



12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

Scientific Tracks & Abstracts

Day I

Pediatric Pathology & Laboratory Medicine 2017

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Rules of engagement: Communicating with adolescent patients through their world of social networking

Lisa Chan

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Adolescents are known for their need to find their own voice and identity, as well as form pack relationships to enforce their peer acceptance. Both dueling desires are matched in the world of social networking. One can easily post and voice their opinion on matters without resistance, meanwhile receiving almost instantaneous input from peers with likes, responses, etc. This dissociated yet intimate world of social media is what increasing numbers of pre-adolescents and predominate adolescents are growing up with, which inadvertently is shaping their communication skills. After looking at the psychosocial aspects of social media, the different types of social media will be explored, stressing the advantages and disadvantages of each medium in its use for healthcare outreach. Lastly, guidelines will be explored as to what is medically legal and suggest best practices in communicating with adolescents who protect the rights of the adolescent while also maintaining the professionalism of the medical provider.

Biography

Lisa Chan is a Board Certified in Anesthesiology with subspecialty certifications in Pediatric Anesthesiology and Transesophageal Echocardiography. In addition, she is pursuing her Master's Degree in Health Informatics at University of Illinois-Chicago, with an interest in Social Media and Mobile Application in improving healthcare. She was formerly the Director of Clinical Informatics at Joe DiMaggio Children's Hospital. She sits on the social media committee in American Society of Regional Anesthesia and Society of Technology in Anesthesia. In the American Society of Anesthesiology, she is a member of the Committee on Communications and Electronic Media and Information Technology Committee.

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12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

Evaluating and setting up a qPCR by high resolution melting method for definite discrimination of *Leishmania* species by targeting AAP 3 gene

Parviz Parvizi

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Leishmania as protozoan parasites causes major diseases of leishmaniasis in the people of tropical and subtropical regions. In different hosts including humans, clinical samples, rodents and/or other mammals as reservoir hosts and sand flies as vectors, mixed infections, co-infections and different hybrids of *Leishmania* parasite with different aneuploidy in chromosomes were observed. To differentiate common old world parasite species and discriminate co-infection with different species the genetic variation analysis and SNP prediction was identified by using high resolution melting analysis as a powerful method. For each species, one standard sample was amplified and a recognized region was cloned. Three sets of primer were designed for nuclear gene of amino acid permeases (*AAP3*) gene and EvaGreen dye mechanism was used and the different temperature of HRM species was optimized. Temperature variation in HRM separated *L. major* and *L. tropica* co-infections and their sub-strains. The specific and common primers were separate species and strains by melting temperature analysis. To compare with variety of mitochondrial and nuclear genes, *AAP3* gene is more sensitive and specific than other genes for identification of *Leishmania* parasites. The setup HRM could separate common species of *Leishmania* parasite and useful in separations intra-stains. Efficiency and regression coefficient reactions for genus and species *Leishmania* were also validated.

Biography

Parviz Parvizi has completed his PhD from the London School of Hygiene and Tropical Medicine (London University) and Natural History Museum (London) in 2004. He was a Full Professor since 2015 and has been appointed as the Head of Parasitology department and also as the Director of Parasitology, Immunology and Mycology Research Group at Pasteur Institute of Iran. He has published more than 60 papers in reputed journals.

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12th International Conference on

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Evaluation of human epidermal growth factor receptor (HER-2/*neu*) in gastric adenocarcinoma: A study from South Asia region

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Background & Aim: Gastric cancer is the third leading cause of cancer mortality worldwide. Human epidermal growth factor (HER-2/*neu*) has shown strong therapeutic implication in breast cancer. Expression of HER-2/*neu* in gastric cancer has been reported from across the world, it is still unknown from South Asia region. The aim of this study is to evaluate HER-2/*neu* expression in gastric adenocarcinomas and to correlate with various clinicopathological variables.

Patients & Method: A total of 95 consecutive patients undergoing endoscopic biopsy or gastrectomy were recruited in this study after institutional ethical approval. Clinicopathological parameters of all patients were recorded and hematoxylin and eosin (H&E) staining was performed. Expression of HER-2/*neu* was investigated by immunohistochemistry using α -HER-2 antibody. Hofmann validation scoring system was used and its association was seen with various clinicopathological variables including age, gender, histopathological type, grade and stage of the tumor.

Results: HER-2/*neu* over expression was found in 21 (22.1%) cases from the total of 95 gastric adenocarcinomas. HER-2/*neu* was significantly expressed in low grade gastric cancer ($p=0.030$). Although there was no significant difference between HER-2/*neu* expression and other variables, HER-2/*neu* score 3+ was higher in females, age >60 years, Laurens intestinal type and IIIC stage.

Conclusion: HER-2/*neu* is expressed in a limited group of gastric cancer patients in Pakistani population. Our findings indicate a significant strong association of HER-2/*neu* expression with low grades of gastric cancer.

Biography

Asma Shabbir has done her MBBS from B J Medical College, Pune, India. She has done her Post-graduation from Dow International Medical College, Karachi, Pakistan. She has a passion towards research and concerned for better prognosis of the patient. She has presented her research work in many conferences. Recently, she received the Young Researcher Award at the International Conference of Digestive Diseases in Dubai 2016. She is a member of different scientific and research associations. At present, she is working as a Researcher and as an Assistant Professor in the Department of Pathology, Jinnah Sindh Medical University, Pakistan.

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12th International Conference on

Pediatric Pathology & Laboratory Medicine

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Global perceptions for the profession of medical laboratory sciences

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Biomedical Laboratory Technologists or Scientists play a fundamental role in diagnosis and disease management of patients. South Africa has the largest economy in Africa but is one of the most inequitable societies in the world, illustrated by the disparity between private and public sector healthcare funding. Eighty-four percent of South Africans cannot afford to contribute to private health care insurance and are thus reliant on the public health care systems which utilize the laboratory services provided by the National Health Laboratory Services (NHLS). The NHLS provides South Africans access to pathology services in both the private and state funded medical laboratories. The service provides a comprehensive range of laboratory tests across all medical laboratory science disciplines. A mere 16% of the South African population belong to private medical aids which gives them greater benefits for utilization of private pathology laboratory services after consultation with a clinician. These private pathology laboratories provide additional comprehensive specialized diagnostic analyses for patient treatment. This was a qualitative study making use of semi-structured open ended questions. Four hundred eighty surveys were sent out using an online program called Survey Monkey. There was a response rate of 32.4%.

Majority of the respondents were Medical Technologist employed in private pathology laboratories. Approximately 98.59% of respondents were registered with the Health Professions Council of South Africa; however, only 54.23% were active members of the Society of Medical Laboratory Technologist of South Africa. The majority of respondents were female with job satisfaction of approximately 71.90%. More than 30% of the respondents were employed for more than 15 years.

Biography

Moonira Mullah is an HPCSA board registered CPD compliant cytology-technologist with a Baccalaureus Technologiae, [Btech degree], in Biomedical Technology from the University of Johannesburg. She has just submitted a thesis for a Masters [MTECH] in Biomedical Technology to the Cape Peninsula University of Technology. Moonira Mullah is a cytology lecturer at the University of Johannesburg for second and third year undergraduate students since 2000. She has also lectured post graduate Laboratory Management at the University of Johannesburg and is currently the moderator of this subject. Moonira Mullah has assisted with cytology lectures for Cape Peninsula University of Technology's undergraduate and post graduate Students in Johannesburg. She is currently the board examiner for Cytology Technicians nationally. She has assisted the SMLTSA/HPCSA with laboratory audits for cytology labs as well as private medical technology laboratories. Moonira Mullah has worked as an independent cytology practitioner [private practice] since 1997 screening both gynaecological and non-gynaecological in South Africa and Botswana. She has a special interest in HPV and Cervical Cancer and has travelled to both national and international conferences to present her research. The laboratory has recently partnered with Gift of the Givers Foundation to provide affordable laboratory services to all sectors of the community.

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Notes:

12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

Comparative gene expression of urine and fecal *E. coli* isolated from women with acute cystitis

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Temporal and spatial regulation of gene expression induced by bladder environment may be accountable for difference in the pathogenicity of urinary and fecal *E. coli* isolates. In order to better understand the pathogenesis of urinary tract infection (UTI), genetic and functional (expression) profiles of cystitis and fecal *E. coli* isolates were analyzed in the present study. Fifty sets of concurrent urinary and dominant fecal *E. coli* from women with acute cystitis were correlated by analyzing their mRNA and phenotypic expression for five virulence genes (VGs) viz. *fimH*, *papG* alleles, *hlyA*, *iutA* and *traT* along with phylogenetic grouping. Predominance of phylogenetic group B2 (48% and 40%, respectively) and higher prevalence of VGs *fimH* (82% and 78%), followed by *traT* (66% and 46%), and *iutA* (44% and 40%) was observed in both urinary and fecal *E. coli* isolates, respectively; with *traT* being the only gene significantly associated with urinary isolates ($p=0.04$). Number of urinary *E. coli* expressing mRNA and corresponding phenotype of the respective gene tested was more in urinary isolates as compared to fecal isolates; though this difference was statistically significant only for *traT* ($p=0.02$). Differences between genetic and expression profiles of concurrent dominant fecal and cystitis *E. coli* were not prominent; indicating establishment of symptomatic infection might be more dependent on the host factors rather than on the virulence potential of uropathogens alone.

Biography

Jyotsna Agarwal has joined the King George's Medical University, Lucknow as a Faculty in 2002 and is currently working as a Professor of Microbiology and the In-charge of Bacteriology Laboratory. She received her MBBS degree from CMC, Vellore and MD in Microbiology from BHU, Varanasi. She is Nodal Officer In-charge for Regional Centre of WHO sponsored Diphtheria Surveillance Project and Regional RTI/STI Centre for the state of Uttar Pradesh. Her research interests include antimicrobial resistance, molecular diagnostics; focus areas are infections of children including pneumonia, septicemia and meningitis; and sexually transmitted/reproductive tract infection along with pathogenesis of urinary tract infections in women. She has nearly 50 publications in reputed journals and a book chapter to her credit.

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Notes:

12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

Lean fat mass influence morbidity

Kankana De

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The BMI is an attempt to quantify the amount of tissue mass (muscle, fat and bone) in an individual, and then categorize that person as underweight, normal weight, overweight, or obese based on that value. The BMI is generally used as a means of correlation between groups related by general mass and can serve as a vague means of estimating adiposity. The duality of the BMI is that, while it is easy to use as a general calculation, it is limited as to how accurate and pertinent the data obtained from it can be. Generally, the index is suitable for recognizing trends within sedentary or overweight individuals because there is a smaller margin of error. The BMI has been used by the WHO as the standard for recording obesity statistics since the early 1980s. The study area considered was Salboni block which is 25 km away from Midnapore town. Total 1009 adolescent girls were considered for this study (10-19 years). Structured questionnaires were followed to know details of socio-economic status of studied adolescent and stature was also measured to the nearest 0.1 cm in bare feet with participants standing upright against a wall-mounted stadiometer. It was observed that FMI and BMI have weak correlation, among them, 24.4% were under nutrient based on BMI and 99.8% are undernutrition based on the percentage of body fat. Around 34.2% had low health status by assessing Rohrer index. According to ROC curve, 18.45 kg/m² was the obtained cut off value for this study. Malnutrition affects HIV transmission by increasing the risk of transmission from mother to child and also by increasing replication of the virus. In communities or areas that lack access to safe drinking water, these additional health risks present a critical problem. Lower energy and impaired function of the brain also represent the downward spiral of malnutrition as victims are less able to perform the tasks they need to in order to acquire food, earn an income, or complete their education.

Biography

Kankana De has completed her PhD from Vidyasagar University and has worked as a Counselor at Anwasha Clinic in Salboni Rural Hospital. She has completed four Post-graduate studies in Anthropology, Botany, Business Administration and Social Work. She is a Reviewer of *Journal of Social Science Research*. She has presented her work at the Vinod Gupta School of Management organized by Indian Institute of Technology, Kharagpur IIT, India; Vidyasagar University, Midnapore, India, etc. She has published six papers in reputed journals.

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Notes:

12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

A genomic infection control study for *Staphylococcus aureus* in two Ghanaian hospitals

Eric S Donkor

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Staphylococcus aureus is a notorious hospital acquired pathogen and is implicated in several serious infections such as meningitis, bacteremia and pneumonia. Whole genome sequencing analysis (WGSA) provides the best resolution for typing of bacterial isolates and has the potential for identification of transmission pathways. We used WGSA to study isolates of *S. aureus* from the pediatric emergency ward of Korle-Bu Teaching Hospital (KBTH) in Ghana where a suspected outbreak had recently occurred. The dominant clone of *S. aureus* identified among the isolates was sequence (ST) 15. The genomics data indicated cross contamination of multiple surfaces in the emergency ward by multiple lineages of ST 15 with the door handle of the ward implicated as a potential transmission route. The data also suggests that ST 15 is widely disseminated at KBTH, as it was found in multiple infections in the hospital (during the period of the outbreak) that were unrelated to the transmission events in the pediatric emergency ward. This investigation highlights the need for proper disinfection of environmental surfaces at KBTH.

Biography

Eric S Donkor has done his Doctoral degrees in Infectious Diseases and Public Health from the London School of Hygiene and Tropical Medicine, and University of Iceland, respectively. He holds Master degrees in Molecular Biology and Animal Microbiology from Birkbeck College, University of London and University of Ghana, respectively. He has received several research fundings and has published 50 peer reviewed articles in the areas of infectious diseases, food safety and environmental health. Currently, he is an Associate Professor of Public Health Microbiology at the University of Ghana, Ghana.

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Notes:



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Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

Scientific Tracks & Abstracts

Day 2

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12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

Analyses of five nuclear and mitochondrial genes for the identification the old and new world *Leishmania* parasites

Parviz Parvizi and Reza Fotouhi-Ardakani
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Background: The polymorphism and genetic diversity of *Leishmania* genus have status under discussion depending on many items from clinical samples, reservoir hosts and vectors.

Objectives: The objectives are to compare genetic changes and the role of each two enzymatic and mitochondrial genes (COII and *Cyt b*) or housekeeping and nuclear genes (*nag1*, ITS-rDNA and *HSP70*) for accurate identification of *Leishmania* parasites.

Methods: After DNA extractions, PCR products were sequenced and evaluation of genetic proximity and phylogenetic analysis were performed using MEGA6 and DnaSP5 software.

Results: Of the 72 sequences, 54 new haplotypes from five *Leishmania* species were submitted to GenBank. The number of polymorphic sites was significantly lower as compared to the monomorphic sites.

Conclusions: The highest and lowest levels of haplotype diversity were observed in *L. tropica* (81.35%) and *L. major* (28.38%). Tajima's D index analyses showed that *Cyt b* gene in *L. tropica* species was significantly negative, while COII and *nag1* genes were produced through evolutionary processes for both *L. tropica* and *L. major*.

Biography

Parviz Parvizi has completed his PhD from the London School of Hygiene and Tropical Medicine (London University) and Natural History Museum (London) in 2004. He was a Full Professor since 2015 and has been appointed as the Head of Parasitology department and also as the Director of Parasitology, Immunology and Mycology Research Group at Pasteur Institute of Iran. He has published more than 60 papers in reputed journals.

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12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

Frequency of HER2/neu expression in colorectal adenocarcinoma: A Study from developing South Asian countryAsma Shabbir¹, Talat Mirza², Abdullah Bin Khalid³ and Muhammad Asif Qureshi²¹Jinnah Sindh Medical University, Pakistan²Dow International Medical College, Pakistan³Dow University of Health Sciences, Pakistan

Background: Human epidermal growth factor (HER-2/*neu*) has strong therapeutic implications in certain cancers like breast and gastric cancer. Literature on its frequency in colorectal cancer is scarce. In this study, we have investigated the frequency of HER-2/*neu* expression in colorectal adenocarcinomas and its association with various clinicopathological variables.

Methods: A total of 95 patients who underwent colonoscopic biopsy or colectomy were studied after institutional ethical approval. Hematoxylin and eosin (H&E) staining was performed on all the tissue sections. Expression of HER-2/*neu* was investigated by immunohistochemistry using α -Her-2 antibody. In order to quantify HER-2/*neu* expression, three criteria's were applied that includes the pattern of staining, intensity of staining and percentage of tumor cells stained. Furthermore, its association was seen with various clinicopathological variables including age, gender, histopathological type, grade and stage of the tumor. Data was entered and analyzed using SPSS version 21. A p-value of <0.05 was considered as significant.

Results: From the total of 95 cases, 75 (78.9%) cases showed Her-2/*neu* expression. Pattern of HER-2/*neu* staining was significantly associated with the grade (p-value=0.030) and type of colorectal cancer (p-value=0.024). We also observed a significant association between percentage of cells stained and tumor type (p-value=0.006).

Conclusion: HER2/*neu* is considerably expressed in colorectal adenocarcinoma in Pakistani population. Our findings indicate a significant strong association of cytoplasmic HER-2/*neu* expression with low grades and membranous HER-2/*neu* expression with high grades of colorectal cancer.

Biography

Asma Shabbir has done her MBBS from B J Medical College, Pune, India. She has done her Post-graduation from Dow International Medical College, Karachi, Pakistan. She has a passion towards research and concerned for better prognosis of the patient. She has presented her research work in many conferences. Recently, she received the Young Researcher Award at the International Conference of Digestive Diseases in Dubai 2016. She is a member of different scientific and research associations. At present, she is working as a Researcher and as an Assistant Professor in the Department of Pathology, Jinnah Sindh Medical University, Pakistan.

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Notes:

12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

Urinary tract infections after stroke: A longitudinal study among stroke outpatients and inpatients at the Korle-Bu Teaching Hospital in Ghana

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University of Ghana, Ghana

Background: In Africa, little is known about urinary tract infection (UTI) in relation to stroke patients. The aim of the study was to investigate the epidemiology of UTI among stroke patients at the Korle-Bu Teaching Hospital (KBTH) in Ghana.

Methods: This was a longitudinal study involving 55 outpatients and 16 inpatients of stroke from the physiotherapy clinic and stroke admission ward of KBTH, respectively. Urine cultures for inpatient subjects were done each day until the patient was discharged. With outpatients, urine specimens were analyzed every week or two for 6 months. Information on demographics and clinical history of the study participants were extracted from their clinical records.

Results: Prevalence of UTI among stroke outpatients and inpatients were 10.9% (6/55) and 18.8% (3/16), respectively ($p=0.411$). Incidence of UTI among stroke outpatients and inpatients were 1.8% (1/55) and 6.3% (1/16), respectively ($p=0.125$). Overall, 11% (1/9) of the UTI cases among the stroke patients were symptomatic. Severe stroke ($OR=17.7$, $p=0.008$) and pyuria ($OR=38.7$, $p=0.002$) were identified as predictors of UTI. *Escherichia coli* was the most common organism implicated in UTI and was susceptible to amikacin, but resistant to augmentin, ampicillin, cefuroxime, co-trimoxazole, meropenem, norfloxacin and tetracycline.

Conclusion: UTI is a common complication among both stroke inpatients and outpatients, though it appears to be more common among the former. Stroke severity appears to be the main stroke related determinant of UTI among stroke patients. UTI among stroke patients is mainly asymptomatic and *E. coli* is the most important aetiological agent.

Biography

Eric S Donkor has done his Doctoral degrees in Infectious Diseases and Public Health from the London School of Hygiene and Tropical Medicine, and University of Iceland, respectively. He holds Master's degrees in Molecular Biology and Animal Microbiology from Birkbeck College, University of London and University of Ghana, respectively. He has received several research fundings and has published 50 peer reviewed articles in the areas of infectious diseases, food safety and environmental health. Currently, he is an Associate Professor of Public Health Microbiology at the University of Ghana, Ghana.

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12th International Conference on

Pediatric Pathology & Laboratory Medicine

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Iron deficiency and thalassemia trait in vitamin B12 deficient patients with normal or low mean corpuscular volume

Asma Asif and Nadeem Nusrat

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Statement of the Problem: Vitamin B12 is one of the most important vitamins of the B-complex group. Its deficiency is not always accompanied by macrocytic picture refracted in the form of raised MCV. This rise in MCV can be blunted by concomitant iron deficiency or thalassemia trait. Due to these coexisting conditions, B12 deficiency can be missed on routine CBC leading to development of severe complications and few of them can be irreversible like neuropathy. The purpose of this research is to study the importance of normal or low MCV in vitamin B12 deficiency due to co-existence of iron deficiency or beta thalassemia trait masking a rise in mean corpuscular volume.

Methodology & Theoretical Orientation: Clinical records of 105 vitamin B12 deficient cases (vitamin B12 less than 200 ng/l) who had presented with normal or low mean corpuscular volume (MCV less than 95 fl) on complete blood count were determined from Dow diagnostic research and reference laboratory. Serum ferritin, red blood cell folate level and Hb electrophoresis for beta thalassemia trait were analyzed in these patients.

Findings: A total of 105 vitamin B12 deficient patients who fulfilled the inclusion criteria were enrolled in this study from which 39 (37.14%) were male and 66 (62.85%) were females. Among them, 36.19% were microcytic with the mean age of 37±16.2 years and 63.8% were normocytic with the mean age of 41.58±15.65 years. In microcytic group, the percent value of iron deficient, beta thalassemia trait, combined deficiency of B12, iron and beta thalassemia trait and RBC folate deficient were 52.6%, 34.21%, 7.8% and 2.63%, respectively. In normocytic group, the percent value of iron deficient, beta thalassemia trait and RBC folate deficient were 13.4%, 00% and 11.9%, respectively.

Conclusion: It was concluded that frequency of iron deficiency and beta thalassemia trait are significant in vitamin B12 deficient cases with normal or low mean corpuscular volume. It is more common in females having age group of 20-40 years. Index of suspicion should be kept high and serum ferritin and Hb electrophoresis should be done in all such patients who present with B12 deficiency anemia with normal or low MCV.

Biography

Asma Asif has completed her MPhil in Hematology from Dow University of Health Sciences in 2016. Currently, she is working at the Jinnah Sindh Medical University Karachi Pakistan. She has her publications in many reputed journals.

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Notes:

12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

The impact of irrigation of breast on colonization of breast milk

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Breast milk health is one of the essential elements in feeding of premature infants. Generally in initial of breast feeding, different methods of disinfecting such as irrigation with usual detergents like water and soap are used to eliminate the probable bacteria. The necessity of the usage of such items has not been mentioned in some studies, and even at the time of comparison, different results have been obtained. This is a controlled clinical trial that evaluated results of breast milk culture in mothers of premature infants in NICU. Sample has been collected from breast of these mothers in four methods: Manual with and without irrigation and pump expression with and without irrigation. Each sample was collected in sterile pot and it was transported to laboratory quickly for microbial culture. The results showed that the cultured bacteria in samples collected manually with and without irrigation were *Staphylococcus coagulase negative*, *Staphylococcus aureus*, *Enterococcus* and *Klebsiella pneumoniae*. In one sample of without irrigation and four samples of with irrigation, lack of growth of bacteria was observed. In pump expression samples with and without irrigation, the cultured bacteria were consisted of: *Staphylococcus coagulase negative*, *Staphylococcus aureus*, *Enterococcus*, *Klebsiella pneumoniae*, *Enterobacteriaceae* and *Pseudomonas*. Among the samples, in three samples of without irrigation and two samples of with irrigation, lack of growth of bacteria was observed. The results showed that cultured bacteria in pump samples were much more than manual samples.

Biography

Ahmadshah Farhat has completed his Medical degree from Kabul University, Pediatric specialty from Mashhad University of Medical Sciences in Iran and Neonatology sub-specialty from Mashhad University of Medical Sciences. He has published more than 60 articles till date. He is the Vice Counselor at Neonatal Research Center.

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Notes:

12th International Conference on

Pediatric Pathology & Laboratory Medicine

March 15-16, 2017 London, UK

The role of recombinant human granulocyte colony-stimulating factor (G-CSF) in the management of neonatal sepsis in premature infants

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Whenever neonatal sepsis is associated with neutropenia, mortality and morbidity also increases. We know in the preterm infants that neutropenia is common. In this study, we evaluated the effects of G-CSF administration on early onset neonatal sepsis in premature infants. This study was performed at the College of Medicine, Mashhad University, NICU of Qaem Hospital between May 2012 and February 2013. In this study, we enrolled 50 premature neonates with GA<35 weeks and a mean birth weight of 1500±499 g, who were under five days old that were admitted to NICU with the clinical diagnosis of sepsis. The study population was divided to the case (G-CSF) and control groups placebo (dextrose 5%). To analyze the data with nominal scale, Pearson's Chi-square test was used. In some cases, more than 20% of expected frequencies of tables were less than five (Cochran) Fisher's test (Fisher's exact test) was used, and SPSS v.19 and Statistical v.8 software were used. There was significant difference between two groups for absolute neutrophil count (ANC) in second sampling ($P=0.010$), but for other cases, the difference wasn't statistically significant ($P>0.05$). Also the change in absolute neutrophil counts between two blood exams showed significant difference in control group ($P=0.006$), but the difference wasn't statistically significant in the study group ($P=0.627$). Routine administration of G-CSF is not recommended as an adjuvant therapy for neonatal sepsis in non-neutropenic premature neonates.

Biography

Saeidi Reza has completed his Medical studies at Tehran University; has done his specialty in Pediatrics from Tehran University of Medical Sciences in Iran and subspecialty in Neonatology from Mashhad University of Medical Sciences. He has published more than 50 articles in reputed journals. He is the Editor-in-Chief of *Iranian Journal of Neonatology*. He has attended more than 100 national and international conferences.

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