal neurodevelopment.' Articles were screened on Zotero, and inclusion criteria was applied. Data extraction was done on Excel, and the Newcastle-Ottawa Scale (NOS) was applied to assess the quality of the articles. Results: A total of 360 studies were screened, and 17 studies were added after applying the inclusion criteria. Findings indicate that GDM is associated with an increased risk of neurodevelopmental delays, including impaired language and social communication skills, autism spectrum disorder (ASD), and attention-deficit hyperactivity disorder (ADHD). Neurophysiological studies revealed disrupted cortical activity and altered brain structure, while molecular analyses identified changes in neurotrophic factors and miRNA expression which are necessary

to neural development. Conclusion: This review highlights the potential long-term neurodevelopmental risks associated with GDM and underscores the importance of early screening and intervention. Future research should focus on longitudinal studies with standardised neurodevelopmental assessments to better understand the mechanisms underlying these associations and inform targeted management strategies.

**ANTERIOR SKULL BASE TUMORS:
COMPARATIVE ANALYSIS OF ENDOSCOPIC
AND OPEN APPROACHES, TUMORS
CLASSIFICATION, PREVALENCE AND
ASSOCIATED SURGICAL COMPLICATIONS. A
SYSTEMATIC REVIEW**

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Objective: To conduct a review on different types of anterior skull base tumors, their prevalence, approaches toward them, and pre, intra, and postoperative complications. Introduction: Anterior skull base tumors are challenging due to their closeness to vital structures. Surgical management has improved with endoscopic techniques, which use smaller incisions to reduce recovery time. Open techniques offer direct tumor access, enabling complete removal. Meningiomas are the most common tumor type, with esthesioneuroblastoma and other rare variants also occurring. Incidence varies by histology and demographics. Surgery carries inherent risks, such as structural

damage, visual impairment, fluid leaks, bleeding, infection, and brain injury, influenced by tumor characteristics and surgical approach. Advancements in techniques and monitoring have improved patient outcomes, highlighting the need to understand these approaches, tumor types, and complications for effectively managing anterior skull base tumors. Materials and Methods: To conduct a review on different types of anterior skull base tumors, their prevalence, approaches toward them, and pre, intra, and postoperative complications, I searched almost all articles related to the topic or its keywords such as endoscopic approach, anterior skull base tumors, surgical complications on PubMed MEDLINE, JSTOR, Science Direct, Cochrane, and Google scholar database. After going through 2000 articles I selected all those articles from 1981 through 2022 which contain review articles, case studies, and retrospective studies related to the topic. The PRISMA (preferred reporting items for systematic review and metanalysis) flow sheet for the search is given in FIG 1. Detail of the information extracted from each selected article, are mentioned in the references. Data was categorized based on, surgical approach, tumor type, prevalence rates, and complications. A cumulative total of 2000 prospective studies were identified after compiling search results. Following the elimination of duplicate entries, a total of 1180 potential investigations were discovered. The remaining articles were screened to determine their relevancy based

on their title and abstract. After conducting a manual search of titles and abstracts, a total of 58 references were identified and included in the study. Conclusion: The present study provides an overview of the surgical techniques used in resecting anterior skull base tumors, specially focusing on endoscopic and open procedures. The article examines the frequency and classifications of tumors, including pituitary adenomas, meningiomas, esthesioneuroblastomas, chordomas, and craniopharyngiomas. The endoscopic method is associated with less morbidity and expedited recovery, but the open approach gives a broader field of view for managing bigger or more intricate malignancies. The management of surgical complications is discussed. The study underscores the significance of interdisciplinary teamwork, thorough planning, and improved methodologies in enhancing results.

ROLE OF NICORANDIL IN PREVENTING CONTRAST-INDUCED NEPHROPATHY IN PATIENTS UNDERGOING CARDIAC CATHETERIZATION PROCEDURES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Contrast-induced nephropathy (CIN) is a major risk for patients undergoing coronary angiography (CAG) and percutaneous coronary intervention (PCI). Objectives:

To evaluate the role of nicorandil in preventing contrast-induced nephropathy in patients undergoing cardiac catheterization procedures

Methods: PubMed, MEDLINE, Embase, Google Scholar, and Web of Science were searched till May 2024 to include randomized controlled trials (RCTs) assessing the efficacy and safety of Nicorandil administration in patients following CAG or PCI. Outcomes of interest included the CIN incidence, major adverse events, serum creatinine, serum cystatin C, BUN and eGFR. Risk ratios (RRs) and standard mean differences (SMDs) with 95% confidence intervals (CIs) were calculated using random-effects model. Statistical heterogeneity was assessed using I² statistics. Results

Twelve studies (n=2190 patients) were included in the final analysis. Nicorandil significantly reduced the CIN incidence (RR: 0.40 [0.31, 0.52]; $p<0.00001$), with consistent results for oral (RR: 0.35 [0.25, 0.48]; $p<0.00001$) and intravenous administration (RR: 0.52 [0.30, 0.92]; $p=0.02$) (p -interaction=0.22). Oral nicorandil reduced the risk of major adverse events (RR: 0.71 [0.51, 0.99]; $p=0.05$). Among patients on nicorandil, serum creatinine levels were significantly lower at 48 hours (SMD: -0.30 [-0.52, -0.07]; $p=0.009$), and 72 hours post-intervention (SMD: -0.42 [-0.71, -0.13]; $p=0.004$). Nicorandil significantly reduced serum cystatin C levels at 48 hours post-intervention (SMD: -0.56 [-1.01, -0.01]; $p=0.02$). However, nicorandil did not significantly affect eGFR values at 24 hours (SMD: 0.12 [-0.21, 0.45]; $p=0.46$), 48 hours (SMD: 0.08 [-0.19, 0.35]; $p=0.58$), and 72 hours (SMD: 0.34 [-0.13, 0.81]; $p=0.16$).

Conclusion

Nicorandil administration reduces the CIN incidence and improves renal biomarkers in patients undergoing CAG and PCI. Large-scale trials with longer follow-up periods are warranted to confirm the Reno protective effects of nicorandil.

MITOCHONDRIAL DYSFUNCTION, GENETIC PREDISPOSITION, AND TARGETED INTERVENTIONS IN NEURODEGENERATIVE DISEASES AND COGNITIVE DECLINE: A META-ANALYSIS OF MECHANISMS AND TREATMENTS*

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Background: Neurodegenerative diseases (NDs) and cognitive decline pose a growing global health burden. Mitochondrial dysfunction and genetic predisposition are key contributors to disease progression. This meta-analysis evaluates their impact on cognitive decline and mitochondrial function while assessing potential therapeutic interventions.

Methods

A systematic search was conducted across PubMed, Web of Science, PsycINFO, Cochrane Library, and Scopus (2015–2024). Eligible studies included RCTs, case-control, and experimental research examining mitochondrial dysfunction (ATP, ROS, MMP, mitophagy markers, DNA stability) and genetic factors (APOE4, PINK1, PARK2, TFAM) in Alzheimer's, Parkinson's, ALS, Huntington's, and multiple system atrophy. A random-effects model (Hedges' g) was used to calculate effect sizes.

Results

Nine studies ($n = 2,560$) showed a significant association between mitochondrial dysfunction and cognitive decline (Hedges' $g = 0.85$, 95% CI: 0.60–1.10, $p = 0.003$). APOE4 had the strongest correlation (OR = 2.10,

95% CI: 1.70–2.50, $p < 0.001$). Mitochondrial-targeted therapies improved cognitive function and mitochondrial stability. UDCA enhanced ATP synthesis (12% improvement, $p = 0.02$), liraglutide reduced oxidative stress (8%, $p = 0.04$), and TFAM gene therapy improved mitochondrial DNA repair (14%, $p = 0.01$). Moderate heterogeneity ($I^2 = 42\%$) and minor publication bias were observed.

Conclusions
Mitochondrial dysfunction and genetic predisposition significantly contribute to neurodegenerative disease progression. Mitochondrial-targeted therapies show potential in stabilizing mitochondrial function and slowing cognitive decline. Future large-scale RCTs with standardized biomarkers are needed to refine clinical applications.

PREVENTING INFECTIONS OR OVERTREATMENT? A SYSTEMATIC REVIEW ON PROPHYLACTIC ANTIBIOTICS BEFORE ERCP IN POST-TRANSPLANT PATIENTS

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Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) is frequently performed in liver transplant recipients for the management of biliary complications. Despite its clinical benefits, ERCP carries a risk of post-procedural infections, particularly in immunosuppressed transplant patients. Prophylactic antibiotics are recommended,

but their efficacy remains uncertain.

Methods

This systematic review and meta-analysis, registered with PROSPERO (CRD42024604381), followed PRISMA guidelines. A comprehensive search was conducted across PubMed, Embase, Cochrane CENTRAL, and Scopus through September 2024. Eligible studies included RCTs and observational studies evaluating prophylactic antibiotic use in liver transplant recipients undergoing ERCP. Outcomes assessed included infection rates, severe infections, culture results, antibiotic resistance, and hospital stay.

Results

Sixteen studies encompassing 1,192 liver transplant recipients and over 2,600 ERCP procedures were included. The pooled infection rate per patient was 9.1% (95% CI: 0.046–0.171), and per procedure was 3.3% (95% CI: 0.012–0.089). Severe infections occurred in 1.2% of cases, and mortality was reported in one patient. The pooled event rate for positive bile cultures was 80.1%, and 30.2% for positive blood cultures. Approximately 52% of bacterial isolates were sensitive to prophylactic antibiotics, while 24.2% showed antibiotic resistance, with 21.2% being multidrug-resistant. Delayed antibiotic administration was associated with longer hospital stays.

Conclusions
Although prophylactic antibiotics are commonly used prior to ERCP in liver transplant recipients, infection rates remain variable, and resistance is prevalent. High rates of positive cultures and multidrug-

resistant organisms highlight the need for optimized antibiotic strategies and rigorous infection control practices. Further randomized controlled trials are warranted to assess prophylactic efficacy in this population.

EFFICACY OF PD-1/PD-L1 INHIBITORS IN HODGKIN LYMPHOMA: A SYSTEMATIC REVIEW AND PROPORTIONAL META-ANALYSIS OF CLINICAL TRIALS

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Background:

Hodgkin lymphoma is typically treated through chemotherapy or combined chemoradiotherapy. Up to one-fifth of patients develop relapsed/refractory Hodgkin lymphoma, these patients may require treatment with immunotherapeutic options. PD-1/PD-L1 inhibitors suppress the development of T-cell tolerance which typically occurs due to overexpression of PD1 ligands by tumor cells. This systematic review and meta-analysis assesses the efficacy of available PD-1/PD-L1 inhibitors in patients with Hodgkin lymphoma.

Methods:

A systematic literature search was undertaken on PubMed, Embase, Cochrane and Clinicaltrials.gov from inception to January 2025, using MeSH terms and relevant keywords for "Hodgkin Disease" and "Programmed Cell Death 1 Receptor".

Clinical trials assessing the efficacy of PD-1/PD-L1 inhibitors for the treatment of Hodgkin lymphoma were included. Outcomes of interest were overall response rate (ORR), overall survival (OS) and progression-free survival (PFS). Proportional outcomes were pooled using a random effects model (Freeman-Tukey double arcsine transformation) in MetaXL software. results:

The initial search revealed 527 articles. After exclusion of duplicates, reviews and non-relevant articles, data were included from 32 clinical trials, reporting on 2828 patients. All 32 studies reported data for ORR, with PD-1/PD-L1 inhibitors having a pooled ORR of 56% (95% CI 42-69). The highest ORR was reported with tislelizumab (ORR 87%, 95% CI 78-94) and zimberelimab (ORR 84%, 95% CI 75-91). Nivolumab, ruxolitinib and pembrolizumab had an ORR of 72% (95% CI 49-92), 69% (95% CI 36-97) and 59% (95% CI 33-84), respectively. Avelunab, decitabine and camrelizumab had an ORR of 47% (95% CI 35-59), 23% (95% CI 12-36) and 20% (95% CI 12-28), respectively. Brentixumab had the lowest ORR at 16% (95% CI 0-100). OS and PFS at 2 years were 33% (95% CI 10-60) and 48% (95% CI 26-70), respectively, with PD-1/PD-L1 inhibitors.

Conclusions:

PD-1/PD-L1 inhibitors demonstrate acceptable efficacy in treating Hodgkin lymphoma, with the pooled ORR across all drugs in this group being 56%. Several novel agents have reported ORRs greater than 80%. Further large-scale randomized controlled trials are required to clarify the

efficacy and safety of PD-1/PD-L1 inhibitors, particularly in comparison to other novel agents.

EMPAGLIFLOZIN'S ROLE IN POST-MYOCARDIAL INFARCTION MANAGEMENT: INSIGHTS FROM A META-ANALYSIS

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Background: Empagliflozin, a Sodium Glucose Cotransporter 2 (SGLT2) Inhibitor, is used to treat type 2 diabetes mellitus and heart failure. Its safety and efficacy as a cardioprotective agent in patients with Myocardial Infarction (MI) have been studied recently.

Objectives: To determine the role of Empagliflozin in post-myocardial infarction management by preventing cardiovascular deaths, reducing hospitalization due to heart failure, and minimizing adverse events.

Methods: Following the PRISMA guidelines, a literature search was done on PubMed, Medline, Web of Science, Scopus, and Cochrane Central Register of Controlled Trials from inception until May 2024. All Randomized Control Trials (RCT) reporting the safety and efficacy of Empagliflozin in MI management were selected. Outcomes were pooled as Mean Difference (MD) or Risk Ratio (RR) with 95% Confidence Intervals (CI) in this meta-analysis using RevMan 5.4.

Results: Data from ten RCTs, with a combined sample size of 10,560 patients was

pooled, and showed that Empagliflozin is superior to placebo in terms of lowering the risk of cardiovascular deaths (RR=0.75, 95% CI [0.64, 0.88], $p < 0.0004$). Compared to placebo, it lowers the risk of hospitalization due to heart failure (RR=0.70, 95% CI [0.59, 0.82], $p < 0.0001$). However, the results were non-significant for both SGLT2i and placebo in terms of adverse events (RR=1.00, 95% CI [0.96, 1.03], $p < 0.78$). **Conclusion:** Empagliflozin significantly lowers the risk of cardiovascular events in patients with MI who are at a high risk of death due to cardiovascular causes. Larger, more diverse studies are needed to confirm the benefits of Empagliflozin post-MI.

**IMPACT OF NON-ALCOHOLIC FATTY LIVER
DISEASE SEVERITY ON THE INCIDENCE OF
MAJOR ADVERSE CARDIOVASCULAR
EVENTS: A META-ANALYSIS OF
LONGITUDINAL COHORT STUDIES**

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Background: Non-alcoholic fatty liver disease (NAFLD) is increasingly recognized not only as a hepatic disorder but also as a significant contributor to cardiovascular morbidity. The association between NAFLD severity and the risk of major adverse cardiovascular events (MACE) remains inadequately defined, especially across diverse populations and diagnostic approaches.

Objective:

To evaluate the impact of NAFLD severity on the incidence of MACE by synthesizing evidence from longitudinal cohort studies.

Methods:

A systematic literature search was conducted across PubMed, Embase, Web of Science, and the Cochrane Library, identifying longitudinal cohort studies that assessed the relationship between NAFLD severity and MACE outcomes. Studies were selected based on predefined inclusion criteria, and data were extracted independently by two reviewers. Risk ratios (RR) with 95% confidence intervals (Cis) were pooled using a random-effects model. Heterogeneity and

publication bias were assessed via the I^2 statistic and funnel plots, respectively. Results:

Three studies with a combined sample of over 136,000 participants were included. Subgroup analysis comparing severe vs. Mild NAFLD showed a non-significant increased risk of MACE (RR: 1.50; 95% CI: 0.97–2.32). When comparing NAFLD to non-NAFLD populations, the pooled RR was 1.19 (95% CI: 0.80–1.79). Overall, the total pooled estimate across all studies indicated a non-significant association between NAFLD severity and MACE (RR: 1.26; 95% CI: 0.92–1.73), with substantial heterogeneity ($I^2 = 88\%$).

Conclusion:

Although not statistically significant, the findings suggest a trend toward increased cardiovascular risk with greater NAFLD severity. The results highlight the need for standardized diagnostic criteria and further high-quality longitudinal research to clarify this relationship and inform cardiovascular risk stratification in NAFLD patients.

**CLINICAL AUDIT ON ADHERENCE OF
SURGICAL SAFETY CHECKLIST IN
OBSTETRICS AND GYNECOLOGY
DEPARTMENT AT AYUB TEACHING
HOSPITAL ABBOTTABAD**

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Background: The World Health Organization (WHO) introduced the 19-point Surgical Safety Checklist (SSC) in 2009 to reduce preventable surgical complications, improve communication among the perioperative team, and enhance patient safety. Despite its proven effectiveness, adherence to SSC remains suboptimal, particularly in low- and middle-income countries. **Objective:** This clinical audit aimed to evaluate compliance with the WHO SSC during surgical procedures in the Gynecology and Obstetrics Department of Ayub Teaching Hospital, Abbottabad, and assess the impact of an educational intervention on adherence rates. **Methodology:** A two-cycle observational audit was conducted from June to December 2024. In the first cycle (June–August 2024), trained observers documented SSC adherence in four operating theatres. An educational intervention, including staff training and departmental meetings, was implemented in September 2024. The second audit cycle (October–November 2024) assessed changes in compliance post-intervention. Data were analyzed using SPSS version 22.0.

Results: Significant improvements were observed in key SSC components. Surgical site marking increased from 20% to 80% ($p < 0.001$), allergy verification from 10% to 70% ($p < 0.001$), and aspiration risk assessment from 6.6% to 60% ($p < 0.01$). Team introductions improved from 26.6% to 70% ($p < 0.001$), and discussions on critical steps before incision increased from 16.6% to 56.6% ($p < 0.001$). Additionally, confirmation of the procedure name before patient exit rose from 10% to 76.6% ($p < 0.001$), and instrument counts improved from 63.3% to 86.6% ($p < 0.001$). However, compliance remained low in certain areas, such as essential imaging display (0% in both cycles). **Conclusion:** The audit demonstrated that targeted educational interventions significantly enhance SSC adherence, thereby improving surgical safety. To ensure sustained compliance, the SSC was incorporated into patient files as a mandatory checklist. Ongoing training, monitoring, and administrative support remain crucial for optimizing surgical safety and reducing preventable perioperative complications.

CASE REPORTS

AUTOIMMUNE HEMOLYTIC ANEMIA AND CYTOMEGALOVIRUS INFECTION AS EARLY CLINICAL INDICATORS OF SEVERE COMBINED IMMUNODEFICIENCY IN AN INFANT WITH FAMILIAL PREDISPOSITION

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Ashfaq***

Shifa College of Medicine

Background: Severe Combined Immunodeficiency (SCID) is a rare congenital disorder characterized by profound defects in both humoral and cellular immunity. Early identification is crucial, especially in patients with a suggestive family history or recurrent infections.

Case Presentation: We present a case of an infant with a significant family history of SCID who developed autoimmune hemolytic anemia in early infancy. The patient exhibited pallor and jaundice, and laboratory evaluation revealed anemia with a positive direct Coombs test. Further infectious workup demonstrated a positive cytomegalovirus (CMV) PCR, indicating active viral infection. These findings, in conjunction with the immunodeficiency and family history, raised strong clinical suspicion for SCID. The patient was referred for immunological and genetic evaluation to confirm the diagnosis and plan for hematopoietic stem cell transplantation.

Conclusion: This case highlights the importance of considering SCID in infants presenting with AIHA, especially in the context of a positive family history. Prompt recognition and comprehensive evaluation

are essential for early diagnosis and timely intervention to improve outcomes.

ABETALIPOPROTEINEMIA: A RARE SIGHTING OR UNDERREPORTING

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Razzaq Aliza Fatima Dr Sabeen Abid khan***

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Introduction:

Abetalipoproteinemia (ABL), or Bassen-Kornzweig Syndrome, is a rare autosomal recessive lipid metabolism disorder caused by biallelic mutations in the MTP gene. It results in a deficiency of plasma lipoproteins such as chylomicrons, LDL, and VLDL, leading to fat malabsorption and deficiencies in fat-soluble vitamins. Clinical manifestations typically begin in infancy and include steatorrhea, vomiting, acanthocytosis, and failure to thrive. Without treatment, ABL may progress to severe neuromuscular, hematologic, and ophthalmologic complications.

Objectives: This case report aims to present two confirmed cases of ABL in 2-year-old females in Pakistan, both born to consanguineous parents. The objective is to highlight the clinical presentation, diagnostic approach, and management strategies, while also drawing attention to the need for increased awareness in regions with high rates of consanguinity.

Case Summary: Both patients presented with failure to thrive and irritability. Diagnosis was confirmed through lipid profile testing, revealing extremely low LDL

and triglyceride levels. Management included supplementation with fat-soluble vitamins (A, D, E, K), vitamin B complex with lysine, medium-chain triglycerides, and dietary modifications involving a low-fat, high-protein intake along with encouragement of tolerable physical activity. Conclusion:

These cases underscore the importance of early detection and intervention in ABL to prevent long-term complications. In countries like Pakistan, where genetic disorders are more prevalent due to consanguinity, improved access to diagnostic facilities and greater clinical awareness are vital for timely management and better prognosis.

NOCARDIA MENINGITIS IN IMMUNOCOMPETENT INDIVIDUAL POST LUMBAR SURGERY: CASE REPORT

***Raafey Imran, Muhammad Talha, Dr
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Shifa College of Medicine

Background: Nocardia Meningitis presents typically presents as an opportunistic infection on immunocompromised hosts. However, one third Nocardia patients are known to be immunocompetent, with an even lower prevalence for Nocardia meningitis. The aim of the study was to describe the course of chronic meningitis due to Nocardia infection on an immunocompetent host post lumbar surgery.

Case Presentation: A 28-year-old male

presented 6 weeks after lumbar surgery with Headache and vomiting but no fever, since the past 1 week. Neurological exam was positive for neck rigidity. A lumbar puncture was performed and revealed Turbid fluid, and the patient was started on empirical antibiotic therapy. MRI brain contrast was done and revealed findings consistent with ascending meningitis. Culture and sensitivity analysis of the cerebrospinal fluid revealed Nocardia meningitis species. Antibiotic therapy including Co-trimoxazole and Imipenem was initiated. The patient was discharged without any sequela.

Conclusion: This case highlights several characteristics of Nocardia meningitis and the significance of taking Nocardia infection into consideration as a cause of Nocardia meningitis, even in immunocompetent patients. Appropriate treatment in cases of persistent Nocardia meningitis is frequently delayed due to the difficulty in obtaining a microbiologic diagnosis, which results in morbidity.

A RARE CASE OF SALMONELLA-INDUCED ACUTE APPENDICITIS

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Dr Munir Iqbal Malik***

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Introduction: Acute appendicitis is one of the main abdominal conditions requiring surgical intervention. Salmonella typhi, a gastrointestinal pathogen, is predominantly considered a causative agent of enteric fever and this study presents a unique case of acute appendicitis caused by Salmonella typhi which has been rarely reported.

Patient concerns: This study revolves around a 9-year-old female patient who presented with fever, abominable pain and nausea for 6 days. The fever was documented at 104.2F, and was associated with chills and diarrhea. The diarrhea was not persistent, with 5-6 watery stools per day that did not contain food particles and had no blood. The patient had a recent travel history to another city within the country and consumed food from street vendors there.

Diagnoses: A diagnosis of appendicitis was confirmed by CT scan of the abdomen. The causative agent Salmonella Typhi was identified by a blood culture and sensitivity test.

Interventions: The patient underwent a laparoscopic appendectomy.

Outcomes: The recovery process was uneventful and the patient was discharged after 7 days.

Conclusion: This case highlights the importance of considering atypical etiology of acute appendicitis in diagnosis for prompt

management and surgical intervention. This emphasizes the necessity of more research on the less understood association between Salmonella typhi and acute appendicitis.

DOMESTIC ABUSE AS A POTENTIAL TRIGGER FOR TAKOTSUBO CARDIOMYOPATHY WITH UNUSUAL CLINICAL AND ECG FEATURES: A CASE REPORT

Farnood Razzaq

***Izza Shabeeb Muhammad Ramish Irfan Dr
Saeed Ullah Shah***

Shifa College of Medicine

Introduction:

We highlight a case of a premenopausal woman presenting with persistent electrocardiographic abnormality several months after an acute cardiac event diagnosed as Takotsubo cardiomyopathy (TC).

Case Summary: Clinical history revealed long-standing emotional and verbal abuse from her spouse in the context of a strained relationship laden with verbal conflict. Additionally, history of a sudden cardiac event leading to death in her young sister adds weight to the genetic predisposition and multi-etiological origin of this type of cardiomyopathy.

Discussion: Lack of improvement in ECG abnormalities also points to the limited understanding of its pathophysiology and whether such features have any prognostic implications. Current guidelines do not specify follow-ups and this case adds to the growing need for robust studies to improve

our understanding of TC at large. Furthermore, the importance of thorough history taking to elucidate triggering events and familial links cannot be understated from a patient counselling and management perspective.

**UMBILICAL DISCHARGE DUE TO AN
INTRAUTERINE CONTRACEPTIVE DEVICE
(IUCD): A CASE REPORT OF A RARE CAUSE
IN AN ADULT WOMAN**

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Banoori*

Shifa College of Medicine

Introduction

Umbilical discharge is a rare clinical presentation. The most common causes include infections, umbilical granuloma or a patent urachus. Migration of an intrauterine copper device (IUCD) is an extremely uncommon etiology. Objective To report the presentation of a migrated IUCD as umbilical discharge and illustrate its diagnostic and management challenges.

Methods

A 38-year-old woman presented with the history of a discharging umbilicus, and mild periumbilical pain for one year. She had no significant past medical or surgical history, except the insertion of an IUCD. Initial investigations, including ultrasound and sonography, were inconclusive. The persistence of symptoms and failure to diagnose on imaging lead to surgical exploration.

Results

Intra-operative findings revealed a T-shaped copper IUD embedded in the umbilical subcutaneous tissue, forming a sinus tract. The IUCD was intact and no umbilical perforation was noted. Following the removal of the device, the patient recovered with complete resolution of symptoms on follow-up.

Conclusion

This case highlights the limitations of conventional imaging techniques in identifying migrated foreign bodies. It also underscores the importance of taking a detailed contraceptive history and considering IUCD migration as a differential for a discharging umbilicus. Counselling patients about the possible complications of IUCD, even if rare, is crucial for informed decision-making.

ACTINOMYCES INFECTION IN A POST-TB CAVITY: A CASE REPORT

***Fahad Amin Khan, Alina Kiyani, Dr.
Muhammad Ahmad Sohail, Dr. Muhammad
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Shifa College of Medicine

Background:

Actinomyces is a chronic bacterial infection caused by gram positive, anaerobic bacilli, commonly affecting the oral cavity, gastrointestinal, and urogenital tract. Pulmonary actinomycosis is uncommon, comprising only 15% of cases, and is misdiagnosed due to its resemblance to malignancies or fungal infections. Post-Tuberculous (Post-TB) cavities serve as breeding ground for secondary infection, particularly fungal, with bacterial infections being rare.

Case:

We present a 56-year-old male with a history of TB in the right upper lung (RUL), who developed pulmonary actinomyces in a post-TB cavity. He presented with a complaint of hemoptysis and had comorbidities like poorly controlled diabetes mellitus, hyperlipidemia, and smoking history. Chest CT showed a “tree in bud” appearance in the RUL cavity. Pulmonary functions tests showed obstructive changes. A biopsy was taken which confirmed actinomyces. The patient was treated with IV ceftriaxone for 4-6 weeks, followed by oral Augmentin for 1.5 years. Clinical improvement was noted on follow-up.

Conclusion:

This case emphasizes the rare development of actinomyces in a post-TB cavity, highlighting the need of histopathological diagnosis in patients with cavitary lung disease. Due to the risk of misdiagnosis and inappropriate therapy, actinomyces should be considered in chronic lung disease patients presenting with hemoptysis and cavitary lesions, especially in TB endemic areas. A multidisciplinary approach is important for optimal management.

FROM DIAGNOSING TO MANAGING LEIGH’S DISEASE: A CASE REPORT

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Salman, Fasih Muhammad Waseem, Dr
Muhammad Hussain, Dr Waseem ur
Rehman***

Shifa College of Medicine

Background:

Leigh disease, a progressive neurodegenerative disorder, presents diagnostic challenges, particularly in resource-limited settings. This case reports a young boy with progressive neurological deterioration, ultimately diagnosed with Leigh disease.

Methods:

A 2-year-old male presented with developmental delay, ataxic gait, and regression following gastroenteritis. Evaluation included neurological examination, MRI brain, nerve conduction studies (NCS), metabolic testing, and genetic analysis. MRI revealed symmetric hyperintense lesions characteristic of Leigh

disease. Genetic testing via Invitae neuropathy panel identified a homozygous pathogenic SURF1 gene mutation.

Results:

The patient exhibited delayed motor milestones, followed by regression and neurological deficits including ataxia, hypotonia, and nystagmus. MRI showed symmetric hyperintense lesions in the brainstem and basal ganglia. NCS indicated axonal and sensory motor neuropathy. Metabolic testing revealed elevated lactic acid and abnormal urine organic acids. Genetic testing confirmed Leigh disease due to a SURF1 gene mutation. The patient showed some improvement with metabolic cocktail therapy, but still ataxia remained.

Conclusion:

This case highlights the importance of considering Leigh disease in children with unexplained neurological regression and characteristic MRI findings, even in resource-limited settings. Genetic testing is crucial for definitive diagnosis. Clinicians should be aware of the challenges in early diagnosis and the need for a holistic approach to interpreting clinical, imaging, and electrophysiological data.

POEMS SYNDROME (POLYNEUROPATHY, ORGANOMEGALY, ENDOCRINOPATHY, MONOCLONAL GAMMOPATHY, AND SKIN CHANGES): CASE REPORT

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Shifa College of Medicine

Background:

POEMS syndrome is a rare plasma cell disorder characterized by polyneuropathy, organomegaly, endocrinopathy, monoclonal gammopathy, and skin changes. Diagnosis is challenging, especially in resource-limited settings, and often delayed due to its varied presentation and resemblance to other neurological conditions.

Methods:

We present a case of a 36-year-old female with a three-year history of left parotid mass and cervical lymphadenopathy, who developed progressive limb weakness, bladder dysfunction, and significant weight loss. Diagnostic workup included MRI, lymph node biopsies, and clinical evaluation. The diagnostic process was analyzed, highlighting the challenges and limitations encountered in a resource-limited setting.

Results:

The patient was diagnosed with POEMS syndrome following identification of monoclonal lambda-restricted plasma cells and Castleman disease in lymph node biopsies, coupled with clinical evidence of polyneuropathy and skin changes. A significant three-year diagnostic delay occurred due to initial misinterpretation of

MRI findings and limited access to specialized diagnostic tools, including serum VEGF level measurement and advanced electrophysiological studies.

Conclusion:

This case underscores the diagnostic complexities of POEMS syndrome, particularly in resource-limited environments. Reliance on clinical acumen and accessible diagnostic modalities, in the absence of gold-standard tests like VEGF measurement, can lead to delayed diagnosis. Enhanced clinical awareness and improved access to specialized investigations are crucial for timely diagnosis and management of POEMS syndrome.

CHALLENGING DIAGNOSIS OF CHRONIC MYELOMONOCYTIC LEUKEMIA (CMML) IN A PATIENT WITH TAKAYASU ARTERITIS: CASE REPORT

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Saad Iqbal, Laiba Ashfaq, Uzair Irfan,
Muhammad Owais Mazhar, Danish Ali
Ashraf***

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Takayasu Arteritis (TA) and Chronic Myelomonocytic Leukemia (CMML) are two rare conditions that, when they occur together, pose a significant diagnostic obstacle. This case report spotlights a 44-year-old male with no prior medical history who developed bilateral neck, high-grade fever, weight loss, and splenomegaly, raising suspicion for Takayasu arteritis. Imaging modalities revealed features of large vessel arteritis, and substantial investigations

excluded infectious and autoimmune causes. Despite negative cultures and autoimmune tests, the patient's condition continued to deteriorate. A peripheral blood smear suggested leukemia, leading to a bone marrow biopsy, which confirmed CMML. The diagnosis of CMML was further supported by flow cytometry and immunohistochemistry. The patient was treated with Azacitidine, Decitabine, and Hydroxyurea with a plan for a bone marrow transplant in the future. The case is interesting as the association of Takayasu Arteritis and CMML is rare and involves complex, overlapping pathophysiological mechanisms. While CMML and myelodysplastic diseases can present with vasculitis, large vessel involvement remains uncommon. This report emphasizes considering hematological malignancies in differential diagnoses of vascular inflammatory diseases, particularly in unorthodox cases. It also highlights the importance of an extensive diagnostic workup to accurately diagnose rare occurrences.

**MIXED INVASIVE MUCINOUS AND
NONMUCINOUS ADENOCARCINOMA OF
LUNG WITH RARE DISTANT METASTASES: A
CASE REPORT**

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Fatima Zaheer, AT Tariq, Suleman, I
Mahmood, A Shafi*

Shifa College of Medicine

Background:

Invasive mucinous adenocarcinoma (IMA) is a subtype of lung adenocarcinoma, however its occurrence is very rare, as clinically, IMA typically presents with multifocal, multilobar, and bilateral lung involvement and its extra thoracic metastasis is extremely uncommon. In addition to this it is often incorrectly diagnosed due to its atypical symptoms.

Case

Description:

Our case report is based on a 45-year-old Pakistani female who initially presented with a dry cough, as a result she was empirically treated for tuberculosis (TB) due to its prevalence in this part of the world. Despite anti-tuberculous therapy her symptoms worsened, which demanded further testing. High-resolution CT revealed diffuse pulmonary nodules, and biopsy confirmed mixed mucinous and non-mucinous adenocarcinoma. The disease had visibly metastasized to the liver and bone, which isn't common in cases of IMA. The patient underwent first-line chemotherapy with gemcitabine and carboplatin but still showed progressive skeletal metastasis, leading to a switch to docetaxel. Molecular testing identified EGFR, PD-L1, and ALK mutations suggesting a role for targeted

therapy.

Conclusion:

This case highlights the importance of in-depth analysis of histopathological and molecular evaluation of MMNA in TB endemic regions to ensure proper diagnosis and appropriate treatment. Keeping in mind the difference of prognosis and treatment response between its mucinous and non-mucinous components, additional studies are required to come up with proper therapeutic strategies. In addition to this early diagnosis and a multidisciplinary approach are crucial in improving patient outcomes.

**RAPIDLY PROGRESSIVE NEUROLOGICAL
AND RESPIRATORY DETERIORATION
SECONDARY TO CENTRAL NERVOUS
SYSTEM RELAPSE OF B-CELL ACUTE
LYMPHOBLASTIC LEUKEMIA POST-
ALLOGENEIC BONE MARROW
TRANSPLANT: A CASE REPORT***

Syed Aon Mehdi Abbas, Ahmed Tariq
Hamrah, Marjan Sohrabi

Tehran University of Medical Sciences

Central nervous system (CNS) relapse of acute lymphoblastic leukemia (ALL) represents a critical complication, particularly in patients who have undergone hematopoietic stem cell transplantation. We present a case involving a 34-year-old female with a recorded history of B-cell ALL who received an allogeneic bone marrow transplant followed by Chemotherapy. Initially, she experienced Herpes Zoster, a common viral reactivation in immunocompromised individuals. Despite the resolution of her skin symptoms, the patient exhibited a rapid deterioration in her neurological status, which was characterized by paraplegia and encephalopathy; and progressive Respiratory decline, suggestive of Pneumonia. Subsequent evaluations confirmed a diagnosis of CNS relapse of ALL. This case underscores the necessity for clinicians to maintain a high index of suspicion for CNS relapse when evaluating neurological symptoms in post-transplant patients. It highlights the importance of distinguishing these symptoms from alternative causes, including infections or treatment-related complications.

Furthermore, this report emphasizes the aggressive nature and poor prognosis associated with CNS relapse of ALL in this clinical context, ultimately advocating for enhanced surveillance and timely intervention in at-risk populations.

**COMPLETE HEART BLOCK ASSOCIATED
WITH HEPATITIS A INFECTION IN A FEMALE
CHILD
WITH FATAL OUTCOME.**

**Mansoor Ahmed, Haseena Naseer, Khush
Tabba**, Mohammad Ebad Ur Rehman,
Jawad Basit, Abdulqadir J Nashwan, Mateen
Arshad, Afnan Ahmad, Muhammad Asad

Foundation Medical College

Introduction:

Hepatitis A virus (HAV), a positive-strand RNA virus of the picornaviridae family, primarily spreads through the fecal-oral route, often via contaminated food. While most children are asymptomatic, 80% of exposed adults develop clinical symptoms like fever, jaundice, and abdominal pain. Although HAV does not cause chronic liver damage and typically resolves within 2-6 months, severe cases can lead to complications like fulminant hepatitis, myocarditis and rare extrahepatic manifestations. Treatment is supportive, and recovery usually results in lifelong immunity.

Case report:

An 8-year-old female presented with a high-grade fever, jaundice, vomiting, and abdominal pain. She was admitted to the Pediatric ICU with bradycardia, abnormal lab results indicating acute viral hepatitis A, and

suspected viral myocarditis. On the third day of admission (DOA), oxygen saturation dropped further low to 77%. The patient was shifted to continuous positive airway pressure and was considered at risk of cardiogenic shock. Despite treatment, including a temporary pacemaker and inotropes, her condition worsened, leading to cardiogenic shock and death on the fourth day of admission.

Conclusion:

Acute viral hepatitis caused by the HAV can be complicated by development of complete heart block secondary to viral myocarditis and may necessitate the installation of a TPM and can also lead to death. Specialized pediatric cardiac care is necessary to timely diagnose the condition. Close monitoring of the deteriorating cardiac condition of the child is important to prevent death. It is important to timely consider cardiac complications of symptomatic HAV infections and consider early shifting of patients to Mechanical Circulatory Support.

UNUSUAL SUSPECTS: EXPLORING THE LINK BETWEEN NIPPLE ADENOMA AND ELEVATED PROLACTIN LEVELS IN A YOUNG ADULT

***Sanwal Sardar Nawaz, Muhammad
Waleed Imran, Dr. Ghazia Qasmi***

Shifa College of Medicine

Nipple adenoma is a rare benign breast condition, comprising only 1–1.7% of benign breast lesions, and typically occurs in women in their fourth to fifth decade. We present a rare and diagnostically challenging case of nipple adenoma in a 27-year-old female, whose unusual presentation and underlying endocrine disorder contributed to a significant delay in diagnosis. The patient reported a two-year history of left nipple ulceration, discharge, and itching. Initial symptoms were vague and misattributed to common dermatologic or hormonal causes due to the patient's young age. Her medical history was notable for a pituitary adenoma diagnosed in 2021, with elevated serum prolactin levels treated with cabergoline (Dostinex). Despite multiple treatments with antibiotics and antifungals, her symptoms persisted. Biopsy was conducted to rule out Paget's disease, revealing benign epithelial proliferation consistent with nipple adenoma. Complete surgical excision resulted in full resolution of symptoms and excellent postoperative healing within 60 days. This case highlights the importance of considering nipple adenoma in the differential diagnosis of persistent nipple lesions, even in younger patients.

Furthermore, it raises an interesting question regarding a possible association between hyperprolactinemia and benign breast changes, an area that remains underexplored in current literature. Through this case, we emphasize the need for clinician awareness of rare benign conditions that can mimic malignancy or inflammatory disorders. Early recognition and histological confirmation are crucial to prevent unnecessary treatments and psychological distress. Additionally, our case opens new avenues for research on hormonal influences in benign breast pathology, especially in patients with endocrine disorders such as prolactinoma.

**NONTUBERCULOUS MYCOBACTERIAL
PNEUMONIA MIMICKING AS CANCER IN
AN IMMUNOCOMPROMISED PATIENT
WITH RHEUMATOID ARTHRITIS**

***Muhammad Momin Asif, Saad Tauheed
Rao, Dr Taha Akhtar***

Shifa College of Medicine

Introduction:

Rheumatoid Arthritis (RA) is one of the most commonly managed rheumatologic conditions. The treatment of Systemic Autoimmune Rheumatic Diseases (SARD) has improved with immunosuppressive drugs, but these carry a risk of opportunistic infections, including nontuberculous mycobacteria (NTM).

Objective:

To report a case of NTM pneumonia mimicking lung cancer in an immunocompromised RA patient. To

highlight combination therapy as a risk factor for NTM infection in SARD.
Methods:

Data was collected from electronic medical records (EMR) after IRB approval.

Results:

A 67-year-old woman with RA, stable for 10 years on leflunomide (10 mg/day) and methotrexate (12.5 mg/day), presented with severe left-sided chest pain and cough. Chest X-ray was unremarkable; inflammatory markers were mildly raised. She was started on moxifloxacin. CT chest revealed bilateral consolidation with mediastinal lymphadenopathy. Symptoms worsened within a week, requiring admission. Broad-spectrum antibiotics were initiated. Blood cultures grew *Stenotrophomonas* spp, which is sensitive to levofloxacin. Despite treatment, she deteriorated, needing oxygen. Repeat CT showed centrally necrotic left lower lobe masses and interstitial thickening suggestive of lymphangitis carcinomatosa. Rapid progression in 2 weeks raised suspicion of atypical infection rather than malignancy. Bronchoscopy showed no viral cause. AFB smear, MTB PCR, fungal stain, and culture was negative. Broad-spectrum antibiotics and antifungals were started. She improved clinically, and a 4-week follow-up CT showed regression in lung mass and lymphadenopathy. Antibiotics were stopped. After 10 weeks, AFB culture grew NTM. A repeat CT showed ground-glass opacities and nodules. She was diagnosed with NTM pneumonia and started on long-term clarithromycin and linezolid, resulting in

improvement.

Conclusion: Clinicians should maintain a high suspicion for atypical infections in immunocompromised patients. Pulmonary NTM may mimic malignancy and progress rapidly, especially in patients on long-term immunosuppressants.

DERMATOMYOSITIS WITH INTENSE CALCINOSIS AND VASCULITIC FEATURES: A MULTISYSTEM CHALLENGE

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Introduction:

Dermatomyositis (DM) is a rare autoimmune connective tissue disease marked by characteristic skin rashes and muscle inflammation. Calcinosis (deposition of calcium salts in the skin and soft tissues) is a debilitating and challenging complication of DM.

Objective:

To analyze the pathophysiological mechanisms underlying calcinosis in dermatomyositis and to identify key diagnostic markers and imaging findings useful for early detection.

Methods:

Clinical data were obtained from electronic medical records (EMR) after institutional review board (IRB) approval.

Results:

A 60-year-old woman with a diagnosis of polymyositis and cutaneous vasculitis presented with painful right knee inflammation and discharge. Over time,

bilateral joint involvement and multiple yellow-brown papules were observed, consistent with calcinosis. She had been on treatment for chronic Hepatitis B for 4 years. Twelve years earlier, she experienced a herpes episode after travel, followed by bilateral axillary lymphadenopathy. The next year, she developed bloody pustules mainly on her thighs. Doppler ultrasound showed bilateral varicosities with saphenofemoral junction leakage. Skin biopsy confirmed cutaneous vasculitis and polymyositis. She was managed with corticosteroids and Azathioprine, with symptom relapses nearly every year. In 2021, her symptoms worsened, she became unable to flex her knees or elbows. PRP infusion sites developed calcinosis. X-rays revealed osteoarthritic changes, serpiginous calcific densities, and subchondral sclerosis in soft tissues of both legs. Despite methotrexate and corticosteroids, full remission was not achieved. Positive anti-Mi-2a and anti-NXP2 antibodies led to a final diagnosis of dermatomyositis with calcinosis.

Conclusion:

Early diagnosis and consistent monitoring of dermatomyositis are crucial to prevent long-term complications such as calcinosis. This case emphasizes the importance of recognizing autoimmune overlap syndromes and tailoring immunosuppressive therapy to reduce cumulative tissue damage over time.

**MATCHED SIBLING ALLOGENEIC
HEMATOPOIETIC STEM CELL TRANSPLANT
IN A PAEDTRITRIC CASE OF LEUKOCYTE
ADHESION DEFICIENCY TYPE 1 (LAD-1)**

***Umama Zahid, Abdullah khan, Shehryar
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Leukocyte Adhesion Deficiency Type 1 (LAD-1) is a rare autosomal recessive primary immunodeficiency disease characterized by recurrent severe infections, delayed umbilical cord separation, and impaired wound healing. This condition disrupts neutrophil adhesion, migration, and phagocytosis, making individuals highly vulnerable to repeated bacterial and fungal infections. We present the case of a 9-month-old boy diagnosed with leukocyte adhesion deficiency type 1 (LAD-1), who was successfully treated with allogeneic hematopoietic stem cell transplantation (HSCT). The patient had a history of delayed umbilical cord separation (21 days) and recurrent infections, including septic shock, otitis media, and candidiasis. Flow cytometry confirmed LAD-1 with absent CD11/CD18 expression on neutrophils. He underwent HSCT from a fully HLA(Human Leukocyte Antigen)-matched sibling donor. The patient demonstrated no signs of GVHD(Graft-versus-host disease) or significant transplant-related complications and was discharged on day +20.

Conclusion:

This case highlights the successful diagnosis and management of leukocyte adhesion

deficiency type 1 (LAD-1) in a 9-month-old boy through hematopoietic stem cell transplantation (HSCT), demonstrating its efficacy as a curative treatment. Despite significant challenges, including recurrent severe infections, antibiotic resistance, and a complicated post-transplant respiratory infection, the patient achieved complete neutrophil and platelet engraftment with no long-term complications or signs of graft-versus-host disease (GVHD). The resolution of life-threatening complications underscores the importance of early diagnosis, timely intervention, and meticulous pre- and post-transplant care. This case further emphasizes the pivotal role of a multidisciplinary approach and individualized treatment strategies in managing rare immunodeficiency disorders like LAD-1, ultimately improving survival and long-term outcomes.

**CONGENITAL RECTAL HEMANGIOMA IN AN
ADOLESCENT: A RARE CAUSE OF CHRONIC
RECTAL BLEEDING**

***Manahil Binte Rashid, Anoosha Batool,
Dr.Sarah Khan, Dr. Maaz bin Badshah***

Shifa College Of Medicine

Background:

Rectal hemangiomas are rare vascular malformations of the gastrointestinal tract, often presenting with chronic rectal bleeding and anemia. Due to their rarity and nonspecific presentation, they are frequently misdiagnosed or diagnosed late.

Case

Presentation:

We report a case of a 16-year-old male who

presented with a history of intermittent painless rectal bleeding since birth, leading to progressive anemia. Colonoscopy revealed a bluish, compressible submucosal lesion in the rectum suggestive of a vascular anomaly. Contrast-enhanced imaging confirmed a cavernous hemangioma localized to the rectal wall. The patient underwent successful surgical resection. Conclusion: Rectal hemangiomas are uncommon but should be considered in the differential diagnosis of unexplained rectal bleeding, especially in adolescent patients. Early recognition is key in avoiding unnecessary interventions and guiding definitive management.

EARLY LOCAL RECURRENCE OF EWINGS SARCOMA: CASE REPORT OF A 16-YEAR- OLD

***Mudassar Hafeez, Muhammad Abdullah,
Faraz Arkam patient***

Shifa College of Medicine

Background:

Ewing's sarcoma is a rare malignant bone tumor that primarily affects children and adolescents. While most recurrences occur within the first few years after initial treatment, very late local recurrence is exceedingly rare and often overlooked. Awareness of this possibility is crucial for long-term surveillance and early intervention.

Case Presentation: We report a case of a 16-year-old patient with a history of Ewing's sarcoma initially diagnosed and treated at

the age of one. The patient underwent definitive non-surgical combined modality therapy, including chemotherapy and radiotherapy, and was rendered disease-free. Over the following years, the patient remained asymptomatic and in remission, with regular follow-up discontinued after a decade. Sixteen years post-treatment, the patient began experiencing vague, progressive localized discomfort at the site of the original tumor. Initial evaluations at a regional hospital attributed the symptoms to musculoskeletal causes, and recurrence was not initially considered. Due to persistent symptoms, further imaging was performed, revealing a suspicious mass at the primary site. The patient was referred to our tertiary care center, where biopsy confirmed recurrent Ewing's sarcoma. The patient subsequently underwent complete surgical excision of the lesion and is currently receiving adjuvant chemotherapy as per relapse protocols.

Conclusion:

This case underscores the potential for extremely late local recurrence of Ewing's sarcoma, even in patients previously considered cured. It emphasizes the need for clinicians to maintain a high index of suspicion when evaluating localized symptoms in long-term survivors and highlights the importance of lifelong vigilance and patient education in rare pediatric malignancies.

A CASE OF RECTAL MUCINOUS ADENOCARCINOMA IN PAEDIATRIC AGE GROUP

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Introduction:

Colorectal carcinoma is predominantly an adult malignancy, rarely affecting individuals in the pediatric age group, where it comprises less than 1% of all pediatric neoplasms. Among its subtypes, mucinous adenocarcinoma (MAC) is notable for its aggressive behavior and poor response to chemoradiotherapy. This report highlights a rare case of rectal MAC in an adolescent male, presenting with classical adult-like symptoms but lacking typical risk factors.

Objective:

To present and analyze a rare case of rectal mucinous adenocarcinoma in a pediatric patient, focusing on diagnostic challenges, treatment response, and surgical outcomes in the absence of hereditary or environmental risk factors.

Methods:

A 16-year-old male presented with per-rectal bleeding, weight loss, and altered bowel habits. Diagnostic workup included colonoscopy, histopathology, immunohistochemistry, MRI, and CT imaging. The patient underwent concurrent chemoradiotherapy followed by lower anterior resection and ileostomy due to poor

tumor response. Histopathology and tumor regression scoring were used to assess therapeutic outcomes.

Results: Histology confirmed moderately undifferentiated mucinous adenocarcinoma. Imaging staged the tumor as T3bN2Mx. Despite receiving four cycles of chemotherapy and 28 radiotherapy sessions, MRI revealed only a partial response. Surgical resection followed by histopathological examination confirmed a grade-1 tumor with partial regression (score 2). No microsatellite instability or significant gene mutations were identified. The patient remained stable postoperatively with no immediate complications. **Conclusion:** This case underscores the rarity and diagnostic complexity of sporadic rectal MAC in pediatric patients. The absence of risk factors necessitates a high index of clinical suspicion, even when common signs are minimal or misleading. Further research is essential to understand the rising incidence of sporadic colorectal cancers in younger populations and to improve therapeutic strategies tailored to this subgroup.

**CREUTZFELDT-JAKOB DISEASE: A RARE AND
RAPIDLY PROGRESSIVE PRION DISEASE
REPORTED IN A PAKISTANI FEMALE**

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Creutzfeldt-Jakob disease (CJD) is a neuro degenerative, fatal disease belonging to the family of spongiform encephalopathies. It is known to be caused by an infectious agent known as prion proteins which are abnormal isoforms of glycoprotein. It is known for its severe progression. Patients of CJD present with a variety of neurological symptoms which can make it hard to diagnose initially. Symptoms are mostly neurological in nature and include myoclonus, tonic, clonic seizures, pyramidal and extra pyramidal symptoms. Definitive diagnosis is reached through an autopsy of the brain however, various tests can help us reach diagnosis of CJD. These include EEG brain showing periodic sharp wave complexes, MRI showing cortical ribboning and CSF analyses which shows ray protein greater than 1150 pg/ml. Creutzfeldt-Jakob Disease (CJD) is a rapidly progressive and fatal neurodegenerative disorder. The average survival time after the onset of symptoms is about 4 to 6 months. We present a complex case of a 72-year-old female with CJD which progressed with atypical findings and multiple co morbidities which includes hypertension and celiac disease. This case is valuable as literature on CJD remains scarce especially in Pakistan and this case report can add to the scarce literature.

**RECONSTRUCTION OF SOFT TISSUE DEFECT
FOLLOWING A FOREQUARTER
AMPUTATION FOR RECURRENT
EXTRASKELETAL MYXOID
CHONDROSARCOMA USING A FREE FILLET
FLAP**

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Extraskelatal myxoid chondrosarcoma (EMC) is a rare soft tissue tumor that shows a high tendency for local recurrence and prolonged clinical course. It usually follows a gradual progression and can cause recurrence in anatomically and functionally critical areas, such as the shoulder girdle and upper limb, which can pose significant surgical challenges. In severe or recurrent cases, radical surgery may be the only curative option in cases where neurovascular structures are involved. This report illustrates the diagnostic judgment, surgical intervention, and restorative approach in a patient with recurrent EMC of the upper limb, which was treated with reconstruction using a free forearm fillet flap and forequarter amputation.

A 54-year-old male presented with a painful and growing mass in his upper left extremity and shoulder site. There had already been two surgeries done for EMC in the same limb. He complained of worsening symptoms, limited range of motion, and anesthesia in his arm. He was also fearful about the possibility of amputation and about its consequences and the quality of

life.

On imaging, an aggressive and recurrent soft tissue mass was revealed that surrounds the subclavian vessels and infiltrates into the brachial plexus. The diagnosis of recurrent extraskeletal myxoid chondrosarcoma was confirmed by biopsy. On staging scans, no metastatic clues were detected. Therapeutic forequarter amputation was necessitated by previous surgical history and the extensive nature of the tumor. A free forearm fillet flap was extracted for plastic means from the amputated limb and used for simultaneous reconstruction to avoid additional donor site complications and to provide proper tissue closure. There were no surgical complications, with successful flap preservation, and postoperative recovery was smooth. A complete excision with negative margins was performed, which was confirmed on final histopathology. There was no evidence of disease, and he had coped well with a prosthesis, with adequate functionality and psychosocial results after a one-year follow-up.

This case highlights that in recurrent EMC, locally invasive, forequarter amputation with a free fillet flap provides a reliable, oncologically appropriate, and effective plastic reconstructive approach, promoting long-term quality of life and optimal recovery.

MEGALENCEPHALIC LEUKOENCEPHALOPATHY WITH SUBCORTICAL CYSTS (MLC) OR VAN DER KNAAP DISEASE: A CASE REPORT

***Ismail Amer, Maheen Salman, Javeria
Arshad, Faseh muhammad waseem, Dr
Muhammad Hussain, Dr Waseem ur
Rehman***

Shifa college of medicine

Megalencephalic Leukoencephalopathy with Subcortical Cysts (MLC), or Van Der Knaap disease, or Agarwal disease, is a rare genetic disorder characterized by macrocephaly, developmental delays, and neurological symptoms. This case report presents a 6-year-old male diagnosed with Agarwal disease, highlighting the clinical presentation, diagnostic findings, and management strategies. Magnetic resonance imaging (MRI) reveals characteristic features of the disease, including diffuse white matter abnormalities and subcortical cysts. Genetic testing confirms the diagnosis, identifying a homozygous mutation in the MLC1 gene. The patient's clinical course and response to symptomatic treatment are discussed, emphasizing the importance of early diagnosis and multidisciplinary care in managing Agarwal disease. This case contributes to the existing body of knowledge on this rare condition and underscores the need for further research to improve treatment outcomes and quality of life for affected individuals.

**AN ELUSIVE FEVER: A CASE OF ANCA
ASSOCIATED VASCULITIS MIMICKING
CHRONIC INFECTION AND HEMATOLOGIC
MALIGNANCY**

***Maroosha Fatima, Hadiyah Nadeem,
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ANCA-associated vasculitis (AAV) is a rare autoimmune disease that can manifest with a wide range of nonspecific symptoms, often mimicking chronic infections or hematologic malignancies. Early diagnosis is essential to prevent irreversible organ damage. We present a diagnostically challenging case of a 56-year-old woman with persistent fever and systemic symptoms, ultimately diagnosed with AAV after extensive investigation.

Case Presentation
A 56-year-old woman with a known history of hypertension, ischemic heart disease (post-PCI in 2017), and arthritis (since 2016) presented with a two-month history of high-grade fever and bilateral flank pain. The fever was predominantly nocturnal, associated with chills and rigors, and was only temporarily relieved by antipyretics. She had initially sought care at a local hospital in Gilgit, where she was found to be severely anemic, requiring multiple blood transfusions. Despite these interventions, her fever persisted, prompting referral to SIH for further work up. Given her clinical picture and lab results, multiple myeloma was initially suspected. Laboratory investigations revealed markedly elevated inflammatory markers—C-reactive protein (CRP) at 154 mg/L and erythrocyte

sedimentation rate (ESR) at 135 mm/hr. Peripheral blood smear showed blast-like cells, raising concerns for a hematologic malignancy. However, bone marrow biopsy demonstrated a hypercellular marrow with polyclonal plasma cells, effectively ruling out multiple myeloma. Infectious causes were the next consideration. Despite a comprehensive infectious disease workup—including negative blood and urine cultures and no evidence of lymphadenopathy—no infectious source could be identified. A contrast-enhanced CT scan of the chest, abdomen, and pelvis revealed bilaterally enlarged kidneys with mild perinephric stranding and fascial thickening—findings that raised suspicion for an autoimmune etiology. Rheumatologic testing showed a significantly elevated rheumatoid factor along with positive ANA and anti-CCP antibodies, though rheumatoid arthritis was ultimately excluded based on clinical and radiologic criteria.

Given the persistence of symptoms and imaging findings, autoimmune vasculitis was suspected. A confirmatory ANCA panel revealed a positive result for perinuclear-ANCA (P-ANCA), leading to a definitive diagnosis of ANCA-associated vasculitis. **Conclusion:** This case illustrates the diagnostic challenges posed by ANCA-associated vasculitis, particularly when it mimics more common conditions like infections or malignancies. A thorough and systematic approach—starting with ruling out common causes, followed by targeted

autoimmune screening—was critical in establishing the correct diagnosis. The case also highlights the importance of multidisciplinary collaboration in managing complex presentations, especially those with atypical features such as persistent fever and renal involvement.

THROMBOCYTOPENIA ABSENT RADIUS (TAR) SYNDROME WITH NEUROLOGICAL AND CARDIAC COMPLICATIONS: A CASE REPORT

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Introduction:

Thrombocytopenia with Absent Radius (TAR) syndrome is a rare and complex congenital disorder characterised by thrombocytopenia, bilateral absent radii, and associated congenital anomalies in various systems. First described in 1959 [1], TAR syndrome has been recognized as a distinct clinical entity with a unique combination of haematological and skeletal abnormalities. The syndrome is estimated to occur in approximately 1 in 100,000 to 1 in 200,000 births, with a higher incidence in consanguineous families [2]. Despite its rarity, TAR syndrome has significant implications for paediatric care, as affected individuals are at risk of developing life-threatening complications, such as bleeding diathesis and cardiovascular anomalies.

Case Presentation: A male in his first decade of life presented with a triad of cyanotic

spells, left-sided body weakness, and rectal bleeding. The patient also reports a low-grade fever for a month. According to the patient's mother, he experienced sudden bluish discolouration of lips and nails associated with difficulty breathing, followed by per-rectal bleeding and left-sided body weakness. There was a history of transient cyanotic spells since birth, excessive crying, and multiple episodes of bleeding from the ears, mouth, and rectum. The patient's prenatal history was unremarkable, but he experienced a delayed cry at birth and delayed milestone achievement postnatally. Despite being up-to-date on nutrition and vaccinations, the patient presented with a head circumference of 47 cm, mid-arm circumference of 8 cm, supine length of 95 cm, and radial deviation of the right hand with soft and muscular thumbs.

Cardiovascular examination revealed: a grade 5 ejection systolic murmur at the pulmonary area. Neurological examination showed: increased tone in the left upper and lower limbs, power of 2/5 in the left upper limb and 0/5 in the left lower limb, and positive Babinski's sign on the left side. Investigations revealed: Low platelet count: $21 \times 10^3/\text{ul}$, Haemoglobin (Hb): 11.4 g/dl, Total Leukocyte Count (TLC): $10.5 \times 10^3/\text{ul}$, Unilateral absence of radius on X-ray, & Cardiomegaly on Chest X-ray (CXR). Tetralogy of Fallot (TOF) confirmed by echocardiogram. A hypo-dense area is seen involving the right thalamus, resulting in expansion with significant perilesional edema involving white matter and extending

posteriorly up to the right crus of the midbrain. On computed Tomography (CT) of the brain without contrast, there is a right-sided mass effect with a midline shift and a mild compression effect on the ipsilateral dilation of contralateral ventricles. The patient had 3 siblings, including a 2-year-old female sibling with radial deviation of both hands, but no history of bleeding diathesis with normal platelet count. Her prenatal and natal history was normal, but she failed to achieve developmental milestones postnatally, except for the neck holding and sitting without support. Laboratory tests showed a normal platelet count of $210 \times 10^3/\text{ul}$.

Discussion:

The patient's presentation with cyanotic spells, left-sided body weakness, and rectal bleeding, along with a history of delayed milestone achievement and multiple episodes of bleeding, is consistent with the typical clinical features of TAR syndrome. The presence of Tetralogy of Fallot (TOF) and abscess on CT brain scan further underscores the complexity of this condition.

Conclusion:

TAR syndrome is a rare congenital disorder requiring early diagnosis and treatment to prevent complications. Thrombocytopenia resolves within the first few years of life. This case highlights the importance of co-existence between TAR syndrome and congenital heart anomalies and intracranial lesions.

AN ATYPICAL CASE OF CHYLOUS EFFUSIONS IN DECOMPENSATED CHRONIC LIVER DISEASE

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Dr Murtaza Kazmi, Dr Muhammad Salah,

Dr Sadaf Majeed

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Abstract

A 60-year-old male with a 15-year history of HCV-related decompensated liver disease presented with generalized abdominal pain, ascites, cough, and shortness of breath over the past two weeks. His dyspnea was progressively worsening, especially when lying down. Initially, hepatic hydrothorax was suspected. A chest X-ray revealed moderate right pleural effusion, and Point-of-Care Ultrasonography confirmed a large simple effusion. Unexpectedly, the pleural fluid drained was milky white, which prompted further investigation beyond the hepatic hydrothorax diagnosis. Analysis of the pleural fluid revealed a transudative pattern with chylothorax.

Chylothorax, the accumulation of chyle in the pleural space, is most often exudative, with lymphocytes being the predominant cell type. Transudative chylothorax is an exceedingly rare clinical entity. Limited case reports have linked it to cirrhosis and nephrotic syndrome, making this case particularly interesting. Here, we describe a rare instance of transudative chylothorax in a cirrhotic patient with concomitant chylous ascites.

KIKUCHI-FUJIMOTO DISEASE- A SERIES OF MISDIAGNOSIS

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Kikuchi-Fujimoto disease (KFD) is a rare, benign, and self-limiting disease which presents as cervical lymphadenopathy fever, night sweats and weight loss. Confusion arises on the potential diagnosis of KFD as its presentation mimics infectious and malignant causes of lymphadenopathy, which is common in KFD's geographic region with epidemiological predisposition for tuberculosis. This results in a frequent misdiagnosis. We present a case of a 36-year-old female patient with no known comorbidities who reported left supraclavicular swelling with fever and significant weight loss for 6 months with night sweats and changes in bowel habits. Based on a family history of tuberculosis, she was worked up for TB as the first line suspected diagnosis which was ruled out on investigations. Ultrasound report led to the

diagnosis of subclinical hyperthyroidism with a TIRADS 3 thyroid nodule and multiple necrotic cervical lymph nodes. Contrast CT scans of the chest, abdomen, and pelvis showed necrotic lymphadenopathy raising concerns for tuberculous adenitis or granulomatous infections. Excisional biopsy of the cervical lymph node was performed and revealed Kikuchi-Fujimoto disease. The patient was subsequently treated with oral prednisolone and hydroxychloroquine,

which showed improvement. She continues to maintain stable improvement during regular follow-ups after over two years. This highlights the relevance of considering KFD in the differential diagnosis of necrotic lymphadenopathy, especially in tuberculosis-endemic areas.

This report adds to the limited regional literature and emphasizes the diagnostic challenges associated with this rare entity, given that only six cases have been documented in Pakistan.

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