A compendium of snippets of original research published by UCMS faculty in other indexed journals

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1. ***Raizada N, Aslam M, Mishra BK, Chawla D, Madhu SV. Can bone specific alkaline phosphatase be a marker of vascular calcification in type 2 diabetes mellitus? Indian J Endocr Metab 2023;27:127 32. doi: 10.4103/ijem.ijem_418_22***

This study assessed the bone specific alkaline phosphatase (BAP) levels in type 2 diabetes mellitus (T2DM) patients with elevated ALP levels (*n*=50) and 50 controls with normal ALP, and studied its association with various markers of vascular calcification such as fetuin-A, Vit K2, leptin and Ankle-Brachial Index (ABI). ELISA was used to measure serum levels of BAP, fetuin-A, Vit K2 and leptin, while ABI was measured in all patients using Vista AVS L500 VA system. The study results showed serum BAP to be significantly higher in the group with high ALP when compared with the control group and also a positive correlation between BAP and fetuin A as well as between BAP and Vit K2. This study potentiates the literature findings implicating role of BAP in vascular calcification and specifically delineates it as possible reason for unexplained ALP elevation in T2DM patients.

2. ***Verma SK, Shah D, Singh A, Singh PK, Das S, Gupta P. Immunogenicity of measles-rubella vaccine administered under India's Universal Immunization Programme in the context of measles-rubella elimination goal: A longitudinal study. Indian J Med Res. 2023;157:250-258. doi: 10.4103/ijmr.IJMR_4113_20***

This longitudinal study was conducted to assess the immunogenicity against rubella and measles 4-6 wk after one and two doses of MR vaccine administered under India's Universal Immunization Programme (UIP). 100 consecutive healthy infants (9-12 months) of either gender, attending the immunization clinic for the first dose of routine MR vaccination were enrolled for this study. The results show high seroprotection rate for measles and rubella among majority of children after the first dose and 100% seroprotection rate after the second dose of vaccine. This study potentiates the rationality of current MR vaccination strategy of two doses, out of which first dose is to be given to infants below one year of age.

3. ***Kumari N, Gomber S, Dewan P, Narang S, Ahmed R. COVID-19 Antibody Response in Patients with Thalassemia. Cureus. 2023;15(6):e40567. doi: 10.7759/cureus.40567***

The aim of this case-control study was to evaluate the clinical pattern and the immunoglobulin G (IgG) antibody response to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in patients with transfusion-dependent thalassemia (TDT) compared to patients without thalassemia. A total of 30 patients with TDT and 30 patients without thalassemia who tested positive for COVID-19 in the preceding six weeks were recruited for this study. IgG antibody titre was estimated in cases and controls after 6, 12, and 24 weeks of COVID-19 infection. Results revealed that median IgG titers of cases and controls were comparable at six weeks (p=0.40), but the titers were significantly lower for cases at 12 weeks (p=0.011) and 24 weeks (p=0.006). Study findings conclude that patients with TDT manifest with mild or asymptomatic COVID-19 and mount a comparable IgG antibody response to COVID-19 similar to controls.

4. ***Shrivastava J, Narang M, Ahmed RS, Das S, Gomber S. Serological Response to COVID-19 and Its Association With Measles-Rubella (MR)-Containing Vaccines. Cureus. 2023;15(5):e39671. doi: 10.7759/cureus.39671***

This prospective comparative study aimed to compare COVID-19 antibody titres between MR-vaccinated and MR-unvaccinated children up to 12 weeks post-infection. Study participants were children, aged nine months to 12 years, who tested positive for COVID-19. 90 children included in the study were assessed for COVID-19

antibody titers at two weeks, six weeks, and 12 weeks along with MR antibody titres for those vaccinated. The results showed significantly higher median COVID-19 antibody titers at all time points during follow-up in the MR-vaccinated group ($P < 0.05$). This study suggests that exposure to even a single dose of MR-containing vaccine enhances the antibody response against COVID-19.

5. ***Chhabra P, Behera S, Sharma R, Malhotra RK, Mehta K, Upadhyay K, Goel S. Gender-specific factors associated with hypertension among women of childbearing age: Findings from a nationwide survey in India. Front Cardiovasc Med. 2022;9:999567. doi: 10.3389/fcvm.2022.999567***

This study aimed to explore the association between hypertension and gender-specific risk factors in women of childbearing age. It was conducted using secondary data from National Family Health Survey-4 (NFHS-4) and included 699,686 women between 15 and 49 years of age. Logistic regression analysis was done to study the strength of the association between the risk factors and hypertension. Results revealed prevalence of hypertension was 11.8% among women. Among the gender-specific factors, younger age at first childbirth, early menarche, oral contraceptive pill use and hysterectomy were found to be risk factors for hypertension. Domestic violence was significantly associated with hypertension. Empowered women had lower odds of hypertension. This study emphasizes change in perspective for existing screening strategies for hypertension to include gender specific risk factors.

6. ***Manish L, Gulabani M, Mohta M, Chilkoti GT. Comparative assessment of different doses of midazolam to prevent etomidate-induced myoclonus–A randomized, double-blind, placebo-controlled trial. The Indian Anaesthetists Forum 2023;24(1):29-35.***

This randomized, double-blind, placebo-controlled study aimed to compare the effect of three doses of midazolam, i.e., 0.015 mg/kg, 0.03 mg/kg, and 0.05 mg/kg in preventing etomidate-induced myoclonus. For this, 164 study participants between 18 and 60 years of age, scheduled for elective surgical procedures under general anesthesia were selected. Patients were randomly divided into four groups, three for different doses of midazolam and one control group. Study results showed significant reduction in severity of myoclonus in all the three midazolam groups compared to the control group without any relevant difference among the patients receiving different doses of midazolam. The study conclusively recommends use of midazolam pretreatment in a dose of 0.015 mg/kg for prevention of etomidate-induced myoclonus.

7. ***Bharti S, Chaudhary S, Salhotra R, Meena S. Comparison of face-to-face tracheal intubation and conventional head-end tracheal intubation using Airtraq™ video-laryngoscope in adults–A randomised study. Journal of Anaesthesiology Clinical Pharmacology. 2023:10-4103. doi: 10.4103/joacp.joacp_161_22***

This randomized study was designed to compare face to face tracheal intubation and conventional head end tracheal intubation using Airtraq™ video laryngoscope in adults with normal airways undergoing elective surgeries under general anesthesia. A sample size of 50 patients was randomly allocated to two groups of 25 each. The major findings of the study are that the intubation time and device insertion time were significantly longer during the face to face technique than in the head end technique. However, both techniques were similar in terms of glottic view, ease of intubation and number of intubation attempts, the incidence of failed intubation, and hemodynamic changes. Therefore, face to face tracheal intubation is a good alternative to secure the airway when the head end is not accessible.

8. ***Salhotra R, Padhy A, Rautela RS, Singh D. Comparison of insertion characteristics of LMA ProSeal and Ambu AuraGain in adult patients under controlled ventilation: A randomised study. Indian J Anaesth. 2023;67(5):426-431. doi: 10.4103/ija.ija_203_22***

The aim of this randomized comparative study was to compare the insertion characteristics of Ambu AuraGain (AAG) and LMA ProSeal (PLMA) in adult patients. The study was conducted on 40 patients between 18 and 60 years with no anticipated airway difficulty that were randomly allocated to either group. The study concludes that PLMA is easier to insert as compared to AAG, but the insertion time and first attempt success rate are similar. The preformed curvature in AAG does not provide any added advantage over the non-preformed PLMA.

9. ***Meena S, Chaudhary S, Salhotra R, Bharti S, Khurana BK. Comparison of Airtraq™ video-laryngoscope and Macintosh laryngoscope for tracheal intubation in adults–a randomised study. Ain-Shams Journal of Anesthesiology. 2023;15 (1):1-8. doi: 10.1186/s42077-023-00328-4***

This randomized study was planned to compare Airtraq™ video-laryngoscope and Macintosh laryngoscope for laryngoscopy and intubation in adults with normal airway undergoing elective surgeries under general anaesthesia. Patients were randomized using a computer-generated random number table into one of the two groups, comprising of 25 patients each. Study results suggest that

Airtraq™ video-laryngoscope took longer time for intubation than Macintosh laryngoscope. However, both the devices were similar in terms of glottic view, ease of intubation, number of intubation attempts, incidence of failed intubation, hemodynamic changes and complications.

10. ***Bansal K, Goel A, Khan AP. Effect of mobile phone games on reaction time. Journal of Asian Medical Students' Association. 2023 May 8;10(1). Accessed on November 23, 2023. https://jamsa.amsa-international.org/index.php/main/article/view/362***

This case control study was undertaken to observe association between playing mobile games and reaction time among MBBS students aged 18-25 years. 94 participants were included and their gaming status was recorded and reaction time was tested using the tap reaction time test and Reaction time ruler test. This study result concludes that people qualifying as gamers record lower response times than non-gamers. This may enable designers to create games fit for individuals with slower response time.

11. ***Singh S, Solanki M, Vaney N, Bhan A. Medical ethics teaching in the new undergraduate physiology competency-based curriculum in medical institutions in Delhi: A pilot, feasibility study. Indian J Med Ethics. 2023:209-215. doi: 10.20529/IJME.2023.018***

This pilot, cross--sectional, observational, feasibility study was conducted using a questionnaire to find out how physiology educators in Delhi felt about the implementation of ethics teaching in physiology in the CBME. Out of 60 respondents, majority of them felt bioethics and clinical ethics are not synonymous. They believed ethics education can be accomplished in a large group setting; believed it should be the responsibility of the physiology faculty rather than the clinical faculty, and wanted it to be included in the formative assessment. They felt that ethics in the physiology CBME should be an inseparable part of teaching in all instructional modalities.

12. ***Singh S, Meeks LM. Disability inclusion in medical education: Towards a quality improvement approach. Med Educ. 2023;57(1):102-107. doi: 10.1111/medu.14878***

This study discusses the challenges and lacunae in medical education for inclusion of disability trainees as normative part of diverse community. It emphasizes the importance of training of health professional educators on disability rights and disability competencies. This study proposes a vision of systems-based disability-inclusive, accessible and equitable medical education using 9 of Deming's 14 points as applicable to medical education.

13. ***Raghuram H, Parakh S, Chidambaranathan S, Tugnawat D, Pillai V, Singh S, Singh S, Shaikh A, Bhan A. Impact of the COVID-19 pandemic on the mental health of transgender persons in India: Findings from an exploratory qualitative study. Frontiers in Global Women's Health. 2023 Mar 15;4:1126946.***

This study investigated the impact of COVID-19 pandemic on the mental health of transgender persons in India. 22 In-depth interviews (IDI) and 6 focus group discussions (FGD) were conducted virtually and in-person with persons self-identifying as transgender. The IDIs and FGDs were recorded, transcribed verbatim and analyzed using an inductive thematic analysis. The results suggested that the fear of COVID 19 along with suffering combined with pre-existing inaccessibility of healthcare and reduced access to mental health care, disruption of unique social support needs due to pandemic linked restrictions, exacerbation of pre-existing vulnerabilities and gender dysphoria negatively impacted the mental health of transgender persons during the pandemic.

14. ***Kumar K, Srivastava S, Meena A, Avasthi RK, Kashyap B. The Association of Psychosocial Manifestations and Quality of Life With Inflammatory Markers in SARS-CoV-2 Patients: A Study From a Dedicated COVID-19 Tertiary Care Hospital. Cureus. 2023;15(7):e42341. doi: 10.7759/cureus.42341***

This observational analytical study was conducted during the second wave of the SARS-CoV-2 pandemic to figure out the association between depression, anxiety, stress, and quality of life with inflammatory markers such as C-reactive protein (CRP), interleukin-6 (IL-6), D-dimer, serum ferritin, procalcitonin (PCT) in SARS- CoV-2 patients during admission and follow-up. The results concluded that increased levels of inflammatory markers (esp. CRP, IL-6, PCT) were associated with increased prevalence and severity of psychiatric manifestations like depression and anxiety.

15. ***Almeida EA, Mehndiratta M, Madhu SV, Kar R, Puri D. PINK1 and oxidative stress in lean and obese patients with type 2 diabetes mellitus. J Diabetes Complications. 2023;37(8):108542. doi: 10.1016/j.jdiacomp.2023.108542***

This study was designed to analyze the protective function of PINK1 on the mitochondria and oxidative stress in patients of T2DM. 60 newly diagnosed patients of T2DM were recruited and divided into lean (BMI <18.5 kg/m2) and obese (BMI >25 kg/m2) groups of 30 patients

each. mtDNA content and expression of PINK1 were lower and oxidative stress was higher in obese as compared to lean patients. The results suggest that decreased levels of PINK1 in obese group are unable to protect the mitochondria against oxidative stress leading to decreased mtDNA content. Further studies need to explore its contribution to beta cell dysfunction or insulin resistance, if any, in obese patients with T2DM.

16. ***Das S, Rai G, Sood V, Singh PK, Tyagi A, Salhotra R, Gupta C, Jaggi VK, Dar SA, Ansari MA. Incompetent memory immune response in severe COVID-19 patients under treatment. Heliyon. 2023;9:e20590.doi:10.1016/j.heliyon.2023.e20590***

This study aimed to explore the helper and cellular host immune responses including memory and activated cell subsets of COVID-19 patients admitted to the intensive care unit (ICU) at different time intervals during the treatment. It included nine patients with COVID-19 disease and five healthy volunteers as controls. Immune profiling of T-cells and B-cells was done using flow cytometery. Clinical data was also retrieved. The T cell response showed reduced CD8+ cytotoxic T cells, and increased CD4+ helper T cells, while no significant alteration was seen in B cells of COVID-19 patients. Results suggest that the declined host activation response with a temporary early induced memory response in SARS-CoV-2 infected ICU patients is indicative of a poor outcome. Also, TREG and TH17 responses were substantially decreased and high expression of TREG markers was observed in patients as compared with controls. This dysregulated Th17/Treg balance paved the way for COVID-19 disease progression, in severe COVID-19 patients.

17. ***Rai G, Das S, Ansari MA, Singh PK, Dar SA, Gupta N, Sharma S, Ramachandran VG, Jain C. Implications of CD45RA and CD45RO T cell subsets in patients of chronic rhinosinusitis with nasal polyposis infected with Aspergillus flavus. Scandinavian Journal of Immunology. 2023; 98(5):e13318. doi:10.1111/sji.13318***

This prospective, analytical, case–control study aimed to describe the T cell responses induced as host defence against *Aspergillus flavus*-associated chronic rhinosinusitis with nasal polyposis (CRSwNP). 50 cases of CRSwNP were examined before and after treatment and compared with 50 healthy controls for the changes in CD3+CD4+ and CD3+CD8+ T cell subpopulations and expression of naive/memory markers (CD45RA+/RO+) on different T cells in peripheral blood mononuclear cells (PBMCs) challenged by *A. flavus* antigens. Flow cytometry data revealed an increased percentage of CD3+CD4+ T cells after A. flavus stimulation in patients when compared with healthy controls. The overall results suggest that continuous exposure to inhaled fungal spores may induce an allergic immunological reaction with high CD4+T cell responses, resulting in an unfavourable outcome. Elevated CD4+CD45RO+ T cells, as observed in this study, may transform the pathogenic response and highlight the chances of *A. flavus* reactive T cell involvement in prompting inflammation in CRSwNP.

18. ***Goyal N, Saini V, Gangar S, Mohapatra S, Singh NP, Saha R. Are we missing the silver lining of COVID-19 pandemic: An analytical study to determine effects of three COVID-19 peaks on antimicrobial susceptibility of Staphylococcus aureus isolates. J Family Med Prim Care. 2023;12(7):1424-1429. doi: 10.4103/jfmpc.jfmpc_2420_22***

This prospective surveillance study was conducted in GTBH from January 2020 to March 2022 and analyzed the effects of three COVID-19 peaks on susceptibility patterns of Staphylococcus aureus isolates from 1,387 clinical specimens under study. Results showed that in January March 2020 more than 50% S. aureus isolates were susceptible to linezolid, cotrimoxazole, tetracycline, and gentamicin. In January March 2021, e"50% of S. aureus isolates were additionally susceptible to clindamycin and erythromycin. In January March 2022, e"50% of S. aureus isolates were susceptible to linezolid, tetracycline, clindamycin, and cotrimoxazole.

19. ***Goyal N, Singh NP. Agreement between Azithromycin and Erythromycin to Determine Inducible Clindamycin-Resistant Phenotypes in Staphylococcus aureus isolates. J Lab Physicians. 2023 Jul 18. doi: 10.1055/s-0043-1771244***

A total of 133 nonduplicate isolates of S. aureus were analyzed in this prospective study to evaluate agreement in the detection of inducible clindamycin resistance by test method using azithromycin disk against the reference method using erythromycin disk. Study results revealed 100% agreement between reference and test methods for detecting inducible clindamycin-resistant phenotypes.

20. ***Das S, Nirmal K, Gupta C, Jain C, Gupta N, Arora V, Sharma S, Mohapatra S, Singh PK, Dar SA, Rai G, Goyal N, Meena M, Ahmad N, Singh NP. COVID associated fungal sinusitis: An experience from a tertiary care hospital. Clin Otolaryngol. 2023;48:715-720. doi: 10.1111/coa.14061***

This prospective observational study was undertaken to determine the burden of COVID associated mucormycosis (CAM) in post-COVID-19 cases and study its temporal associations with patient comorbidities and outcome at

GTB hospital. In this study nasal biopsy/tissue material from 850 suspected rhinocerebral-orbital mucormycosis (RCOM) patients were processed and subjected to direct microscopic examination and culture. Relevant history and clinical data was also collected from the study participants. The results revealed that majority of isolates were Rhizopus arrhizus (32.8%), followed by Aspergillus flavus (24.4%), Fusarium species complex (9.3%), Alternaria alternata (7.6%), Bipolaris (7.3%), Rhizomucor (4.2%), Lichtheimia corymbifera (3.9%), Cunninghamella berthiolata (2.05%) and Syncephalastrum (1.5%). The most aggressive and severe form of RCOM was associated with Rhizopus arrhizus, while Aspergillus also emerged as a significant etiological agent in post-COVID RCOM. This study emphasizes the importance of specific identification of the fungal isolate owing to varying therapeutic approach for each so that early treatment can be instituted effectively.

21. ***Jain C, Das S, Ramachandran VG, Saha R, Bhattacharya SN, Dar SA, Birhman N, Singh NP. Pityriasis Versicolor: host susceptibility in relation to IL-10 and IFN ã cytokine gene polymorphism. Healthcare in Low-resource Settings. 2023 Jun 23;11(1). doi: 10.4081/hls.2023.11302***

The purpose of this observational study was to investigate the relationship between Single Nucleotide Polymorphism in the IL10 and IFN genes of the host and susceptibility to *Malassezia* infection. Study sample comprised of 38 cases of Pityriasis Versicolor (PV) and 38 healthy controls, that were genotyped for IL10 and IFN gene polymorphism using ARMS-PCR technique. The results of cytokine gene polymorphism data demonstrated the susceptibility of the host to Malassezia infections in this study.

22. ***Gautam S, Das S, Singh PK, Rai G, Jain C, Saha R, Singh NP, Gomber S, Eltayeb R, Dar SA. Predictors of Candidemia during Febrile Episode in Lymphoreticular Malignancy Affecting Paediatric Population. Diagnostics. 2023;13:1638. doi: 10.3390/diagnostics13091638***

This prospective observational study was designed with an aim to explore the prevalence of invasive candidiasis in febrile paediatric patients with lymphoreticular malignancy. The study included a sample size of 49 children and evaluated the relevance of candida colonization and mannan antigen detection as indicators of impending candidemia. Genetic sequence analysis of the yeast isolates was done for identification of specific clades and phylogenetic tree was also created. The results showed a 5% prevalence of candidemia among febrile pediatric patients with lymphoreticular malignancy, predominantly caused by non-albicans Candida. The receiver operator characteristic (ROC) curve analysis for mannan antigen level revealed a cut-off of e”104.667 pg/mL, suitable for predicting candidemia with a sensitivity of 100%, specificity of 92% and area under ROC value of 0.958 (95% CI: 0.915–1; $p < 0.001$). This study delineates early prediction for diagnosis of candidemia based on mannan antigen detection, which has high negative predictive values.