

Abstracts

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EiP
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ORAL PRESENTATIONS

Medical Education OP01

COMPARISON OF JEOPARDY GAME FORMAT VERSUS TRADITIONAL LECTURE FORMAT AS A TEACHING METHODOLOGY IN MEDICAL EDUCATION

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Traditionally medical students are taught using didactic lectures as the main, if not sole, teaching methodology. It does not encourage active learning and critical thinking. This study was conducted to compare student learning, satisfaction and retention of knowledge between "Jeopardy game format" and "didactic lecture format" in teaching 5th year medical students about viral exanthema. Students were randomized to two groups. One group was taught viral exanthema in lecture format while other group received the same instruction in Jeopardy style game format. Both the group underwent pretest, Posttest I and satisfaction survey (immediately after instruction). To assess the retention on knowledge a posttest II was conducted 2months after. Satisfaction survey consisted of 5 questions using a 5 point Likert scale. The content of the lecture, pretest and post test was approved by the curriculum committee of the department. Paired sample t-test was used to compare test scores and satisfaction survey in both groups. 82 students participated in the study (41 in each group). Both the groups showed significant improvement in their knowledge on the posttest I as compared to pre test score. Posttest I score comparison between the two groups was not significant. However posttest II conducted after 2 months showed that retention of knowledge was better in game format.

Satisfaction survey showed that game format was more enjoyable, full off fun, stimulated greater students -faculty interaction, student-student interaction and was considered an appropriate method of teaching. Further research needs to be conducted to establish this fact that long term retention of knowledge is better using game as teaching methodology.

Genetics OP02

CYSTIC FIBROSIS TRANSMEMBRANE REGULATOR GENE MUTATIONS (CFTR) IN A TERTIARY CARE CENTRE IN SAUDI ARABIA

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Objective: To determine the Cystic fibrosis trans- membrane regulator gene (CFTR) mutations in Saudi Arabia (KSA).

Study design: Retrospective chart review of all diagnosed CF patients and determine their CFTR mutations during the period 2000-2011.

Results: A total of 317 patients were confirmed to have CF with typical clinical picture and sweat chloride test > 60mmol/L. A total of 272 patients had their CFTR examined, but only 241 (89%) patients have identified CFTR mutations. A total of 30 mutations were identified. Thirteen new mutations that have never been described before in the medical literature were identified. Two hundred and ten patients (91%) were homozygous and 20 (9%) patients were compound heterozygous. Eleven patients their DNA could not be identified with the present testing. Of the most common mutations that have been identified in descending frequency were: 1548delG in 49 alleles (20.5%), DF-508 in 36 (15%), I1234V in 27 (11.5%), 3120+1G → A in 27 (11.5%), 711+1G → A in 24 (10.5%), and H139L in 20 (8.5%), which identified 77% of our CFTR mutations. fifteen private mutation were identified in 15 different families.

Conclusion: CFTR mutations in Saudi Arabia differ from that described in the western world. Specific attention to the Saudi CFTR mutational patterns should be applied during screening for such disease in this part of the world. Key words: Cystic Fibrosis, CFTR, Arab.

Adolescence Medicine

OP03

PROBLEMATIC INTERNET USE IN A SCHOOL-BASED SAMPLE OF DUTCH ADOLESCENTS

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Introduction: Internet use is common among adolescents, and social networking sites (SNSs) are the most popular application. Problematic Internet Use (PIU), defined as Internet use that is risky, excessive or impulsive in nature leading to adverse life consequences, specifically physical, emotional, and social or functional impairment, is an emerging health concern. Prevalence of PIU among European adolescents has been reported at between 1% and 19%.

Purpose: The objective of this cross-sectional survey study was to: (1) determine the prevalence of adolescents at-risk for PIU within a school-based sample of Dutch adolescents, and (2) explore the association between SNS use and PIU.

Material and Methods: Adolescents between the ages of 11 and 18 were recruited from six schools in the Netherlands provinces of Zeeland, Flevoland, Utrecht, and Limburg. The survey included demographics and SNS use questions, and the Problematic and Risky Internet Use Screening Scale (PRIUSS). Logistical regression models were used to test associations between risk for PIU and demographic or SNS use variables.

Results: A total of 474 (98% response rate) adolescents participated; the sample was 47% female, 98% were born in the Netherlands, and the mean age was 14.3 (SD=1.8). Most participants reported use of at least one SNS (n=443, 94%). Frequency of SNS use decreased significantly with age ($\chi^2=66.9$, $p<.0001$), but did not vary significantly by gender ($\chi^2=5.23$, $p=0.388$). Approximately 11% (n=51) scored at-risk for PIU on the PRIUSS. PIU risk was significantly associated with gender ($\chi^2=5.93$, $p=0.015$), age ($\chi^2=4.48$, $p=0.034$) and frequency of SNS use ($\chi^2=18.2$, $p=0.003$). Specifically, risk increased by 22% with every year increase in age (OR=1.22, 95% CI: 1.02-1.48), and males were over twice as likely to be at-risk (OR=2.26, 95% CI: 1.17-4.37). Adolescents who reported posting on SNSs multiple times per day were over four times as likely to be at-risk for PIU as compared to those who reported posting less than once a week (OR=4.59, 95% CI: 1.93-10.94).

Conclusions: Prevalence of PIU among Dutch adolescents is consistent with other European adolescent populations, and risk is highest among males, older adolescents, and those reporting frequent SNS use. Prevention efforts that target these groups should be developed, and SNS sites may be a useful platform.

General Paediatrics

OP04

VITAMIN D INTOXICATION: A CASE SERIES STUDY IN NORTH WEST OF IRAN

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Introduction: Vitamin D intoxication (VDI) is defined as serum level of 25-hydroxyvitamin D above 150 ng/ml and hypercalcemia associated with one or more clinical symptoms related to hypercalcemia. VDI may occur due to inappropriate treatment by physicians or parental dosing error. VDI may result in soft tissue calcification, nephrocalcinosis, neurologic complications and even death in severe cases.

Purpose: to evaluate the cases of VDI in children who referred to Children's Hospital of Tabriz in North West of Iran.

Materials and methods: Medical documents of all children admitted and then followed up with diagnosis of VDI from 2000 to 2012 were studied retrospectively. Demographic, clinical and laboratory characteristics and outcome of patients were recorded.

Results: During 12 years 20 patients (14 boys, 6 girls) with diagnosis of VDI were admitted. The mean age of patients was 17.2 ± 6.4 months (9- 28 months).

The most common symptoms were: anorexia (85%), vomiting (80%), weight loss (70%), dehydration (55%), constipation (45%) and polydipsia (40%). The mean amount of vitamin D received by patients was 710000 ± 268000 IU. Mean level of total serum calcium, phosphorus, 25(OH) D3 and parathormone were 13.5 ± 3.7 mg/dl, 6.3 ± 1.4 mg/dl, 191.7 ± 87.6 ng/ml and 14 ± 8.8 ng/ml respectively. Renal ultrasonography showed medullary nephrocalcinosis in 10 patients. Treatment modalities were: hydration with normal saline in all, frusemide in 80%, prednisolon in 75% and pamidronate in 15% of patients. During follow up period (1-5.5 years), recurrence of clinical symptoms and hypercalcemia was not observed in any patient. However nephrocalcinosis was persistent in all ten cases.

Conclusion: To avoid VDI, all children suspected of rickets should be checked for serum calcium, phosphorus, alkaline phosphatase and 25(OH) D3 level before prescription of high dose vitamin D. Also parents should be questioned for previous administration of vitamin D for their children.

Neonatology OP05

MISSED OPPORTUNITIES FOR PAIN PREVENTION IN THE NEONATAL INTENSIVE CARE UNIT AT A TERTIARY HEALTH CARE CENTER, SHRI KRISHNA HOSPITAL, IN GUJARAT

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Introduction: Painful procedures are inevitable in neonatal intensive care & pain is not effectively prevented, nor adequately treated. The more immature the newborn, the higher are the short-term & long-term consequences of pain.

Purpose: Objectives were to determine the number of painful procedures performed, compare number of painful procedures performed to the number documented & thus determine missed opportunities for pain prevention

Materials and Methods: Cross-sectional study at the Level 3 Neonatal Intensive Care Unit (NICU) of a University Hospital in Gujarat, India. Sample size: 738 patient-hours Inclusion Criteria: Neonates admitted for more than 24 hours in NICU Study was approved by institutional ethics committee. Twenty-nine neonates were directly observed in NICU for total of 738 patient hours, over 17 days. Number of painful procedures performed were recorded & compared to number of procedures documented. Method of pain relief was also recorded. The National Neonatology Foundation's 2010 Clinical Practice Guidelines were used to identify procedures as painful, & clinical experience to identify procedures as invasive/non-invasive. Descriptive statistics were used to analyze data.

Results: Out of 29 neonates, 19 were males, 11 were full-term, 24 had maternal risk factors present, & 11 had poor neurological activity on admission. Twelve neonates were kept nil-by-mouth. The mean (SD) birth-weight of the sample was 1.81(0.75) kg. Thirty-nine different procedures were seen to cause pain. Of these 13 were invasive while 26 were non-invasive routine procedures. Total of 2121 procedures were observed over 738 patient-hours (390 invasive & 1731 non-invasive), yielding 2.87 procedures (0.53 for invasive & 2.34 for non-invasive) per patient-hour. Suction (177) & heel prick (129) contributed 78.46% of invasive procedures. Thirty-two procedures (~1%) were not documented. Pharmacological methods for pain relief were not used; sporadic incidences of sedation & anti-epileptic administration were documented, but none were intended for pain relief.

Conclusions: Non-invasive & invasive procedures were fairly common in the NICU; documentation of these procedures is fair, but adequate pain estimation & pain relief measures were seldom used. This implies that personnel sensitization & enforcement of pain management protocols are crucial for neonatal care.

Cardiology OP06

ARTERIAL PRESSURE DETERMINANTS AT 4 YEARS OLD - RESULTS OF THE BIRTH COHORT GENERATION 21

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Introduction: The rising prevalence of arterial hypertension (AH) in children has become a major issue of concern that cannot be separated from the pandemic proportions achieved by excess weight and obesity in the last decades. It is plausible that the pro-inflammatory state, recognized in obesity, mediates at least part of the effect on cardiovascular diseases, namely in primary hypertension. Nevertheless, the role of inflammatory activation on blood pressure (BP), beyond that determined by obesity, is still unclear. Our goal was to evaluate possible determinants of AH in 4 years old children, by studying the association between ambulatory measured BP and family history of AH, body mass index (BMI), waist circumference (WC) and high sensitivity C-reactive protein (hs-CRP).

Methods: A birth cohort was assembled at public maternities of Porto, Portugal in 2005-2006 and reevaluated an average of 4 years after delivery. In the current analysis, 1408 4-year old children were included. Blood was drawn after overnight fast for analysis. Anthropometric evaluation was performed and WC indexed to height was considered. BP was evaluated with an aneroid sphygmomanometer by three measurements with 5 minutes intervals; the average of the last two measurements was considered for analysis; BP were classified according to the American Academy of Pediatrics criteria. The median age of the children included was 51 months (interquartile range 50-55) and 51% were male. The excess weight and obesity prevalence (CDC criteria) was 15.2% and 12.6%, respectively.

Results: Mean systolic pressure (SBP) was 97.7 ± 8.1 and 98.6 ± 8.5 mmHg, and mean diastolic pressure (DBP) was 56.3 ± 7.7 and 56.5 ± 8.0 mmHg, in girls and boys, respectively. SBP was significantly higher in girls with family history of AH (mean $+1.34$ mmHg, $p < 0.001$) but not in boys ($+0.95$ mmHg, $p = 0.14$). In both sexes, SBP raised significantly with BMI ($+1.81$ mmHg e $+1.82$ mmHg by each kg/m^2 , in girls and boys, $p < 0.001$) and with WC ($+0.63$ e $+0.56$ mmHg by each cm/m , in girls and boys, $p < 0.001$). According to the American percentiles of the hs-CRP levels for white adults, 3 risk categories were defined: among girls an increment of the average values of SBP was verified along risk categories ($+1.47$ e $+2.09$, p for tendency = 0.01) and of DBP only for the highest risk category ($+2.44$, $p = 0.01$); among boys, SBP was significantly lower in the highest hs-CRP class (-2.36 , $p = 0.03$) and no association was found for DBP. After adjustment for age and family history of AH, the effect of BMI and WC on SBP remained equally strong and was not attenuated after additional adjustment for hs-CRP classes. However, while the association of hs-CRP and SBP in girls is completely explained by obesity, the inverse association in boys remains significant even after adjustment for global and abdominal measures of obesity.

Discussion: In Generation 21, the prevalence of hypertension at 4 years of age is comparable to those described in older children and adolescents. Our results reinforce the hypothesis that early obesity might have an important role in cardiovascular risk in both sexes. The hs-CRP is significantly associated with BP in girls, but not independently of BMI. Our study suggested the possible existence of differences in the AH physiopathology between sexes, that should be further investigated in future studies.

Key-Words: arterial hypertension, obesity, high sensitivity C-reactive protein, insulin resistance, dyslipidemia

TIMELY HOSPITAL DISCHARGE IN THE PEDIATRICS DEPARTMENT AT HAMAD GENERAL HOSPITAL

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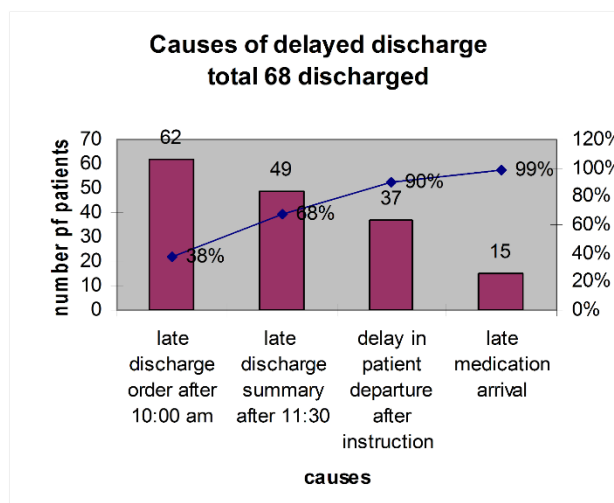
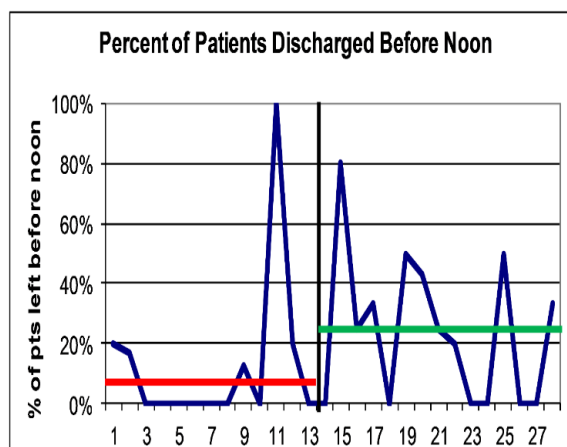
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Introduction: Timely hospital discharge is a challenging task for all hospitals worldwide. In our department, delay in patients discharge causes unnecessary delay for new admissions from the emergency department and transfers from the pediatric intensive care unit. This delay leads to cancellation for elective surgeries, procedures or admissions.

Purpose: Our aim is to increase the percentage of patients discharged before twelve noon of the total discharges.

Materials and Methods: A baseline discharge process was studied and all possible causes were obtained. A physician survey was conducted to look for the most likely cause for the delay. A data collection tool was designed to record the various steps in the discharge process for the pre-and post-intervention phases. After the preliminary data analysis, an intervention for the discharge process was introduced. The intervention included emphasis on early discharge planning in a multidisciplinary approach, starting team rounds with possible discharges and finishing the paper work before 10:00 AM.

Results: All patients discharged from two of the Pediatric units, total of 45 beds over 15 days period were included in the study. The average time for the discharge process was 2 hrs and the baseline average percent of patients discharged before noon was 7% of all discharges. The leading cause for the delayed discharge was the physician writing the orders for the discharge after 10:00 AM. This percentage of patients discharged before noon was increased to 26.5% of all discharges in the post intervention phase.



Conclusion: Our intervention has achieved a significant improvement in timely morning discharge from the hospital. Such interventions will reduce time waste, maximize bed efficiency and improve the quality of care for newly admitted patients. Continuous monitoring and further projects aiming at other factors affecting timely discharge are needed to further enhance and sustain timely discharge.

Infectious Diseases

OP08

SEROPREVALENCE AND PREDICTORS OF VIRAL HEPATITIS A AND E IN CHILDREN

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Introduction: Hepatitis A and E are both hepatotropic viruses that share the faeco-oral route of transmission and are prevalent in developing countries where sanitation is still a major public health issue. There is no epidemiological data on these viruses in Nigeria, hence the need for this work. All studies so far done have been hospital based with obvious limitations.

Purpose: The objective was to establish the seroprevalence of viral Hepatitis A and E antibodies and the predictors of these infections in children in Akpabuyo local Government Area of Cross River State, South Nigeria.

Materials & Methods: Study design was a community based cross sectional. Multi-staged sampling technique was used to select ten communities from which 406 children were recruited. Study period was April to June 2012. Ethical approval was obtained for the study. Interviewer administered structured questionnaire was used for data collection and blood samples collected were screened for anti-HAV total antibody(IgM and IgG) and anti-HEV IgG antibody using the ELISA technique with test kits from DRG International Inc., USA. Data was analyzed using SPSS version 17.0. A multivariate logistic regression was used to identify factors that independently predicted the occurrence of anti-HAV total antibody and anti-HEV IgG antibody. p value of < 0.05 was considered significant.

Results: The seroprevalence rate of anti-HAV total antibody was 55.2%(95% CI 42-53) while for anti-HEV IgG antibody was 7.7%(95% CI 5.1-10.3). 94.1% of the study population were of the low social class and 5.9% of the middle class, none from the high social class. The levels of social amenities in these communities were generally poor. The difference between the seroprevalence of anti-HAV total antibody and anti-HEV IgG antibody was statistically significant with a p value of < 0.001(95% CI 42-53), while 25(6.2%) children had co-infection of HAV and HEV (95% CI 3.8-8.5). After multivariate analysis, predictors of HAV infection were age and social class. Duration of residence was the predictor of HEV infection.

Conclusion: HAV and HEV infections were prevalent in the study population. Educational campaigns, provision of good sewage disposal and piped water is of high necessity. Vaccines particularly against hepatitis A is advocated to further curb the spread of this infection.

Adolescence Medicine

OP09

PARADOX OF OBESITY AND UNDER NUTRITION - COEXISTENCE OF DOUBLE BURDEN IN ADOLESCENTS FROM URBAN SLUM OF KARACHI

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Introduction: The high prevalence of under-nutrition, in terms of macronutrient and micronutrient deficiencies, is a well recognized problem among socially deprived children of developing countries. However the coexistence of obesity with undernutrition in these children is emerging as a significant issue. There are around 30 million adolescents in Pakistan, however literature on their nutritional characteristics is lacking.

Purpose: We undertook an assessment of nutritional profile of a cohort of children between 8 to 11 years from an urban slum of Pakistan.

Materials and Methods: A cohort of children between 8-11 years of age was selected. Children suffering from any chronic or debilitating illness were excluded. Informed consent was obtained. Weight and height were recorded, to the nearest 0.1 kg & cm respectively, in light clothing without shoes. The cut off values for all parameters was defined from the WHO normative data. Blood samples were evaluated for Hemoglobin, serum Ferritin, Retinol and Zinc.

Results: Nutritional characteristics of 1814 children were studied. 837(46%) were boys and 977(54%) girls. Their mean age (SD) was 9.4(0.9) years. 19% of these children were found to be underweight (95%CI) (17.2%-20.8%), of these 20.9% were boys and 17.4%. Stunting was seen in 14.8% (13.2%-16.5%) children: 17.2% boys and 12.9% girls. The prevalence of wasting in this cohort was 13.3% (11.7%-14.9%): 15.3% in boys and 9.3% in girls. The mean BMI was 14.6. Interestingly 11.7% children (10.3%-13.2%) of the cohort had a BMI above the overweight/obesity cutoff. Of these 11.1% were boys versus 12.3% girls. Anemia was present in 20.4% (18.3%-22.4%) children and it was more prevalent in girls: 24.0% then the boys: 15.7%. Serum Ferritin levels were low in 12.4% (10.4%-14.3%) children. Less than adequate serum Retinol and serum Zinc levels were seen in 49.9% (47.5%-52.3%) and 23.5% (19.8%-27.2%) children respectively. There was no sexual predilection for the Retinol and Zinc deficiency. All the micronutrient deficiencies were also present in children who were above the BMI cutoffs of overweight/obesity.

Conclusions: Our study highlights a unique challenge faced by school-aged children from low socioeconomic background of Pakistan: There is significant existence of over-nutrition in the background presence of a persistently high burden of macro and micro nutrient under-nutrition.

Alergy- Immunology

OP10

NEONATAL SCREENING FOR PRIMARY IMMUNODEFICIENCY DISEASES CREATES A NEW ERA IN PEDIATRICS

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Introduction: Primary Immunodeficiency Diseases (PIDs) comprise more than 250 disorders that affect the development and function of the immune system, PIDs lead to increased rates and severity of infections. Major efforts are currently being undertaken to develop methods for detection of PIDs in the neonatal period. PCR-based detection of signal joint T-cell receptor excision circles (TRECs), extracted from Guthrie cards, has proven to be a valuable tool for identifying patients with severe combined immunodeficiencies (SCIDs). A similar method for analysis of δ -deleting excision circles (KRECs) was described, allowing identification of patients with X-linked Agammaglobulinemia. Analysis of patients with Familial Haemophagocytic Lymphohistiocytosis has revealed a frequent inversion in the UNC13D gene, potentially allowing its inclusion in the neonatal screening. There is evidence that early diagnosis and treatment of SCID associated with the highest survival rates. Recent articles showed simultaneous measurement of TREC and KREC copy numbers in Guthrie cards samples readily identified syndromes characterized by the absence of T or B cells. The incidence of PIDs is the highest in our Arabian region. In Qatar, around 135 PID cases were diagnosed in the past 16 years, 28 SCID/CID, 31 antibody deficiency and 16 inherited haemophagocytic syndromes cases. However, this does not take into account children with the disease that die undiagnosed. In Qatar, we are in the process of starting a SCID neonatal screening program by June 2014.

Purpose: Increase awareness about PIDs screening, anticipate future challenges and avoid pitfalls, show the benefits of starting and expanding the PIDs screening program, determine the true incidence and causes of T-cell lymphopenia in a population with a high rate of consanguinity marriages, and emphasize our needs for advanced Immunology labs and Pediatrics Bone Marrow Transplant Unit.

Results: SCID neonatal screening has revealed the true incidence of T-cell lymphopenia in a large and diverse populations.

Conclusions: The development of an efficient, reasonably competitive and validated method for population based SCID screening of newborns during the past few years has changed the prospect of survival towards a normal life for patients with PIDs. The paradigm of screening will promote future research on preventive medicine for PIDs.

Neonatology

OP11

POSITIVE DISTENDING PRESSURE PRODUCED BY HIGH FLOW NASAL CANNULA AS COMPARED TO NASAL CONTINUOUS POSITIVE AIRWAY PRESSURE IN PREMATURE INFANTS

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Background: Apnea of prematurity (AOP) is frequently managed with nasal CPAP and /or high flow nasal cannula (HFNC). Only few published abstracts described use of HFNC in the neonatal population and no clinical trials using flows >2 l/min. However HFNC are used without measuring the positive distending pressure generated.

Our aim was to evaluate different levels of (HFNC) gas flow required to produce an equivalent positive distending pressure as that provided by different levels of nasal continuous positive airway pressure (NCPAP).

Methods: This was a pilot, non-randomized, open label, uncontrolled, crossover assignment study. Neonates born with a birth weight of 1750 g or less and receiving NCPAP for 24 hours and requiring FiO₂ between 21-50% were enrolled in the study. Each infant was started on NCPAP at 4,6&8 cm H₂O After completing the three levels on NCPAP, the infant was switched to three levels of infant HFNC, 4L/m, 6 L/m and 8 L/m with 4 hours interval on each flow level. Esophageal pressure (EP) was measured, as an indication of airway end-distending pressure using 5 Fr NGT placed in the distal esophagus and attached to a pressure transducer.

Results & Conclusion: Twelve premature infants were enrolled in this study. The mean birth weight was 1040.8 ± 275 grams, and the mean gestational age was 28 ± 3 weeks. There were no short term complications observed during the study such as pneumothorax. There was no significant change in the FiO₂ requirements during the study. There was clear trend in the improvement of oxygen saturation in HFNC at different levels and it was statistically significant when 8L/min was used (p= 0.0214). The rates of bradycardia were more in CPAP than HFLNC and statistically significant 0.0455 at the level of 6 L/min, but rates of AOP were equal in the two groups at the same level of 6 l/min. This study showed that the use of HFNC in premature infants was well tolerated with no adverse side effects such as pneumothorax, desaturation, apnea and bradycardia. The study also showed that HFNC was able to deliver distending pressure equal to NCPAP. We have observed a significant improvement in oxygen saturation when higher levels of HFNC was used, most probably due to the improvement of infant comfort which is a noticeable feature of Vapotherm.

PERCEIVED STRESS AND PROFESSIONAL QUALITY OF LIFE IN NURSES WORKING IN NEONATAL INTENSIVE CARE UNITS

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Introduction: Neonatal Intensive Care Unit (NICU) is a challenging environment requiring constant monitoring and proactive management of neonates. In developing countries like India, nurse: patient ratio ranges from 1:3 to 1:5, varying with hospital setup & thus have increased workload. This may lead to psychological distress and burnout. Nurse burnout can result in physical and mental health issues which may adversely affect patient care.

Purpose: To evaluate perceived stress level & professional quality of life of NICU nurses in Gujarat, India.

Materials and Methods: Participants included 75 Nurses who work in NICU's in 6 hospitals of three cities of Gujarat. Data was collected through a standardized protocol of Perceived Stress Scale (PSS14) and the Professional Quality of Life Scale (PROQOL Version 5), both being self-administered surveys which focus on the nurses' perceived stress and experience of compassion satisfaction, burnout and secondary traumatic stress. The survey questionnaires were translated into Gujarati and back-translated to confirm the accuracy of the translation. Descriptive statistics were used to depict the perceived stress level and professional quality of life. Correlation coefficient was used to assess the associations.

Results: The nurse to patient ratio was 1:3 to 1:4 in most hospitals. The mean (SD) perceived stress level was 42.91(7.38) [Range: 21 - 62]. High level of compassion satisfaction, burnout, & secondary traumatic stress was reported by 20 (26.7%), 17 (22.7%) and 19 (25.3%) nurses respectively. A good association was found between PSS14 and secondary traumatic stress($r=0.46$) whereas the associations between PSS14 and compassion satisfaction($r=0.28$) and PSS14 and burnout ($r=0.07$) were poor. A total of 14 nurses (18.66%) were likely to have positive reinforcement from their work reporting high compassion satisfaction and moderate to low levels of burnout and secondary traumatic stress. Seven (9.33%) nurses were likely to be most distressed reporting high level of burnout and secondary traumatic stress and low compassion satisfaction.

Conclusions: This study revealed that nurses working in NICU experience moderate level of stress. Only 14(18.66%) nurses showed positive reinforcement from their job indicating urgent need to study the domains influencing their professional quality of life & some intervention to improve it.

POSTER PRESENTATIONS

Allergy- Immunology

PP01

NEONATAL SCREENINGS; CRITICAL IN DETECTING FAMILIAL BACKGROUNDS IN IMMUNODEFICIENCY DISEASES: A MIDDLE-EASTERN POPULATION CASE REPORT

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Objectives: To indicate the importance of educating physicians caring for infants in the first few months of life to review complete Family History (FH) and investigate infancy deaths if any.

Patient: We report a 3 months old female infant, born to first grade cousins. The patient was born with mild erythematous skin rashes that became generalized at two months of age, and was diagnosed as Eczema exacerbation. The patient received topical corticosteroids, however showed no improvements. The patient was later Blood transfused due to very low hemoglobin and possible Auto Immune Hemolytic Anemia.

During transfusion, the skin rashes increased, leading to GVHD Clinical picture (**Image 1**)



Upon further investigations, the parents admitted to having lost two children with a similar history, several years ago. The patient was diagnosed with atypical severe combined immunodeficiency (SCID) and Genetic analysis showed mutation in Recombination Activating Gene 1(RAG1).She was treated successfully with Bone Marrow Transplant.



Implications: Consanguineous marriages are an integral part of the Middle-Eastern cultures, predisposing the high incidence of rare genetic disorders. Until screening for SCID becomes available for all neonates in Middle-East area, physicians caring for infants should pay attention to the FH of severe infections and deaths in early infancy. Parents are usually unaware of the importance of declaring FH of critical diseases. This makes neonatal screening for SCID and other Primary Immunodeficiency critical. Implementing such a program in the Middle-East is possible if health authorities recognize the seriousness of the issues and provide all required resources. In Middle-Eastern countries the majority of patients with SCIDs are from families known to have the disease. It would be cost effective to establish programs to identify all family carriers and offer appropriate genetic counseling, premarriage screening, and pregestational genetic diagnosis for affected couples. However, implementation of such programs should respect societal norms and individual beliefs. Public awareness campaigns about SCIDs and the medical consequences of consanguineous marriage might help in reducing the incidence of SCIDs in the Middle East.

DETECTING OF CORRELATION BETWEEN PEAK EXPIRATORY FLOW RATE AND HEART RATE VARIABILITY IN CASE OF ALLERGIC BRONCHIAL ASTHMA IN CHILDREN'S POPULATION

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Goal: correlation of heart rate variability peak forced expiratory flow rate frequency parameters in children with allergic bronchial asthma, in age aspect.

Materials and methods: disease prevalence was studied in the basis of questioning of random and representative groups of Tbilisi and Kutaisi children population, with cross-sectional method of epidemiological study. Screening questionnaire, map questionnaire and diagnostic criteria were developed. Studied population included 789 children (487 girls and 302 boys). First stage included screening on the basis of questionnaire. At the second stage breathing function was assessed by peak-flowmeter, III stage included correlation of heart rate variability in children with bronchial asthma. At the final stage of prevalence study and clinical-laboratory research data were statistically processed with SPSS/V12.5 software.

Results: screening provided general characteristics of the studied population, number of girls was higher ($p < 0.001$), particularly in the 8-15 age. According to the questioning results, symptoms of allergic bronchial asthma were identified for 12 months in 109 patients ($p < 0.05$). At the second stage subject of clinical-allergological study were children who gave positive answers to the questionnaire. Each relative evaluation of heart rate variability correlated with forced peak expiratory flow rate. Correlation of forced peak expiratory flow rate with LF/HF was stronger in girls ($p < 0.005$). Partial correlation analysis showed that both, in girls and boys correlation between forced peak expiratory flow rate and heart rate variability was independent from heartbeat. In girls, unlike boys, LF, HF and LF/HF correlation with the forced peak expiratory flow rate did not depend on age. By most parameters of heart rate variability the healthy individuals and those with asthma did not differ. Exclusion was high-frequency component interval, reliably higher in sick individuals, confirming earlier data about activation of vagus system at a time of allergic bronchial asthma.

Conclusion: to identify movements in the periods between attacks in children with light intermittent allergic bronchial asthma frequency parameters of heart rate are informative, particularly LF/HF and Valsalva ratio. Sensibility of complex criteria was 69.5%, while specificity was 18.9% showing that variability of heart rate is significant.

RHINO-CONJUNCTIVITIS

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Allergic diseases comprise the global problem. Therefore, our goal was study of prevalence of rhinoconjunctivitis (RC) in children with AR; study of appealability to the pediatricists among population of children of age from 2 to 10 in Tbilisi pediatric clinics, frequency and risk factors of RC for one year period. **Materials and methods:** I stage of the study included 863 children from 2 to 10 (399 girls and 464 boys). At the II stage the subject of clinical-allergological study was revealing of the causative factors on the basis of comparison of anamnesis data and in vivo allergic diagnostics. Results were processed by SPSS/V11.5.

Results: according to the results of questioning, for one year period, 429 (49.7%) respondents indicated the episodes of sneezing, 699 (81.0%) - rhinorrhea, 567 (65.7%) - nasal obstruction, 389 (45.1%) - epiphora and itching of eyes. 598 (69.3%) of the respondents with RC symptoms indicated the seasonal nature of the disease. 79.1% stated that the symptoms affect everyday life and activities with great significance in 20.9% and with the less extensive impact on the remained part of the respondents.

Conclusion: For one year, appealability to the Tbilisi pediatric clinics, with RC, was 89.3%, the delayed diagnostics took place in 10.7% of cases. Higher frequency of the RC symptoms was indicated among the boys ($p < 0.05$), compared with the girls.

THE RELATIONSHIP BETWEEN HELICOBACTER PYLORI INFECTION AND ALLERGIC RHINITIS DURING CHILDHOOD

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Introduction: Although some publications that indicate there is no relationship between infections and development of allergic diseases exist, there also exist publications which indicate that H pylori infection reduce the rate of asthma and food allergy in children.

Purpose: To examine the relationship between Helicobacter pylori infection and allergic rhinitis during childhood.

Subjects and Methods: Fifty dyspeptic patients, 30 patients suffering allergic rhinitis and 20 healthy children were included in this study. The serums of all of the patients were studied with respect to existence of specific IgE developed from house dust mites, cat's fur, rye grass and pine tree, using IgG.

Results: Thirty-three point three percent (16/48) of the cases from pediatric group and 31.3% (10/32) of the cases from adolescent group were diagnosed with H pylori IgG positive. Ten point four percent (5/48) of the cases from pediatric group and 31.3% (10/32) of the cases from adolescent group were diagnosed with allergic rhinitis. In contrary to the pediatric group, the number of the cases diagnosed with allergic rhinitis increased significantly as the number of the cases diagnosed with H pylori IgG positive decreased in the adolescent group ($p=0.84$ and $p=0.019$). Furthermore, the level of specific IgE developed from rye grass (18.8% vs 4.2%) was determined to be significantly higher in the adolescent group than the pediatric group ($p=0.033$).

Conclusion: In contrary to the pediatric group, the number of cases diagnosed with allergic rhinitis increases as the number of cases diagnosed with H pylori infection reduces.

THE DIAGNOSTIC APPROACH AND MANAGEMENT OF COW'S--MILK PROTEIN ALLERGY IN INFANTS AND CHILDREN

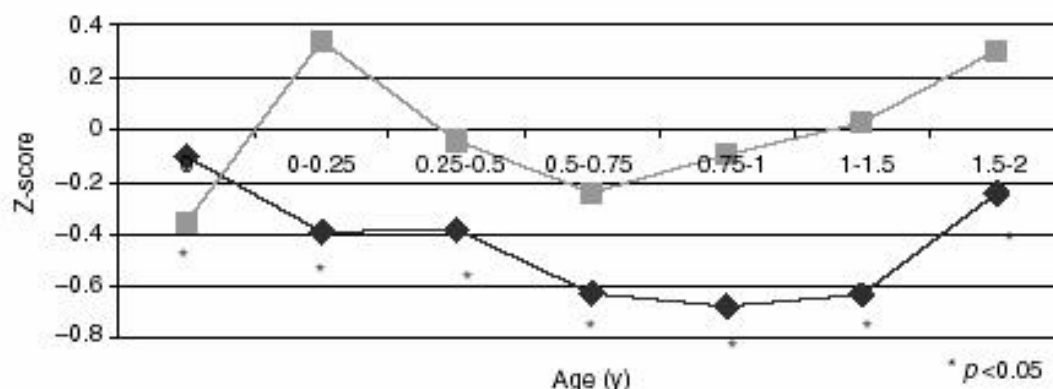
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Introduction: The cow's milk protein (PLV) represent a major cause of food allergy in infants and children (<3 years).

Epidemiology: The peak prevalence of a cow's milk protein allergy (CMPA) occurs in the first year of life (2--3% in the child population). The CMPA can also occur in nursing infants at the breast, because of the milk protein vaccines in the maternal diet that can pass into breast milk (1)

Clinical Presentation: The clinical picture of a CMPA can affect different organ systems, mainly the skin, the gastrointestinal system and respiratory system. The signs in the gastrointestinal tract may be attributable to an inflammatory reaction, with alterations in mobility visceral or both. For the most part it is a specific symptoms (reflux, dyspepsia, diarrhea, abdominalpain, severe, colickytype etc.). Sometimes the only sign of a CMPA in the child may be the detection of iron deficiency anemia. The growth failure is another specific sign which can be a serious consequence of a CMPA. About half of children with CMPA has an atopic eczema. Z-score of weight for age in children with atopic dermatitis and allergy to cow's milk protein and children with atopic dermatitis without allergy to cow's milk protein in the first two years of life (2)



The CMPA reduces the growth.

Diagnosis: If CMPA is suspected by history and examination, then strict allergen avoidance is initiated. In certain circumstances (eg, a clear history of immediate symptoms, a life-threatening reaction with a positive test for CMP-- specific IgE), the diagnosis can be made without a milk challenge. In all other circumstances, a controlled oral food challenge (open or blind) under medical supervision is required to confirm or exclude the diagnosis of CMPA.

Treatment: The rigorous exclusion of CMP remains the safest treatment strategy of CMPA. The possible need for an alternative formula depends on the age of the child and the possible presence of other food allergies. Children up to 1 year of age. The exclusion diet with the use of a therapeutic formula is indicated at least for 6 months or until the age of 9- 12 months. Children with severe immediate reactions to IgE--mediated must remain in exclusion diet for 12 or even 18 months before resuming a normal diet after repeat testing for specific IgE. The factors that determine the choice of the formulas used in a child include the residual allergenic potential, the composition of the formula, the cost, availability, satisfaction of the child and the presence of clinical efficacy. The formulas eHF and AAF proven induce normal growth and development of the child. Formulas eHF in CMPA.

The majority of children with CMPA tolerates an extensively hydrolyzed formula (eHF) with hydrolysates of casein or whey protein as the only source of nitrogen. FAA. The formulas based on free amino acids as the sole source of nitrogen are the best option in children responsive to eHF (<10% of all children with CMPA).

They should be considered the first-line treatment in children with a history of severe anaphylactic reactions and severe enteropathy (indicated by a ipoprotein or failure to thrive).

Conclusions: The CMPA is a common condition and is often not correctly diagnosed, in order to minimize diagnostic errors must be applied very strict criteria. The elimination of CMP and oral provocation tests are essential for an accurate diagnosis. The duration of A exclusion diet dependent on age, severity of symptoms and by a positive specific IgE test for CMP. By convention it is suggested that the challenge test with cow's milk no earlier than 3 months (eg in case of mild symptoms and IgE negative) and up to 12 months (eg. in case of severe symptoms and IgE positive) of therapeutic diet exclusion. If the challenge test is still positive, the diet is prescribed for another 6-12 months. If the test is negative, the cow's milk is reintroduced. The CMPA prognosis is generally good: about 50% of children develop tolerance within the first year of life, <75% within 3 years, and> 90% within 6 months. In order to avoid to unnecessarily prolong an exclusion diet, are necessary provocation test with PLV performed under the supervision of an experienced physician. The optimal time interval before re-evaluate the case depends on the clinical picture.

Biography:

1. Koletzko S. et al. Diagnostic approach and management of the cow's-milk protein allergy in infants and children. 2012; 55(2): 221--9
2. F.Savino et al. Acta Paed 2005

PP06

ESTROGENIC HEREDITARY ANGIOEDEMA

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Introduction: Estrogen-dependant (type III) is the rarest form of hereditary angioedema, often diagnosed with delay because of a heterogeneous clinical presentation. Before diagnosis, patients frequently present subcutaneous edema or abdominal pain during many years

Case presentation: A teenage girl of 14 years is admitted for acute swelling of face and feet with abdominal pain. She had been hospitalized several times -during 3 years- for similar conditions, misdiagnosed as acute glomerulonephritis or as severe viral infection. On clinical examination, the patient is on her first day of menses and is free from rash or pruritus. Serology evaluation of C4 and C1-inhibitor is negative; leading to the final diagnosis of type III HAE by pooling clinical and serological elements. "Wait and See" attitude was beneficial and the patient relieves within three days. Further expectation of attacks frequency and severity is needed before long-term prophylaxis.

Discussion: Classic -types I and II - forms of HAE are autosomal-dominant disorders, while no mode of inheritance has been determined yet for this uncommon type III HAE; Factor XII gene mutation is reported in 20% of patients. Its most distinguishable feature is the clinical phenotype as estrogen-dependent; with the serological phenotype corollary of normal C4 with normal C1 INH level and function. Different therapies are available but data is limited, C-1 INH replacement might be the best option.

Conclusion: HAE type III has no specific biological marker; it's diagnostic is mainly clinical, taking into account response to therapeutic test for this peculiar estrogenic form.

A URTICARIA LIKE NO OTHER: CAPS SYNDROME

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Introduction: The diagnosis of a prolonged febrile rash can be confusing, especially in North Africa for a pathology originally described as Nordic. We present an 8 year old child with a diagnosis of CAPS.

Materials & Methods: A 8 year girl consults in early autumn for fever and generalized rash since 4 days. Clinical examination revealed marked fatigue and dry cough. A radio thorax highlights a bilateral infiltrate with filling right of the cardio-diaphragmatic cul-de-sac. She is put under clarithromycin and antihistamine and a blood test is requested as an outpatient. Three days later, the girl is hospitalized for persistence signs marked with a CRP = 96mg / l serological results and neutrophilia 17000/mm³. During his stay, she has fever spikes usually nocturnal and during which a widespread urticarial rash is noted, responding quickly to 1 mg / kg of methylprednisolone. She also reported headache and arthralgia (knees and ankles) which disappear within few hours.

The temperature decrease with improvement in the general condition and disappearance of associated signs allow its release after 15 days.

Results: The diagnosis of CAPS (cryopyrin-associated periodic syndrome) is retained on its highly suggestive clinical. Unfortunately, genetic diagnosis could not be made so far.

Discussion: Autoinflammatory syndromes called cryopyrinopathies present with intermittent inflammatory symptoms and involve innate immunity through IL-1 beta and NALP/ASC/caspase-1 inflammasome. Three types CAPS are individualized: MuckleWells, NOMID CINCA & CAPS-cold urticaria. Age and the beginning of the season, the lack of dysmorphism, past symptomatology and family history are holding CAPS. The treatment is based on recent type of antagonist molecules of IL 1, a major cytokine in the induction of the inflammatory process. The risk of deafness and amyloidosis are less frequent than with Muckle Wells and NOMID.

Conclusion: The diagnosis of a febrile rash, including prolonged and associated with arthralgia and headache, is discussing the outset cryopyrinopathies. The latter benefit from innovative (and expensive) to clinical resolution & Biological and avoiding progression to amyloidosis.

PP08

ACUTE SUPPURATIVE PAROTITIS IN A 2-MONTH-OLD INFANT WITH SELECTIVE IGA DEFICIENCY

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Acute suppurative parotitis is rarely encountered among children especially in neonates and infants. Suppurative parotitis is characterized by swelling, pain, and erythema over the affected gland. The existence of purulent discharge from the Stensen duct when the parotid gland is externally compressed is pathognomonic, and the microbiological diagnosis can be made by culture of the purulent material.



Here, we present 2-month-old infant who presented with fever, unilateral swelling of the right parotid area with erythema, warmth, tenderness (**Figure 1**) and purulent discharge from Stensen's duct.

Culture of the exudate showed growth of *Staphylococcus aureus* and parotid gland ultrasound examination revealed a focal ill-defined echo poor area measuring 25x21 mm in diameter, within the otherwise normal gland parenchyma.

This lesion did not demonstrate fluid-filled area, calcification or posterior enhancement. Leukocytosis, elevated acute phase reactants and low IgA levels was detected in blood analysis. According to presented typical signs, symptoms and findings a diagnosis of acute suppurative parotitis with selective IgA deficiency was made.

PP09

COMMON ASTHMA MISCONCEPTIONS: A LITTLE KNOWLEDGE DOES A LOT OF DAMAGE

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Over the last decade, there's been a sustained drive to help patients to make informed decisions. People with chronic medical problems like Asthma have been particularly targeted, enabling them and their care givers to take responsibility for much of their own healthcare. Adult Asthma patients and parents of asthmatics take an enormous range of odd beliefs with them as they shuttle between clinic appointments, their friends, and the internet, but this is not unique to patients and their parents but we as physicians share some of this misconceptions, both groups have had poor knowledge about the treatment of asthma emergencies, asthma triggers (particularly aspirin and food additives), the utility of allergy tests and swimming and room vaporizers in the control of asthma, it is therefore very important to identify both groups (Patients/Parents and Physicians) for health education to be successful. Gaps in knowledge of crisis management common to both groups are particularly disturbing given that asthma is a common disease with significant preventable mortality and morbidity (A Little Knowledge does a lot of Damage). It is clear that without clearing common misconceptions about Asthma in the general population as well as in the medical profession we will not be able to have the desired results managing Asthma, which requires adequate adherence to many recommendations, including therapy, monitoring of asthma control, avoidance of environmental triggers, and attending follow-up appointments. A clear picture of where to improve in the management of Asthma will emerge from understanding these common misconceptions.

AUTO-INFLAMMATORY ARTHRITIS

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Introduction: Among the rare childhood arthritis causes, we report two cases in which the panel is characterized by signs of a very evocative frequency of so-called "Auto -inflammatory "syndromes.

Material & method: case 1: A 10 year old boy was admitted for acute recurrent outbreaks in recent months, made of febrile abdominal pain, arthralgia of the left ankle & knee and macular rash. A similar crisis is authenticated during hospitalization, and concomitant assessment found neutrophilic leukocytosis = 12 000/mm³, with a CRP = 24 mg / dl. This stereotyped clinical sequence, associated with biological signs spontaneously resolved in 48 hours, the Algerian origin (Mediterranean) and parental consanguinity, is almost pathognomonic of the Periodic Disease case 2: The small S, 8 years, consults in early autumn for fever and generalized rash since 4 days. She also reported arthralgia (knees and ankles) concurrent, resolving spontaneously within a few hours. The diagnostic tests revealed a small right pleural effusion in radiology, biology, CRP = 96mg / l and neutrophilia 17000/mm³. The diagnosis of CAPS (cryopyrin - associated periodic syndrome) is retained on the intermittent clinical procession in the cold season, and the more so because the mother has symptoms close.

Results & Discussion: Autoinflammatory syndrome (IBS) are due to a lack of innate immunity , in contrast to autoimmune diseases where disorder involves adaptive immunity. Arthralgia / arthritis are at the forefront of the common cardinal signs of IBS. - The first case cited is the most common of these syndromes: Periodic disease or familial Mediterranean fever autosomal recessive disease (OMIM 608107, MEFV gene on 16 p 13) responding very well to colchicine - The second case is much less common: a family cold urticaria called cryopyrin - associated periodic syndrome (CAPS), the group of cryopyrinopathies involving the innate immunity through IL-1 beta and the inflammasome NALP/ASC/caspase-1, wich treatment is based on anti-IL 1.

Conclusion: The joint is often at the forefront of inflammatory random access, during a limited time that characterize the Autoinflammatory Syndromes. Pulling different symptoms is the pillar of such diagnosis, although rare, of transient arthritis.

IN THE STUDY OF THE PEDIATRICIAN: CAN YOU ASSES THE SEVERITY OF THE ATOPIC DERMATITIS (DA)? AND CAN YOU MONITOR THE DA? AND THIS COULD BE DONE BY THE PARENTS TOO?

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Paidòss, Italy

Introduction: Atopic Dermatitis (AD) is a widespread common skin disease with a frequency peak in infants. This has an important role on the life's quality of children and their families

Background: And is possible to assess and monitor the severity of atopic dermatitis by the pediatrician and by the parents?

Methods: A total of 18 family paediatricians has participated in this study and they have been properly trained in the use of the SCORAD and Po-SCORAD. We enrolled 119 males and 103 females with atopic dermatitis aged 3 months to 14 years (61.2% were 3 to 12 years). All were assessed for severity of atopic dermatitis through the SCORAD performed by the pediatrician and the Po-SCORAD executed by the parent. The extension of the atopic dermatitis was calculated using a PC software (ScoradCard) for both the SCORAD and for Po-SCORAD, this to cancel the interindividual variability. The data were processed using software Epi Info CDC vers.55.1

Results: For the extension was referred to score classes: <5, 5 - <10, 10 - <15, 15 - <25, 25 - <40, 40 onwards. There are no significant differences in the extension. For the intensity of the symptoms, was referred to score classes: <5, 5 - <10, 10 - <15, 15-18. In absolute terms, the Po-SCORAD score was higher in the class and score 10 - <15 there was a score of + 3.38 compared to the same class of the corresponding SCORAD. For subjective symptoms, was referred to score classes: <5, 5 - <10, 10 - <15, 15-20. In absolute values, the Po-SCORAD score was higher in the class and score 10 - <15 has had a score of + 4.05 compared to the same class of the corresponding SCORAD. The final score of the Po-SCORAD was higher in Po-SCORAD compared with the SCORAD

Conclusion: the data suggest that:

- 1) Po SCORAD is quickly learned and executed by the parent
- 2) There is a good correlation between SCORAD and Po-SCORAD
- 3) The major differences are highlighted on subjective symptoms
- 4) Parents evaluate in a more severe atopic dermatitis

Cardiology PP12

CONGENITAL ANOMALIES AND GENETIC DISEASES ARE COMMON ASSOCIATION OF PEDIATRIC PULMONARY HYPERTENSION (PH) IN A TERTIARY CARE CENTER IN SAUDI ARABIA

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Objective: To identify the different congenital anomalies that are associated with in referred cases to the Pediatric Pulmonary clinic in a tertiary care center in Saudi Arabia.

Methods: Retrospective chart review of all referred patients to pulmonary clinic with documented PH based on cardiac catheterization and or Echocardiogram during 10 years period (Jan 2001- Dec 2011).

Results: A total of 150 patients with confirmed PH. Mean age at diagnosis 3.2 years. 141 (94%) patients were PH and associated disease and 9 patients (6%) due to idiopathic PH. PH in association with Congenital anomalies and Genetic diseases were found in 95 (63%) of patients. Of the most common genetic diseases were: Down syndrome in 63 (42%) of the total PH population, Known syndrome in 15 (10%), as Holt-Oram syndrome, CHARGE association, and maple syrup urine disease. un- known syndrome were found in 17 (11%) such as patients with multiple congenital anomalies, Skeletal Dysplasia, chromosomal abnormalities and central nervous system diseases. 34 patients (23%) due to lung diseases and lung anomalies such as lung hypoplasia, congenital lobar emphysema and diaphragmatic hernia. Combination of Gastrointestinal anomalies and kidney diseases in 6 (4%) patients and malignancies in 6 (4%).

Conclusions: Congenital anomalies are common association in patients with Pulmonary hypertension. Recent classification should include congenital anomalies as part of the Pediatric classification.

PP13

RIGHT PULMONARY ARTERY AGENESIS IN AN INFANT WITH CHROMOSOMAL ABNORMALITY, DELITION 18Q21 - A CASE REPORT

Jerzy Adam Targonski¹; Irena Juhnke-Targonska²; Lungile Pepeta³

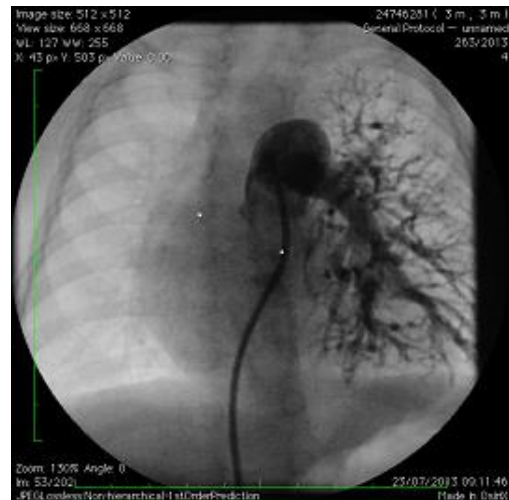
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Introduction: Unilateral pulmonary artery agenesis (UPAA) is a rare congenital anomaly due to a malformation of the sixth aortic arch of the affected side during embryogenesis. Absence of right pulmonary artery (RPA) may have a variable presentation. The diagnosis can easily be missed in infants. UAPA may occur in isolation or in association with congenital heart disease-most commonly, tetralogy of Fallot--and VSD. It is more likely to affect the right than the left PA because it often involves the PA contralateral to the side of the aortic arch. **Purpose:** We present a rare case of agenesis RPA in an infant with chromosomal abnormality - delition 18q21,

Material and Methods: A 2-month-old female presented to regional hospital with a 2-week history of progressive shortness of breath. On examination she looked well nourished, saturation in room air was 97%, and blood pressure



75/45 mmHg. She had moderate tachypnea, normal first and accentuated second heart sound, and grade 3/6 pansystolic murmur all over the precordium. Chest radiogram at presentation showed cardiomegaly with shift of the heart to the right and reduced vascularity of the right lung and a plethoric the left lung. In echocardiogram the right PA could not be visualized and the main and the left PA were dilated. The right heart was enlarged. There was tricuspid valve regurgitation and Doppler velocity predicted pulmonary artery hypertension (PHT). Computed tomography of the chest showed absent RPA. PA angiography confirmed the congenital agenesis of RPA, and major aorto-pulmonary collateral artery (MAPCA) supplying the right lung, PDA, and severe PHT (image 1). Chromosome analysis of peripheral blood metaphases revealed the karyotype as 46, XX, del 18q21 but the clinical features of this chromosomal abnormality were not present. **Conclusion:** This is first report of RPA in an infant with the karyotype 46, XX, delition 18q21

Children's Environmental Health

PP14

KNOWLEDGE AND OPINION OF SAUDI FEMALE SCHOOL TEACHERS ON PHYSICAL EXERCISE FOR CHILDREN

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Introduction: Physical exercise is essential for everyone. Evidence from the literature suggests that the advantages of physical exercise particularly in children is far more than physical benefits, it can improve the children's concentrations, school performance, and the child self-esteem. However, the current literature shows a huge increase in the prevalence of physical inactivity and sedentary lifestyle. Thus, this research is aiming to explore some of possible barriers behind physical inactivity in female students and to estimate the need for further educational programs by assessing the female teachers' level of knowledge about physical exercise for girls.

Method: A cross-sectional survey by distributing a questionnaire was used for data gathering in this research.

Results: The results showed that the majority of the participants believe that physical exercise for children is important and that girls should have physical exercise classes at school. However, the results indicate that the teachers' levels of knowledge regarding physical exercise recommendation for children are low. Additionally, it illustrates some of the suggested barriers of regular physical exercise performance in children such as lack of social and parental support, children's low interest in physical exercise, and the lack of sports facilities that is suitable for young girls.

Conclusion: It can be drawn from the study finding that there is an urgent need to improve the gaps noticed in the teachers' knowledge and perception of physical exercise activities in youth. Additionally, In order to improve the girls physical exercise practice, the Saudi government together with the school authorities must ensure the availability and the affordability of suitable sports facilities and centers for girls in different age groups at their schools and in each Saudi city.

Gastroenterology, Nutrition & Metabolism

PP15

HELICOBACTER PYLORI INFECTION AND GASTROESOPHAGEAL REFLUX IN CHILDREN

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Background and aims: Some studies suggests that Helicobacter pylori infection would be a protective factor for the gastroesophageal reflux. The aim of this study is to explore this fact.

Methods: A group of 72 children, admitted in a pediatric gastroenterology regional center in northeast Romania, diagnosed with gastroesophageal reflux by 24 hour continuous esophageal pH monitoring (results were interpreted using the Boix Ochoa score), underwent upper endoscopy with gastric biopsy.

Results: 19 children (26.39%) had Helicobacter pylori infection, while 53 (73.61%) did not. Out of 47 children with esophagitis I, 16 (34.04%) had H. pylori infection, while out of the 25 children with esophagitis II, only 3 (12%) had H. pylori infection, with statistical significance ($\chi^2=54.69$, $p<0.05$, 95%CI). Regarding the value of the Boix Ochoa score, it appears that the presence of the Helicobacter pylori determines lower pHmetry scores ($F=8.13$, $p=0.0015$, 95%CI).

Conclusions: The presence of the Helicobacter pylori was not an important factor in the gastroesophageal reflux. On the other hand the relation with esophagitis appears to be inverse ratio. The fact that the Helicobacter pylori presence is statistically greater in the I-st degree esophagitis could confirm the hypothesis that the bacteria would slow down the development of the esophagitis.

PP16

DEVELOPMENT AND DEBUT OF A PAEDIATRIC CLINICAL EATING MALFUNCTION

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Abstract Background: This Project is an ongoing registry study made up of a sequential cross-sectional sample prospectively recruited over 17 years, and is designed to answer empirical questions about paediatric eating disorders. This paper describes the registry sample to-date, and discusses future directions and challenges and accomplishments. The project and clinical service were established in a tertiary academic hospital in Western Australia in 1996 with a service development grant. Research processes were inbuilt into the initial protocols and data collection was maintained in the following years. Recognisable progress with the research agenda accelerated only when dedicated research resources were obtained. The registry sample consists of consecutive children and adolescents assessed at the eating disorder program from 1996 onward. Standardised multidisciplinary data collected from family intake interview, parent and child clinical interviews, medical review, parent, child and teacher psychometric assessments, and inpatient admission records populate the database.

Results: The registry database to-date contains 941 assessments, of whom 685 met DSM-IV diagnostic criteria for an eating malfunction at admission. The majority of the sample were females (91%) from metropolitan Perth (83%). The cases with eating disorders consist of eating disorders not otherwise specified (68%), anorexia nervosa (25%) and bulimia nervosa (7%). Among those with eating disorders, a history of weight loss since illness onset was almost universal (96%) with fear of weight gain (71%) common, and the median duration of illness was 8 months.

Conclusions: Over the next five years and more, we expect that this will make a strong scientific contribution to paediatric eating disorders research and will have important real-world applications to clinical practice and policy as the research unfolds.

ASSESSING THE FREQUENCY OF ENDOCRINE DISORDERS IN CHILDREN SUFFERING FROM CHRONIC HEPATIC DISEASE

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Introduction: Chronic hepatic diseases are usually accompanied with several complications. Most of children with chronic liver diseases commonly suffer from poor growth, short stature, low bone density, and spontaneous fractures. Therefore, well-timed detection and treatment of these complications might lead to improvement of the general health condition and quality of life. Purpose: This study conducted to evaluate the endocrine disorders in children suffering from chronic hepatic diseases.

Methods and Materials: Fifty-five patients (1-18 years old) with chronic hepatic disorders were included in this descriptive study. After taking the informed-consent from parents, a questionnaire containing demographic information and the disease specifications (including both subjective and objective) was completed. Five ml fasting venous blood sample provided from each patient consequently. The level of thyroid, parathyroid and growth hormones, IGF1, calcium, phosphate, as well as albumin and total plasma protein were assessed. After age adaptation of data, statistical analysis was performed, using SPSS. P<0.05 was considered as significant level.

Results: The serum level of IGF1 was decreased significantly in these patients. 28% of patients had higher PTH levels and 24% had lower phosphate levels compared to the normal ranges. The level of Thyroid hormone was in normal range for all patients, while for the other evaluated factors, the deviations were not significant. 33% of children had fractures during the study or during the last two years before the study.

Conclusion: Children with chronic hepatic diseases are growth hormone-resistant and are prone to decrease in bone minerals content and subsequently bone fractures. Frequent checking of plasma hormones especially Growth Hormone and Parathormon is highly recommended in these patients.

FOOD ALLERGIES IN CHILDREN'S POPULATION

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Goal: Goal of our research is determination of the peculiarities of formation of local immunity of intestines in prematurely born children receiving various types of feeding: protected from food allergies, breast feeding with additives, specialized mixture for the premature children.

Materials and methods: research was conducted through questioning of random and representative groups of patients (with specially developed questionnaire), by means of one-stage epidemiological research with cross-section method. Selection was provided by simple random method. Research stage included 567 children from 0 to 3 years (322 girls and 245 boys); children's population was divided into two groups: prematurely born and normally born children groups (201 prematurely and 366 normally born) whose parents have given positive answers to the questions of questionnaire and who had the signs of food allergy identified in result of ongoing research caused by lack of attention from the side of parents. Statistical data processing was provided by SPSS12 software.

Research results: together with the children with non-infectious prenatal pathologies (hypoxic-ischemic disorders, general hydrops fetalis, conjugated jaundice) there were presented children with infectious-inflammation diseases (pneumonia, omphalitis, phlebitis of umbilical vessels, conjunctivitis, and otitis). All children were divided into two groups based of types of feeding and clinical condition: absence of infectious-inflammation diseases, some prematurely born children had infectious-inflammation diseases, with sIgA, together with IgA, at the same time, in non-infectious groups some children had immunoglobulin concentrations exceeding the relevant indicators of children in infectious group ($p<0.001$); all children with breast-feeding showed increased local immunity, compared with the artificially fed children ($p<0.05$), 0.5% of artificially fed children showed atopic dermatitis, gastrointestinal disorders were identified in 16.9% of cases.

Conclusion: thus, condition of intestine local immunity in prematurely born children depended on age, health status, type of feeding, endogenous sIgA. In breast-fed children, irrespective of their health condition, content of immunoglobulin increase significantly with age. No side effects and negative responses were identified in premature breast-fed children receiving additives $p<0.0$

PP19

IMPACT OF EARLY COMMENCEMENT OF BREAST FEEDING ON FURTHER FEEDING PRACTICES

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Goal: our goal was evaluation of impact of early initiation of breast feeding on further feeding practice at Tbilisi maternity hospitals (repeated research).

Materials: research was conducted at maternity hospitals, through selective and simple randomized method. Based on special questionnaire, we selected mothers of 256 newborn children: 169 girls and 87 boys. Study map included medical-biological factors of mother, time of breast feeding beginning, feeding type, skin-to skin contact, duration, vaccination, presence of jaundice and its duration, RH blood group, umbilical discharge, presence of sepsis clinical signs etc. 256 children were periodically monitored for 8 months. 189 children were breast-fed for up to 6 months and 36 children were mostly fed artificially from 2 months age, 31 children -from 3 months age, because of absence of milk.

Research Results: 89.2% of children were breast-fed as required, 19.9% received other food, in addition to mother's milk; skin-to-skin contact was indicated in 61.4% of cases. Artificially fed children were characterized with higher morbidity, compared with the naturally fed ones. Among artificially fed children, ARVI frequency was 8.2%, diarrhea - 5.3%, compared with 2.3% and 1.9%, respectively, in breast-fed children. Statistical processing of research data was provided with SPSS V/12 software.

Conclusion: artificial feeding not only poses risk to child's health but it also drastically increases costs. In result of the research we may offer that early commencement of breast-feeding at maternity hospitals and its proper technique would contribute to continuing breast-feeding up to 8 months age ($p<0.05$) and significant reduction of morbidity.

PP20

HOW TO EXCLUDE CELIAC DISEASE AND FREE DIET VIA HLA TYPING IN A DIFFICULT-TO-MANGE CASE

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Intorduction: Celiac disease is an autoimmune disease that occurs in genetically predisposed people. We present the case of a long follow-up for celiac disease (without improvement) child in whom HLA typing has definitively exclude the diagnosis.

Case Presentation: A 13 year old boy has been followed for more than 4 years for failure to thrive, which is due to celiac disease. In the laboratory tests, we did not find any marks of malabsorption. Celiac serology made there one year was positive, including IgA Anti Transglutaminase tissue (tTG). He received three high digestive endoscopies the last 4 years with duodenal - jejunal biopsies showing partial villous atrophy without cryptic enlargement which is why he was put under gluten-free diet. HLA typing (Human Leukocytes Antigens) in search of genes DQ 2 DQ 8 is requested; along with a new antibody titration the results are unambiguous: no genetic susceptibility, reinforced by a negative serology for all antibodies. The diet of the child has been released, and after just 6 months, he has a considerable weight gain (7kg+), being free of any gastrointestinal symptoms. Discussion: Among the genes implicated in the CD , those of HLA represent a necessary condition, but non - sufficient by itself to trigger the disease These include genes DQ DQ 2 & 8 (6p21 3) and 2 respectively present in 96-97 % of celiac disease. The high Negative Predictive Value (nearly 99%) of this genetic test is used to remove virtually any risk of disease life long, and leading thus a gain in cost and quality of life.

Conclusion: Susceptibility HLA DQ2/DQ 8, closely linked to CD pathophysiology, is recognized as a sine qua non for its appearance. It is therefore an important tool to confirm or refute the diagnosis in such doubtful cases.

PP21

HELICOBACETR PYLORI REVEALIN A "LATENT" CELIAC DISEASE

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Introduction: The spectrum of gastrointestinal infections associated or simulating celiac disease is growing day by day. Among them, Helicobacter pylori induces gastroduodenitis sometimes associated with a transient shift of celiac serology.

Description of the case: The child GR, 4 year old daughter, clinically unscathed but her parents fear (like his cousin) gluten intolerance.

The anti-tissue transglutaminase and anti-endomysium antibodies, requested in an outpatient clinc are positive.

Results: The results of malabsorption biological screening appear normal, a new serology is redone and still slightly positive (20 IU) and HLA typing confirms the DQ-genetic predisposition. The upper gastrointestinal endoscopy finds no endoscopic stigma of intolerance to gluten but isolated gastroduodenitis.

The pathological specialist noted no villous atrophy but Helicobacter pylori inflammation. Triple therapy is set with gluten-containing diet After 1 year of follow-up, her serology were négativée and remains free of clinical signs.

Discussion: The frequency of silent CD with Hp (+) was previously reported, in females as our girl. In such situations, most authors do not advocate gluten-free diet at first, but the risk of CD requires regular monitoring

Conclusion: The spectrum of infectious associations with celiac disease (whether overt or silent) includes several germs, including Helicobacter pylori. The possibilty that it acts as a trigger potential requires close monitoring of the patient.

General Paediatrics

PP22

IS HIGH PREVALENCE OF VITAMIN D DEFICIENCY A CONTRIBUTORY FACTOR FOR ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN AND ADOLESCENTS

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Introduction: Attention Deficit Hyperactivity Disorder (ADHD) may affect all aspects of a child's life. It is a common disorder among school aged children leading to disruptive behaviors and reduced academic achievement at school. Since The pathophysiology of ADHD is complex and not well understood, moreover we are seeing lots of cases with Vitamine D deficiency. We thought of a distinctive study to compare the vitamin D level among children and adolescents with ADHD and a control group, The aim of this study was to use a case-control design to investigate whether there are differences in serum vitamin D levels between children and adolescent with attention deficit hyperactivity disorder and control healthy children age 5-18 years old.

Aim: To determine whether there is a difference in level of vitamin D in children and adolescents with attention deficit hyperactivity disorder and control.

Design: Case-control study **Setting:** School Health and Primary Health Care Clinics

Methods and subjects: A total of 1,331 children and adolescents who were diagnosed with ADHD based on clinical criteria and standardized questionnaires were enrolled in this study, and were matched with 1,331 controls, aged 5-18 years old. Data on BMI, and biochemistry variables including serum 25(OH) vitamin D were collected, and compared among the 2 groups.

Results: There were statistically significant differences between children and adolescents with ADHD and healthy control subjects with respect to BMI ($p<0.001$). There was a significant difference found in the mean values (\pm SD, in ng/ml) of vitamin D between ADHD (16.6 ± 7.8) and control children (23.5 ± 9.9) ($p<0.0001$). Mean values of calcium and phosphorous were also significantly higher among controls than ADHD children ($p<0.001$). There was significant correlation between vitamin D deficiency and age ($r=-0.191$, $p=0.001$); calcium ($r=0.272$, $p=0.001$); phosphorous ($r=0.284$, $p=0.001$); magnesium ($r=0.292$, $p=0.001$); and BMI ($r=0.498$, $p=0.001$) in ADHD children. 19.1% of ADHD children had severe vitamin D deficiency (< 10 ng/ml), 44.9% had moderate insufficient levels (between 10-20 ng/ml).

Conclusion: The vitamin D deficiency was higher in children and adolescents with ADHD as compared to the control group and supplementing children with vitamin D might be a safe and effective strategy for reducing the risk and burden of ADHD.

PP23

RISK FACTORS FOR THE SEQUELAE OF MENINGOENCEPHALITIS SYNDROME IN HOSPITALIZED CHILDREN

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Introduction: Meningoencephalitis syndrome (MES) is an emergency infectious disease with high mortality and lifelong neurological sequelae.

Purpose: The objective of study was to identify and evaluate the impact of risk factors in the outcome of the disease.

Materials and Methods: The study was conducted in children ward of Khulna Medical College Hospital for a period of two years from 2007 to 2009. All the admitted children between 1 month to 12 years and satisfying the case definition were enrolled in the study. Cerebrospinal fluid (CSF) was collected urgently from each patient for macroscopic view before sending it to laboratory for cytology and biochemistry.

CSF was tested for common bacterial antigen and along with serum it was also tested for Japanese encephalitis virus antibodies.

Results: One hundred and forty children were inducted in the study which constituted 2.5% of total admission. Infants (29.3%) were the worst sufferers. Twenty one (15%) children of MES died which is 4 times higher than the overall mortality (3.8%) in paediatrics ward ($p < 0.001$). Mortality from pyogenic (14.2%) and nonpyogenic (18.4%) variety was not significantly different. Among the 11 bacteria positive cases one died from *S. Pneumoniae*. Seven prognostic factors were compared between the dead and survivors. Low GCS score ($p = 0.049$) and short hospital care ($p < 0.001$) were significantly associated with higher mortality. Eighteen (12.9%) cases in this series developed neurological sequelae. Paralysis (27.3%) was highest in frequency followed by hydrocephalus (22.7%) and involuntary movements (13.6%). Number of sequelae was significantly higher in pyogenic (44.4%) meningoencephalitis in comparison to nonpyogenic (13.5%) variants (OR=3.30, 95% CI: 1.08-10.01, $p = 0.030$).

Conclusion: Mortality from MES was 15%. Motor deficit and hydrocephalus were dominant sequelae. Low GCS score and delayed hospitalization was predictable for higher fatality.

PP24

INAPPROPRIATE USE OF ANTIBIOTICS IN THE TREATMENT OF PHARYNGO-TONSILLITIS IN CHILDREN IN KHARTOUM, SUDAN

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Introduction: Pharyngo-tonsillitis represents a major public health problem all over the world because it is one of the most common childhood illnesses seen by pediatricians. The causative organisms are many, viral causes represent the majority, followed by group A β -hemolytic streptococci. The impact of using antibiotics in the management of acute tonsillitis has been investigated in many recent studies in Sudan and showed alarming results for antibiotics over prescription.

Purpose: The aim of this paper is to present the appropriateness of using antibiotics in the treatment of acute tonsillo-pharyngitis in Jaafar Ibn Auf hospital and the proportion of antibiotics prescription.

Materials and Methods: A cross sectional hospital based study was conducted in the period January to August 2012 in Jaafar Ibn Auf hospital, the largest tertiary pediatrics hospital in Sudan. The sample size was 100 including children aged 2-17 years. Data were collected after taking informed consent from children and their parents for both examination and pharyngeal swab. All participants were assessed clinically and subjected to a structured questionnaire. A pharyngeal swab was collected at presentation from tonsils and posterior pharynx and immediately transported to the laboratory in a char cool medium. Culture was performed in blood agar media, Gram staining was done first, and then Group A Beta hemolytic streptococci were isolated and identified by their growth characteristics. Data were analyzed by SPSS Programme.

Results: The study showed that the estimated prevalence of Group A Beta hemolytic streptococci tonsillitis and/or pharyngitis is 22%, and the proportion of antibiotic prescription was 100%. Penicillin and Aminopenicillin were prescribed for 30%, Amoxicillin and Clavulinic acid for 51%, and Erythromycin, Clarythromycin, Azithromycin and Cephalosporins for the remaining 19%. The duration of treatment varied from 1-10 days, but only 18% received the treatment for the appropriate duration.

Conclusion: Most children were treated inappropriately regarding the need for using antibiotics, the type of antibiotics used and the duration of management. As many studies suggested that increased using of antibiotics may be due to uncertainty of diagnosis, requesting pharyngeal swab for culture can contribute to the reduction of the rate of antibiotics prescription.

THE BIG STUDY: A STUDY EXPLORING MET/UNMET NEEDS OF CHILDREN AND YOUNG PEOPLE WITH LIFE THREATENING/LIFE LIMITING ILLNESS AND IMPLICATIONS FOR SERVICE PROVISION

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Introduction: Children and young people with life-threatening or life-limiting conditions and their families have complex needs requiring specialist skills and services provided by a range of organisations in health, social care, education and voluntary sectors. Against a backdrop of growing international evidence around survival of children and young people with complex conditions, the first major research project in the UK was awarded, known as The Big Study, to the charity Together to Short Lives and five university partners. The aim was to explore service provision, in the West Midlands area, UK, a large geographical region of UK with strong networks, variety of types of services and diverse ethnic communities.

Purpose: This presentation shares innovative methods and findings concerning met/unmet needs in terms of end of life provision and care of children, young people and their families.

Aims include:

1. Identification of need for end of life/palliative care within the West Midlands, UK area and relate to international data
2. Share met/unmet needs of service provision for children, young people and families
3. Explore broader financial, social and emotional support alongside the need for responsive specialist therapies and the global challenge of the cost of care to providers and families

Methods: Following ethical approval the study took place from July 2011 to March 2012. Methods included surveys, interviews to explore views of children, young people and parents, professional network analysis and economic analysis. User-perspectives underpinned the approach to data collection and analysis of each strand. Sampling took place through paediatricians and nurses. Sample sets included 1180 questionnaires and 51 family interviews (including 18 children and young people).

Results: Results highlighted that specialist services such as children's hospices were highly praised and short breaks well received. Children, young people and families felt medical/nursing needs were well met, but provision is needed for broader financial, social and emotional support alongside the need for more responsive specialist therapies. Poor communication and coordination between services was also highlighted.

Conclusions: The Big Study raised many questions for future international provision and the need for further research in meeting this growing global challenge.

CLINICAL COURSE OF PATIENTS WITH SYSTEMIC RIGHT VENTRICLE

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Introduction: Patients with biventricular circulation in whom the right ventricle is the systemic ventricle (SRV) may have various complications and each patient benefits from specific therapeutic solutions.

Purpose: Monitoring the clinical (weight, height, exercise tolerance etc.), echocardiographic parameters (systolic and diastolic functions were measured by 2D echocardiography, 2D guided M mode, color and pulsed Doppler) and therapeutic aspects in patients with SRV.

Materials and methods: Twenty-two children with SRV were monitored over a period between 1 and 6 years. The subjects were divided into three categories: 1) D-transposition of the great arteries (TGA) with arterial switch, 2) D-TGA with atrial switch, 3) congenitally corrected TGA. A clinical, biological and echocardiographic study was performed quarterly and the results were processed and correlated.

Results: Of the 22 subjects, 20 had D-TGA associated with cardiac malformations and 2 had congenitally corrected TGA. Of the patients with D-TGA, 17 had arterial switch in the neonatal period and 3 had atrial switch after 4 months of life. The evolution of the subjects operated in the neonatal period was marked by two important complications in the early preoperative period (acute hydrocephalus - 1 patient, peritonitis-1 patient). The other patients had a favorable evolution. Subjects with D-TGA who had atrial switch developed complications: supraventricular rhythm disorders and right ventricular dysfunction. The clinical evolution of patients with congenitally corrected TGA was marked by late heart failure. Medical therapy was intended for complications and was performed according to AHA protocols.

Conclusions: Children with SRV of D-TGA etiology with early arterial switch have a favorable long-term clinical and imaging evolution. The evolution of subjects with SRV through D-TGA with atrial switch correction and of those with congenitally corrected TGA is marked by complications.

VIROLOGY ASSOCIATED WITH LUNG CONSOLIDATION IN INFANTS AND CHILDREN WITH ACUTE BRONCHIOLITIS

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Introduction: Bronchiolitis, a lower respiratory tract infection that primarily affects the small airways (bronchioles), is a common cause of illness and hospitalization in infants and young children. Although several Studies suggest that radiographs in children with typical bronchiolitis have limited value, chest x ray still performed on routine basis. There is limited data regarding which viral-associated bronchiolitis has the highest rate of consolidation on a Chest Radiograph.

Purpose: The purpose of our study is to determine which virus inducing bronchiolitis has the highest rate of consolidation of a chest radiograph.

Materials and methods: A retrospective and descriptive study was conducted at Hamad Medical Corporation (HMC). Infants and children ages 0 to 18 months hospitalized in our pediatric unit with acute bronchiolitis from October 2010 to March 2013 were included in the study. The following data were collected: age at diagnosis, sex, direct fluorescent antibody (DFA) and results of chest radiograph.

Results: the study comprised of 838 infants, median age 3.6 months, and boys constituted 60% of total infants. 606 infants and children had a routine chest radiograph done in the pediatric emergency center prior to admission. N=226, 37.3%, showed normal findings on chest radiographs, while n= 380, 62.7% showed consolidations. 70 chest radiographs (18.4%) with consolidation were attributed to infants and children with bronchiolitis and negative DFA.

The results of positive DFA associated with consolidation on chest radiograph were as follow: Respiratory Syncytial Virus (RSV) 161, 42.4%; rhinovirus 68, 17.9%; Human metapneumovirus (hMPV) 25, 6.6%; parainfluenza virus (type 1) 3, 0.8%; parainfluenza virus (type 2) 2, 0.5%; parainfluenza virus (type 3) 15, 3.9%; parainfluenza virus (type 4) 4, 1.1%; coronavirus 11, 2.9%; adenovirus 10, 2.6%; enterovirus 3, 0.8%; bocavirus 5, 1.3%; H1N1 2, 0.5%; Influenza virus B 1, 0.3%. There was no statistically significant difference relating chest consolidation with DFA status, $p = 0.773$

Conclusions: Bronchiolitis can be triggered by a diversity of respiratory viruses that appear similar on a chest radiograph; therefore, chest imaging is not routinely required in the initial management of bronchiolitis unless the diagnosis is uncertain.

PP28

THE EMERGENCY ROOM MORBIDITY MORTALITY PATTERN OF 5-16 YEAR OLD CHILDREN: A UNIVERSITY TEACHING HOSPITAL EXPERIENCE

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Introduction: Mortality in children under 5 is mainly due to vaccine preventable disease. Reports for some developed countries on the diseases of children older than five years show a burden of non-communicable diseases. In developed nations however with most routine immunizations not covering children over 18 months, coupled with the persistence of poverty, malnutrition and adverse environmental conditions, children who 'escape' death in the first five years of life are still under threat of death

Purpose: This study was undertaken to determine the common presentation and morbidity/mortality pattern of children 5-16 years presenting in the emergency paediatric unit of University of Abuja Teaching Hospital.

Material and method: This retrospective study reviewed admission registers and case notes of children aged between 5-16 years admitted into the emergency paediatric unit from January 2008-August 2012. Data on demography, presenting problems, disease diagnosis and emergency room outcomes were abstracted and entered in Microsoft EXCEL. Data is presented in percentages.

Result: A total of 4178 children were admitted during the period, 23.7% (994) were aged 5-16 years. Malaria was the commonest infectious disease diagnosed in 208 (20.9%) with severe malaria accounting for 60% of cases. The commonest chronic condition presenting was sickle cell anemia (14.5%). The commonest vaccine preventable disease was tetanus (4.6%). Mortality was 10.2% and this was highest in tetanus (22.7%), sickle cell anemia complications (14.8%), and cerebral malaria (11.8%). The highest case fatality rate was in tetanus (50%). Mortality was highest in children age 5-7 (42.1%) and infectious diseases claimed the most mortalities, cerebral malaria being the highest (18.6%) followed by tetanus (13.9%). Among older children tetanus had the highest mortality (28.8%) followed by complication of sickle cell anemia (20.3%).

Conclusion: Vaccine preventable, are still a leading cause of death in children over 5 years. Control of these diseases and improved care of chronic condition will reduce morbidity and mortality.

ACUTE CONJUNCTIVITIS IN PEDIATRIC PRIMARY CARE: AN OBSERVATIONAL STUDY ON BACTERIAL SENSITIVITY AND RESISTANCE

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Introduction: Acute conjunctivitis is a common condition often treated with antibiotic eye-drops even without evidence from an ocular swab.

Purpose. We deemed it necessary to verify the etiology of pediatric conjunctivitis, the possible bacterial resistance and the tolerability and efficacy of the treatments.

Materials and Methods: All the children in the care of family pediatricians, suspected of having bacterial conjunctivitis were submitted to an ocular swab. The conjunctivitis was then treated according to the pediatrician's usual practice (time elapse, simple cleansing, antibiotic eye-drops). After 7 days the child was checked again.

Results: 179 children between the ages of 7 days and 11 years were recruited. 99 swabs gave positive results (8 with the presence of two distinct bacteria); *Haemophilus influenzae* was found in 76. The bacteria were sensitive to all the tested antibiotics, with the exception of 16 showing resistance. 40 cases of conjunctivitis cleared up with simple cleansing; antibiotic eye-drops were used in the other cases and in 11 cases a general antibiotic treatment was also necessary because of concomitant diseases such as rhinosinusitis and otitis. Local tolerance to the eye-drops used was good.

Conclusions: Conjunctivitis is a cause for parental anxiety. However our results show that often they are not of bacterial origin and can even clear up without treatment. Furthermore, the high number of negative swabs (due perhaps to a previous self-medication not mentioned by the parents, viral origin or effective sterility of the ocular material which seemed purulent), should lead to a careful use of antibiotic eye-drops. Their indiscriminate use can, in fact, promote the appearance of bacterial resistance. For this reason their therapeutic use should be limited and especially targeted, with the exclusion of inefficacious antibiotics, as in the case of Aminoglycosides used against *Haemophilus influenzae*.

PEDIATRICIANS' ADHERENCE TO CLINICAL PRACTICE GUIDELINES ACROSS HAMAD MEDICAL CORPORATION IN QATAR

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Introduction: There has been a notion that physicians usually avert from applying clinical practice guidelines (CPGs) in their practices. Health care providers and managers tempt to use clinical practice guidelines with a goal of health care improvement, cost saving and decrease variability in clinical management.

Purpose: The purpose of our study is to determine the familiarity and use of clinical practice guidelines among pediatricians across Hamad Medical Corporation (HMC), the only tertiary hospital in the State of Qatar.

Materials and methods: A cross-sectional study was conducted at HMC between March and July 2013 using a validated questionnaire. The self-administered questionnaire was distributed to 240 pediatric physicians who were working at HMC pediatric department. Data on demographic and CPG were collected and analyzed. Association between various demographic with familiarity and use of CPG were examined and analyzed using Chi-square test.

Results: A total of 169 questionnaires were completed (response rate 70.4 %). The ratio of male to female was 1.7:1. There were 68 consultants (40.2%), 47 specialists (27.8%), 20 clinical fellows (11.8%) and 34 residents (20.1%). In terms of years of experience, 43 (25.4%) had < 5 years, 47 (27.8%) had in between 5 and 10 years, 33(19.5%) had in between 11 and 16 years, and 46 (27.2%) had more than 16 years. Our study concluded that there is no statistically significance difference in terms of CPG familiarity among different pediatric sections: General pediatrics 51(91.1%), Pediatrics specialties 43 (95.6%), Neonatal Intensive care Unit (NICU) 24 (100%), Pediatric Emergency Center (PEC) 33 (94.3%), and Pediatric Intensive care unit (PICU) 8(100%), with p-value 0.508. Familiarity of CPG didn't differ significantly across position title: Consultant 67(98.5 %), Specialist 45 (95.7 %), Fellow 18 (90.0 %), and Resident 29 (87.9 %), with P-value 0.113. Regarding CPG familiarity among physicians with different years of experience, it was observed to be higher among physicians who have had >16 years of experience; 46 (100%) compared to <5yr 38(90.5%), 5-10yr 44(93.6%), and 11-16yr 31(93.9%) (p= 0.244). The percentage of CPG used among fellows and residents appeared to be less (15% & 15.6%) compared to consultants and specialists (29.4% & 30.4%). **Conclusions:** Pediatricians are familiar with Clinical Practice Guidelines; however, younger pediatric physicians are more reluctant to use them. Further studies are needed to understand the obstacles that junior physicians face and counsel them regarding the use of CPG.

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ADHERENCE TO CROUP PROTOCOLS IN THE PAEDIATRIC EMERGENCY DEPARTMENT AND POTENTIAL FOR CHANGE

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Introduction: Croup is a viral respiratory illness characterised by barking cough, inspiratory stridor and dysphonia. It is common, self limiting and has an annual incidence of 1.5-6/100 children under 6 years. Glucocorticoids and inhaled racemic adrenaline are mainstays of treatment. There has been a move away from nebulised glucocorticoid therapy due to anecdotal concerns that it may cause agitation, exacerbating respiratory distress. Nebules are more expensive yet no more effective than oral glucocorticoids, their use is therefore questionable in non-severe cases.

Purpose:

- Review current croup treatment in the paediatric emergency department (PED)
- Capture the degree of adherence to PED treatment protocol.
- Estimate the scale of potential reduction in budesonide use if protocol were to be revised (limiting the use of budesonide to severe/life threatening cases).

Materials and methods: Croup cases presenting to PED from January to June 2013 were retrospectively reviewed (n = 210). Severity was determined using the Westley croup score. Through comparison of investigator versus clinician determined severity (deduced from treatment prescribed), the presence of under/over/appropriate treatment was quantified.

Results: The average age of the cohort was 3.1 years (range: 3 months to 13 years). Peak incidence was in January (n=52). 70% were male. 67.1% of cases were mild (westley ≤ 2). 30.9% were moderate (westley 3 -- 6). 2 severe cases were identified (westley ≥8). Adherence to PED protocol was 56.9%. 66.1% of children recieved nebulised budesonide. Should current protocol be amended to limit its use to severe cases/first line treatment failure, there is a potential reduction in budesonide use by over 92%.

Conclusions: The audit demonstrates an opportunity to limit distressing treatment and reduce costs. Low adherence to local protocol may represent clinician consideration for this potential, but is also concerning given the junior status of many of those practising in the ED.

PP32

SCREENING VIROLOGY IN DETERMINING LENGTH OF STAY IN INFANTS AND CHILDREN HOSPITALIZED WITH ACUTE BRONCHIOLITIS

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Introduction: Respiratory Syncytial Virus (RSV) is a common lower respiratory tract viral infection in infants and children up to two years of age. RSV and a wide variety of other respiratory viruses are common triggers for bronchiolitis.

Purpose: To determine the length of stay in infants and children hospitalized with acute bronchiolitis.

Materials and methods: A retrospective and descriptive study was conducted at Hamad Medical Corporation. Patients ages 0 to 18 months hospitalized with acute bronchiolitis from October 2010 to March 2013 were included in the study. The following data were collected: age at diagnosis, sex, direct fluorescent antibody (DFA) and length of stay.

Results: The study included 838 infants and children, mean age 3.6 months (± 3.5), and boys constituted 60% of total number. DFA was conducted on 770 infant and children, where 352 turned out to be RSV positive (45.7%), while 142 were RSV negative (18.4%) and other non RSV viruses (Human metapneumo virus, Adenovirus, Rhinovirus, Influenza Virus, Para influenza virus, and Boca virus) with a count of 276 (35.8%). The mean length of stay for RSV positive bronchiolitis was 8.03 days, 95 % C.I. (7.26-8.79), and 6.94 days, 95% C.I. (5.89-8.00) for RSV negative bronchiolitis compared to 9.76 days, 95% C.I. (8.31-11.21) for other non RSV viruses. The p value was 0.723 when comparing the length of stay in infants and children who tested positive for RSV to those tested negative for RSV, while the p-value was better (0.059) when comparing RSV positive to other non RSV viruses. Finally, there was a statistically significance difference in length of stay for patients with RSV negative compared to other non RSV viruses bronchiolitis ($p=0.010$).

Conclusions: DFA is an indispensable ancillary test that can be used to predict the length of stay in patients admitted with acute bronchiolitis.

PP33

PEDIATRIC AND ADOLESCENT ADMISSIONS FOR POISONING IN THE YEARS OF THE ECONOMIC RECESSION

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Introduction: Poisonings are a common pediatric health issue and a common cause of hospital admissions. The family and the social environment, as well as, the child's age represent factors that define their epidemiology. **Purpose:** The aim of our study is to determine whether or not the economic crisis in Greece has affected the epidemiology of poisonings among children and adolescents.

Materials and Methods: The medical records of 624 children and adolescents, aged $3,29 \pm 3,42$ years (Mean \pm SD), admitted in our hospital for poisoning from 2003 to 2013, were studied in retrospect. For the statistical analysis we used SPSS 20.0 (IBM Corp), and χ^2 - test and Mann - Whitney test were applied.

Results: 624 children and adolescents were admitted for acute poisoning during the study period, with an overall incidence rate of 9,4 per 10.000 per year. The mean length of hospital stay was $1,25 \pm 0,965$ days (Mean \pm SD). Although after 2009, the overall number of admissions for poisoning decreased from 357 to 267, the admissions for intentional poisoning and drug abuse were increased ($p < 0,007$), as well as, the alcohol intoxication admissions ($p < 0,001$). Also the age of alcohol intoxication ($13,11 \pm 0,24$ years, Mean \pm SD) as well as the age of intentional poisoning and drug abuse ($12,9 \pm 0,22$ years, Mean \pm SD) is significantly higher from the age of accidental poisoning ($2,32 \pm 0,6$ years, Mean \pm SD).

Conclusions: The unique characteristics of adolescents make them more vulnerable to the effects of the socioeconomic crisis. This is reflected by the increase in the number of admissions for alcohol and drug abuse after 2009 when the economic recession started.

BACK PAIN: THE SOLE PRESENTATION OF SICKLE CELL DISEASE

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Introduction: Sickle cell disease (SCD) is an autosomal recessive disorder with signs and symptoms manifested in early childhood. It usually presents with pain, dactylitis, vaso-occlusive anaemia, acute chest syndrome, splenic sequestration, hyperhemolytic crisis and aplastic anaemia. We present a rare, if not unique, case of SCD in a ten year old that presented to the emergency department with intermittent back pain for one year duration.

Purpose: The purpose of our case report is to share our unusual experience with a late presentation of SCD manifested as only back pain in a 10- year old Arab male.

Materials and Methods: 10 years old Qatari male previously healthy presented to emergency with history of recurrent, intermittent back pain for one year duration. A thorough investigation was conducted including magnetic resonance of the back and bone marrow aspiration. Eventually sickle cell disease (HbSC) was diagnosed by haemoglobin electrophoresis. A search of the pub med database was carried out, using a combination of the following terms: sickle cell, disease, late, and back pain.

Results: The majority of studies found in the search concentrated on the early classical presentation of sickle cell disease, and per our knowledge nobody reported back pain as the only and late presentation.

Conclusions: Sickle cell disease is known to present in the early years of life; however, the health care provider should be aware that late presentation is possible and can be manifested as a subtle sign or symptom.

PP35

ACHIEVING EXCELLENCY IN THE CARE OF CHILDREN WITH CLEFT LIP AND PALATE

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Introduction: Cleft lip and palate is one of the most common congenital anomalies. It was proved that the multidisciplinary care management and team approach is the ideal management system. This is usually not feasible in the developing countries. The team includes specialties of plastic surgery, speech therapist, audiology, orthodontics, dentist, pediatrics, otolaryngology,. and others.

Purpose: We are reporting our experience in the last 5 years trying to improve the cleft care system to reach the multidisciplinary team approach. The obstacles faced to achieve this goal in a background of a cleft clinic in the South of Egypt. The presentation will also highlight the aspects and construction of the cleft teams and different components of management and how to set them together in a coordinated manner.

Materials and Methods: Since 2008, over than 700 cleft cases were managed in Sohag Cleft Clinic. The steps of the progress of the cleft care from a single specialty management to achieve the broader multidisciplinary care were explained.

Results: We got able to establish a multidisciplinary cleft clinic with significant improvement of the outcome of care.

Conclusions: Multidisciplinary care in cleft management is of paramount significance for optimizing outcome of cleft lip and palate patients. Developing a team should depend on dedicated personals and a system organizing their work.

ASSOCIATION OF VITAMIN D LEVELS WITH PHYSICAL AND SOCIOCULTURAL FACTORS AMONG SELECTED FILIPINO HIGH SCHOOL STUDENTS IN QUEZON CITY

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Introduction: Vitamin D deficiency has been documented as a frequent problem in almost every region of the world even in the tropical countries and its health consequences are enormous. Aside from infancy, adolescence is another age group particularly at risk of developing vitamin D deficiency. However, there are no data on the Vitamin D status of Filipino adolescents.

Purpose: To determine the serum 25-hydroxyvitamin D levels and its association with physical and sociocultural factors among Filipino high school students in selected schools in Quezon City.

Methods: A cross-sectional study of Filipino high school students was undertaken. Ninety-seven boys and girls 11- 18 years old, attending selected private and public secondary schools in Quezon City participated in the study. Data on the duration of sunlight exposure, sunscreen use, clothing, and food intake were taken based on a questionnaire. Serum 25(OH)D levels were determined by electrochemiluminescence immunoassay.

Results: The total serum 25-hydroxyvitamin D levels of the students ranged from 19.92 nmol/L to 88.63 nmol/L with a mean of 52.43 nmol/L. There was a prevalence of hypovitaminosis D (serum 25-hydroxyvitamin D levels <50nmol/L) of 41.2% with 20.6% having deficient (<37.5 nmol/L) and 20.6% insufficient (37.5-<50 nmol/L) serum 25-hydroxyvitamin D levels. Low vitamin D intake ($p=0.019$), Body mass index Z-score outside the normal range of 0 to <1SD ($p=0.012$) and upper socioeconomic status ($p=0.001$) were significantly associated with hypovitaminosis D.

Conclusion: Hypovitaminosis D is highly prevalent among Filipino high school students in selected schools in Quezon City despite abundance of sunlight. Low vitamin D intake, Body mass index Z-score outside the normal range of 0 to <1SD and upper socioeconomic status were significantly associated with hypovitaminosis D. Given the characteristics of the adolescent population, appropriate interventions are needed to address the problem of poor vitamin D status in schoolchildren.

PREVALENCE OF UNDERWEIGHT, STUNTING AND WASTING AMONG CHILDREN IN QAZVIN, IRAN

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Introduction: Malnutrition and growth impairment are among the most common problems in children of developing countries. The aim of present study was to determine underweight, stunting, and wasting status in children less than 2 years in Qazvin (Iran) in 2007.

Methods: In this study, 804 children aged between 0-24 months were evaluated. Data were collected through both family and child's health records.

Results: According to World Health Organization (WHO) standard underweight, stunting, and wasting were observed in 11.7%, 11.5%, and 0.7% of the children, respectively. There was a significant correlation between underweight and the family size and birth order and also between stunting and family size, birth order, and parent education ($p<0.05$).

Conclusion: This study revealed that the most common types of growth impairment in children under two years of age are underweight and stunting. Interventional measures are recommended.

CHRONIC DISEASES AMONG CHILDREN OF THE ARAL SEA REGION

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On the territory of Kazakhstan emphasis on the extent of the contamination and adverse effects on human health is the desiccate Aral Sea. Chemical pollution of the environment by toxic compounds of Aral Sea and the impact of these factors on the children is a proven fact. The purpose is determination of chronic somatic diseases among children ecologically unfavorable Aral Sea regions.

Materials: This region taking into account the impact of ecologically unfavorable factors is divided: ecological disaster zone -400 km diameter of Aral Sea (155 children of main group), zone of relative environmental well-being - more than 400 km (75 children of comparison group). Children are aged 4 to 16 years old. As a control group examined 50 children in the ecological well-being region. A more in-depth physical examination was conducted with the advisory of specialists and using laboratory-instrumental methods.

Results: The leading position in the structure of chronic diseases of Aral region's children occupied by gastrointestinal and otorhinolaryngology pathology. Almost every second child of the main group has a lesion on the cardiovascular, urinary, nervous systems, every third child - bronchopulmonary pathology. The most common disorders in children all groups are tested chronic gastrointestinal pathology (90.2%, 89.6% and 84% respectively). However the structure of gastrointestinal pathology in children of main group compared with children of comparison group is different. In the main group there are more profound changes in the form of subatrophic and atrophic processes (16.6% and 14.3%). In different Aral areas there is a statistically significant difference of chronic somatopathy by otorhinolaryngology, respiratory, urinary, osteoarticular pathology. Thus higher levels of chronic disease in children in the main group of Aral region compared with children of the comparison and control group is proof of the harmful effects on the children's body ecological trouble.

MORQUIO SYNDROME TYPE A: CLINICAL AND MOLECULAR SPECTRUM**Nursel Elcioglu***Marmara University Medical School, Istanbul, Turkey*

Morquio syndrome (MPS IV) is an autosomal recessive LSD with a normal mental development and an estimated incidence about 1 in 250 000 live births. There are two different forms of Morquio syndrome. MPS IV A is caused by a deficiency in N-acetylgalactosamine-6-sulphate sulphotase (GALNS; 16q24.3), and MPS IV B by deficiency in α -galactosidase. Both deficiencies result in insufficient degradation of keratan sulphate and chondroitin sulphate in the lysosomes. Excessive storage of these two substrates causes systemic skeletal dysplasia, short stature and joint abnormalities. The most frequent form MPS IV A is clinically heterogeneous, ranging from severe skeletal dysplasia with early mortality to milder forms. During the course of the disease, severe deformities of the chest and a progressing kyphoscoliosis may develop. Odontoid dysplasia and ligamentous laxity can commonly cause cervical spinal instability in the atlantoaxial region, and may also potentially cause spinal cord tranverse compression. Other symptoms of MPS IV A may include recurrent infections, hearing loss, corneal clouding, and heart valvular disease. Initial symptoms often become evident in the first 5 years of life. Most patients reach adulthood but become wheelchair dependent in their second decade of life and undergo numerous neurosurgeries. Recent experimental preclinical studies of ERT by using GALNS enzymes on MPS IVA mice demonstrate the clearance of tissue and blood keratan sulphate. We present four patients with MPS IVA (3 female, 1 male, 2-19 yrs) from unrelated families. Parental consanguinity were present in all families with affected previously late sibs by half of the families. The mean age at diagnosis was 4 years, with the youngest being 1 year old at diagnosis. All patients had the age depended typical phenotype as progressive severe bone disease. Pectus carinatus, kyphoscoliosis short trunk and genuvalgum deformity were in common. Skeletal surveys revealed dysostosis multiplex with severe vertebral involvement (SEMD). Only one patient had corneal clouding and another had valvular heart disease and breathing difficulties. None of them had mental impairment. All patients had elevated urinary GAGs, diminished GALNS enzyme activity in leukocytes and homozygous mutation of the GALNS gene as; c.1156C>T (p.R386C), c.915C>T (p.S287L), c.421T>A (p.W141R) and c.1168delC (p.L390X).

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GENETIC BASIS OF PROGERIA SYNDROMES AND RELATED DISORDERS**Nursel Elcioglu***Marmara University Medical School, Istanbul, Turkey*

Progeria syndromes are rare genetic conditions characterized by an appearance of accelerated aging in children with increased geneomic instability. These syndromes can be separated in subcategories; firstly to the genes encoding DNA repair factors, in particular, DNA helicases, and secondly genes affecting the structure or post-translational maturation of lamin A, a major nuclear component. The classical progeria type is the Hutchinson-Gilford Progeria Syndrome (HGPS) which was first described in England in 1886. It affects both sexes equally and all races. Since first described, more than 100 cases have been identified around the world with a reported incidence of about 1 in 8 million newborns. There are currently about 45 known cases worldwide of Progeria. This number is probably under estimated, in particular in developing countries where no referring physicians for progeria are available. Although during the last century very few developments toward understanding this devastating disorder had been accomplished, early 2003 de novo point mutations in the Laminin A gene has been identified as the main cause of this disorder. Thus HGPS is the most severe disorder added to the expanding list of "laminopathies", diseases caused by mutations in LMNA gene encoding A-type lamins, an intermediate filaments and a part of the nuclear membrane. To date, up to ten disorders are associated to mutations in LMNA. These disorders are diverse, both in symptomatology and in pattern of inheritance. Due to the extremely low frequency of progeria and the putative functional links between progeria and premature aging disorders, including Wiedemann-Rautenstrauch syndrome, Hallerman-Streiff syndrome, Werner syndrome, mandibuloacral dysplasia, Cockayne syndrome, Rothmund Thomson syndrome, and several unclassified disorders presenting with aging features, setting-up a network about these disorders becomes an absolute necessity. Some classical progeria cases with HGPS and related premature aging syndromes with their genetic basis will be presented.

Haematology & Oncology

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SERUM HEPcidIN LEVELS AND IRON METABOLISM IN OBESE CHILDREN WITH AND WITHOUT FATTY LIVER :A PROSPECTIVE CASE-CONTROL STUDY

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Introduction: Hepcidin is a regulator of iron balance which is increased in obesity. It is reducing absorption of iron or reducing transference of iron from macrophages to plasm or preventing mobilization of storages. **Purpose:** We aimed to analyse the status of hepcidin levels and iron metabolism in obese children having fatty liver or not and we compared them with non-obese healthy controls.

Materials and Methods: Study population included 110 children aged between 7 and 18 years and consisted of three groups: 50 obese patients without fatty liver, 30 obese patients with fatty liver and 30 non-obese healthy control. Serum hepcidin, ferritin and iron levels, iron binding capacity, lipid profile, liver function tests were measured and hepatic ultrasonography was performed in all participants.

Results: Obese patients' white blood cell count, total cholesterol and triglyceride levels and insulin resistance were significantly higher than the control group ($p=0.03$, $p=0.042$, $p=0.005$, $p<0.001$ respectively). Serum ALT levels were significantly higher in obesity group and it was highest in obese patients with fatty liver. Iron binding capacity was significantly higher in obese patients without fatty liver when compared to obese patients with fatty liver (401 ± 58 vs. 357 ± 56 $\mu\text{g/dL}$, $p=0.002$). Obese patients had higher mean hepcidin levels than the control group but the difference was not statistically significant (807 ± 721 vs. 592 ± 299 ng/mL , $p=0.117$). However mean hepcidin level in obese patients with fatty liver was significantly higher in comparison to obese patients without fatty liver (1138 ± 970 vs. 609 ± 417 ng/mL , $p<0.001$).

Conclusions: Hepcidin levels were significantly higher in obese patients having non-alcoholic fatty liver and also it was shown that hepcidin affects the use of iron. Obese children especially those having fatty liver need attention for iron metabolism disorders like iron absorption and use of iron.

	Obese patients without fatty liver	Obese patients with fatty liver	p
Iron (ug/dL)	64.06 \pm 33.46	66.03 \pm 27.99	0.787
Iron binding capacity (ug/dL)	401.3 \pm 58.86	357.9 \pm 56.52	0.002
Transferrin saturation (%)	16.49 \pm 9.38	19.10 \pm 9.12	0.227
Ferritin (ng/mL)	39.84 \pm 31.41	49.4 \pm 27.77	0.171
Hepcidin	609.00 \pm 417.66	1138.94 \pm 970.25	<0.001

INFECTIONS IN CHILDREN WITH CANCER ON THE GROUNDS OF THE PRESENCE OR ABSENCE OF NEUTROPENIA

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Introduction: The etiology, clinical course and outcome of infections in children with cancer according to the presence or absence of neutropenia has not been well described.

Aim: To study the type of infections and the responsible infectious agents among children with cancer and to relate them to the presence of neutropenia.

Material and method: Fifty pediatric cancer patients who presented with 70 fever episodes were prospectively studied over a 12-month period. Inflammatory markers, such as WBC, ANC and C-reactive protein (CRP) were determined in peripheral during each episode (i.e. at fever's onset and after 48h). Bacterial cultures, polymerase chain reaction (PCR) tests and serological testing were also obtained. Infections were classified as bacterial, viral or fever of unknown origin (FUOs).

Results: Among the 70 episodes of febrile illness in our cancer patients, 54.3% were classified as bacterial, 18.6% viral, 4.28% fungal and 22.8% as FUOs, while 11/70 (20.3%) were characterised as mixed infections with more than one pathogens. Neutropenia was detected in 60% of the febrile episodes and was predominantly found among patients with haematologic malignancies than solid tumors [OR= 2.81(0.96-8.22), p=0.059]. Neutropenic patients in comparison with the non-neutropenic ones had a significantly higher rate of mucosal and skin infections i.e. 20/42 (47.6%) vs 1/25 (4%), p=0.004. They also had a higher rate of mixed infections, although the difference was not significant [38.9% vs 28.6%, OR=1.59 (95%CI=0.34-7.11), p=0.41]. However the prevalence of opportunistic infections was not significantly different between the two groups (66.6% vs 64.28%, p=0.59). Mortality due to infection was observed in 2.85% of our pediatric cancer patients.

Conclusions: Pediatric cancer patients who develop fever were found in this study to have a high frequency of bacterial infections (54.3%), with about 20% of them being mixed infections. Neutropenic patients, who were predominantly those with haematologic malignancies, had a significantly higher frequency of mucosal and skin infections than the non-neutropenic ones, while the prevalence of opportunistic infections was not different between the two groups.

CARL SMITH DISEASE IN AN INFANT

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Introduction: Acute infectious lymphocytosis (AIL) is a rare, ubiquitous disease with benign outcome. We describe a typical case associated to gastroenteritis.

Material & Method: M.Z, 6 months, is admitted for dehydration following acute diarrhea and vomiting from 24h. Except digestive and dehydration signs, no other clinical anomalies are noted. Biology reveals lymphocytosis, initially moderate at 12000/mm³ that increases rapidly.

Results: Lymphocyte count reaches 32000/mm³ within 3 days before falling to normal range after 48h. Repeated blood smears show mature lymphocytes without atypical lymphocytes. IMN test is negative. The association Age-Digestive symptoms - Lymphocytes count's course, Spontaneous reversible evolution, and the absence of other etiologies give the diagnosis.

Conclusion: The first description of IAL was reported by a New Yorker doctor, Carl H. Smith, in 1941. It's defined by the association of: - Lymphocytosis with mature and normal lymphocytes; - Benign clinical course without signs of mononucleosis, nor splenomegaly nor lymphadenopathies; - Negative Paul-Bunnell test. Etiology remains unknown (echovirus 25? coxsackievirus?).; probably due to a clonal expansion of OKT4+ lymphocytes. Prognosis is excellent.

Infectious Diseases

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META-ANALYSIS TO INVESTIGATE THE INFLUENCE OF BIRTH WEIGHT AMONGST 33-35 WEEKS GESTATIONAL AGE (WGA) INFANTS ON THE RISK OF RESPIRATORY SYNCYTIAL VIRUS (RSV) HOSPITALISATION

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Introduction: Premature infants are at a higher risk of RSV-hospitalisation than term infants, and low birth weight further increases this risk in preterm infants. Controversially, the European model for predicting RSV-hospitalisation in 33-35 wGA infants reported a positive correlation between birth weight and hospitalisation risk.¹

Purpose: To determine whether higher birth weight is associated with increased RSV-hospitalisation among 33-35 wGA infants not treated with RSV-prophylaxis.

Materials and Methods: Data on RSV-hospitalisation and risk factors in 33-35 wGA infants were collected in cohort and case-control studies from Spain, Germany, France, and Italy. The association between birth weight and RSV-hospitalisation during the first year of life was assessed as were the effects of gender and GA and the correlation of weight with other risk factors.

Results: Within the individual datasets, weight was significantly higher in RSV-hospitalised than non-hospitalised infants only in the Spanish cohort (2.20 vs. 2.13; P=0.042). In total, 1,218 infants were included in the meta-analysis, with no significant heterogeneity between datasets (Levene statistic: P>0.05). RSV-hospitalised infants had significantly greater mean birth weight than non-hospitalised infants (overall: 2.24 vs. 2.14 kg; P<0.001) for both males (2.25 vs. 2.18 kg; P=0.049) and females (2.22 vs. 2.11 kg; P=0.007). The effect was particularly apparent in RSV-hospitalised infants born at 34 wGA (33 wGA: hospitalised 1.95 vs. non-hospitalised 1.95 kg, P=0.976; 34 wGA: 2.26 vs. 2.14 kg, P=0.007; 35 wGA: 2.37 vs. 2.29 kg, P=0.070). Birth weight was higher in RSV-hospitalised, 34 wGA infants for both sexes, although only reached significance in females (female: 2.24 vs. 2.08 kg, P=0.019; male: 2.27 vs. 2.20, P=0.191). Sex and maternal smoking were the only 2 risk factors (of 9 assessed) that were correlated differently between RSV-hospitalised and non-hospitalised 33-35 wGA infants. A 2-risk factor model including sex and maternal smoking had a predictive accuracy of 42.2%, which increased to 59.2% when weight was added to the model; indicative of weight being an independent risk factor for RSV-hospitalisation.

Birth weight kg, mean (standard deviation)

Dataset	RSV-Hospitalised	Non-hospitalised	P-value
Spanish (n=551)	2.20 (0.38)	2.13 (0.42)	0.042
German (n=373)	2.20 (0.45)	2.11 (0.39)	0.336
Italian (n=63)	2.47 (0.57)	2.27 (0.46)	0.142
French (n=231)	2.24 (0.47)	2.21 (0.44)	0.602
Combined (n=1,218)	2.24 (0.43)	2.14 (0.41)	<0.001

¹Simões EA et al. Respir Res 2008;9:78.

Conclusions: In 33-35 wGA infants, a higher birth weight appears independently associated with an increased risk of RSV-hospitalisation. Further studies are required to confirm these results.

DIGITAL ANTIMICROBIAL THERMOMETER FOR AXILLARY USAGE: A NEW DEVICE FOR MEASURING THE TEMPERATURE OF THE BODY FOR THE REDUCTION OF CROSS-INFECTIONS

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Aim: The aim of this prospective comparative study is to evaluate the reduction of microbial flora on the surface of an axillary digital thermometer, made of antimicrobial copper, in relation with a common digital thermometer.

Material - Methods: A brand new digital electronic thermometer implemented with antimicrobial copper (Cu 70% - Nic 30%, Low Lead) on the two edges of the device (top & bottom: World Patent Number WO2013064847 and Register Number by the Hellenic Copper Development Institute No 11/2012) was manufactured and a comparative study with common digital electronic thermometer was conducted on 18 ICU (Intensive Care Unit.) patients of three different hospitals. The thermometry was performed in accordance with the projected International Nursing Protocols for body temperature measurement. A total of 216 microbiological samples were taken from the axillary area of the patients, using both of the investigated body temperature devices. Simultaneously the "Halo" phenomenon (phenomenon "Stefanis") was studied at the non antimicrobial copper-implemented parts of the antimicrobial digital electronic thermometer.

Results: In all samples collected from the surface of the antimicrobial electronic digital thermometer, the reduction of microbial flora (*Klebsiella* spp, *Staphylococcus Aureus*, *Staphylococcus epidermitis*, *Candida* spp, *Pseudomonas* spp) was progressively reduced to 99% in two hours after the thermometry. The above flora was found in the axillary cavity remained the same in common thermometer. The statistical analysis (SPSS 21) showed a statistically significant reduction of the microbial load (N = 216, < 0.05).

Conclusions: The Hospital-Acquired Infections are linked to the transfer of pathogens due to the multi-usage of medical devices from both health professionals and patients, such as axillary thermometers. The use of antimicrobial digital electronic thermometer minimizes microbes' transportation between patients and health professionals while having all the conditions of reliability, proper functioning, security, ease of use and reduced cost.

INFLUENCE OF CHRONOLOGICAL AGE ON THE RISK OF RESPIRATORY SYNCYTIAL VIRUS (RSV) HOSPITALISATION AMONGST INFANTS BORN AT 33-35 WEEKS GESTATIONAL AGE (WGA)

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Introduction: It is well documented that 33-35 wGA infants with a chronological age of ≤ 10 weeks at the start of the RSV-season are at high risk for RSV-hospitalisation.[1,2] However, information is more limited on how this risk changes during the first year-of-life. Purpose: To further characterise the risk of RSV-hospitalisation associated with chronological age among 33-35 wGA infants.

Materials and Methods: To determine over what chronological period the risk of hospitalisation operates, the frequency of RSV-hospitalisation in the FLIP-2 study[2] was separated into 3-month intervals over the first year-of-life. Discriminant function analysis was applied to these quartiles with the number of days before or after the start of the RSV-season as the independent (predictive) variable. Outputs were expressed as receiver operating characteristic (ROC) curves, where an area under the curve (AUC) of 1 represents perfect predictive accuracy. The frequency of RSV-hospitalisation in relation to proximity of birth to the RSV-season was also assessed. Infants receiving palivizumab were excluded.

Results: 161 RSV-hospitalised infants born 33-35 wGA and 4,032 non-hospitalised infants matched for chronological and GA were included. Median age at RSV-hospitalisation was 74 days (9-309 days). Among infants aged ≤ 6 months, birth close to the RSV-season was predictive of RSV-hospitalisation (0-3 months: ROC-AUC 0.672; 4-6 months: ROC-AUC 0.705). However, it was not predictive for infant aged 6-9 months (ROC-AUC 0.459), whilst data were insufficient (1 RSV-hospitalisation) to analyse the final quartile. For RSV-hospitalised infants born within the RSV-season, the majority (83.7%; 89/106) were admitted within 3 months of birth, with the remainder (16.3%; 17/106) hospitalised by 6 months. In contrast, only 20.2% (17/84) of RSV-hospitalised infants born outside the RSV-season were admitted by 3 months of age, with 76.2% (64/84) hospitalised by 6 months and the remaining 23.8% (20/84) hospitalised >6 months from birth. In terms of age at RSV-hospitalisation, the majority (88.5%) of those born within the RSV-season were hospitalised at <3 months of age, whilst for those born outside the RSV-season, the majority (74.3%) were hospitalised at ≥ 3 months of age (Figure).

Conclusions: Infant age in relation to the RSV-season should be considered an important risk factor for RSV-hospitalisation in 33-35 wGA infants, remaining predictive at up to 6 months of age.

[1] Figueras-Aloy J et al. Pediatr Infect Dis J 2004; 23:815-820. [2] Figueras-Aloy J et al. Pediatr Infect Dis J 2008; 27:788-793.

RSV-hospitalisation by age and whether born inside or outside the RSV season (1 October – 31 March)



THE OUTCOME AND IMPLICATION OF ROTAVIRUS GASTROENTERITIS AMONG CHILDREN WITH BLOOD GROUP A COMPARED TO OTHER OTHER BLOOD GROUP TYPES

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Introduction: Rotavirus is the most common cause of severe diarrhoea in children. There is no clinic study about the relationship between the ABO blood groups and the rotavirus.

Purpose: Aim of this study to evaluate the correlation and the emerging financial table between rotavirus gastroenteritis and ABO blood groups.

Materials and Methods: The file records of babies born in our hospital and diagnosed with acute gastroenteritis in their follow up was investigated retrospectively.

Results: The study was conducted with 219 (36.3%) rotavirus positive and 383 (63.6%) rotavirus negative patients. The A blood group was detected more in the rotavirus positive group in comparison to the rotavirus negative group (50.6% vs. 42.2%, $p=0.047$). Hospitalization rate (34 (30.6%) vs. 13 (8%), $p<0.001$), duration of hospitalization (3.1 ± 2.8 days vs. 1.6 ± 1 days, $p=0.015$) and the outpatient costs (14.7 ± 6.2 \$ vs. 12.7 ± 6.6 \$, $p=0.025$) of the cases with rotavirus gastroenteritis in the blood group A were significantly higher.

Conclusions: Rotavirus gastroenteritis is seen more frequently in children with A blood group. The hospitalization rates, hospitalization times and outpatient costs of such patients are detected to be higher.

		Rotavirus(+)	Rotavirus(-)	p
Hospitalization rate	O blood group	8/57(14)	8/122(6.5)	0.11
	A blood group	34/111(30.6)	13/162(8)	<0.001
	B blood group	5/32(15.6)	6/65(9.2)	0.35
	AB blood group	3/19(15.7)	3/34(8.8)	0.64
Hospitalization time	O blood group	2.5 ± 0.7	2 ± 1	0.44
	A blood group	3.1 ± 2.8	1.6 ± 1	0.015
	B blood group	2.2 ± 0.8	1.8 ± 0.9	0.52
	AB blood group	2.6 ± 0.5	2.3 ± 1.1	0.57
Outpatient bill	O blood group	17.3 ± 6.1	14.3 ± 8.1	0.012
	A blood group	14.7 ± 6.2	12.7 ± 6.6	0.025
	B blood group	15.5 ± 6.1	13.3 ± 6.4	0.13
	AB blood group	17.5 ± 5.9	14.7 ± 6.8	0.15

INFECTIOUS MONONUCLEOSIS -- CONTEMPORARY CHALLENGES

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For the last decade infectious diseases in the children's population increased, including mononucleosis **Goal:** goal of our research is prevalence of infectious mononucleosis and identification of risk factors in the children's population.

Materials and methods: prevalence of infectious mononucleosis was studied based on questioning of random and representative groups of children's populations in Kutaisi, Tbilisi and Batumi, with cross-sectional method. For this research the goals and objectives were set and special screening questionnaire was developed. Research covered 645 children from 4 to 16 years. As the key base for the research the clinics were selected by simple random method, for the purpose of availability of clinical-laboratory data. Study of the factors of causal significance was provided on the basis of comparison of anamnesis and diagnostic data. Statistical processing was provided by SPSS/V12 software.

Results: research was conducted in two stages: at the first stage dynamics of morbidity and frequency of visits was analysed for one year period (on the basis of medical documentation in pediatric clinics). At the second stage clinical anamnesis was collected on the basis of out questionnaire and on this basis clinical characteristics and risk factors were identified. Virus causes transformation of lymphocytes and they acquire ability of polyclonal proliferation. Typical course was indicated in 12.7% of cases, atypical -- in 15.2% and sub-clinical -- in 21.5% ($p < 0.5$), prodromal signes persisted from 6 to 10 days and further triad characterizing infectious mononucleosis was manifested: fever: 98% ($p < 0.05$), sore throat: 99% and lymphadenopathy: 99.7%; disease was heavy in 89.9% of our patients and light in 8.2% of cases. One of pathognomic signs of the disease is tonsillitis, showed up from the outset, catarrhal in 98.1% of the population, lacunar -- in 67.7; follicular -- in 45.7%, ulcero-necrotic -- in 39.8%. Large liver mass was identified in 79.9%, spleen enlargement -- in 89.5% of cases, pattern of blood changes was close to the one of leucosis. In 3.2% of cases leucosis was stated.

Conclusion: after acute infectious mononucleosis, the immunocompetent individuals fully restore their health in few months, without residual effects and complications ($p < 0.01$), in result of adequate treatment. Hygiene procedures shall be followed.

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MACROPHAGE ACTIVATION SYNDROME OF KALA AZAR

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Introduction: Visceral leishmaniasis is of sometimes misleading clinical picture, including systemic complications parses formidable We present a 7 month old daughter in which various biochemical abnormalities lead to the diagnosis of macrophage activation syndrome (MAS) secondary.

Case presentation: Early FN, 7 months, only child of a non-consanguineous couple without anterior ous staff or family is allowed for anemia - fever with thrombocytopenia overhang splenic clinical examination. Balances charged reflect, in addition, a shrill inflammation (CRP = 122 mg / dl, ESR > 60 mmH1, Fibrin = 4g / l) hyponatremia 129mEq / l and triglycerides > 4 g / l The blood smear is poor but hyper-reticulocyte > 8% is found; a bone marrow puncture confirms the presence of Leishman' bodies A serum ferritin is done 2 times exceeding > 1500 ng/ml

Results: The diagnosis of secondary MAS due to Kala Azar (KA) is then established, and the infant is placed under Glucantime with high-dose corticosteroids The girl begins to show haemorrhage sampling sites followed by rectal bleeding, beginnings of DIC looming the next day with PT and APTT and fibrinogen indosable (always with thrombocytopenia) The suites were good with resolution of hemorrhagic syndrome and fever, with rising values of blood dyscrasias and recovery of appetite and smile. A cure is obtained after 30 days of antimonial treatment.

Conclusion: Signs of KA and MAS can entangle and intrigue the medical staff on the real origin of clinico-biological disorders It is therefore necessary to be careful about the biochemical results and ask a very simple and specific test that is contributing to the ferritin begin without delay the appropriate treatment.

MALARIA: AN OLD TIME DISEASE AMONG GIPSIES POPULATION IN THIVA, VIOTIA GREECE

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Introduction: Malaria is a mosquito born infectious disease of humans caused by eukaryotic protists of the genus plasmodium. WHO has characterized Greece as malaria-free since 1973.

However, the possibility of a disease rebound is non-negligible. This is due to a) migration from countries, where the disease exists and b) stagnant water from sink near the gipsies' population.

The purpose of study: Description of two malaria incidences among children of the same gipsy family in Piri, Thiva.

Materials and Methods: A seven-year old boy was hospitalized due to high fever, which lasted for twelve days reaching up to 40o C. Among the rest of the symptoms was shivering. Fever incidents were reported on a daily basis. From the second day of sickness, antibiotic intake was necessary due to media otitis of the patient. During the physical examination, it was noticed that the patient was pale, as well as his liver was 3cm bigger than the normal .and spleen was 3,5 cm bigger. The above findings were verified by ultra-sonic examination. The laboratory examination yielded WBC: 7000(ne: 61% ,ly:28.6%,mo:9,3%) Hb:9.1g/dl, Hct:26,9%, PLT:92000/ μ l . CRP 61,40 The mainstay of malaria diagnosis had been the microscopic examination of thick blood smear. The PCR (+) was performed in National School of Public Health for P. vivax. The incident was successfully tackled using hydroxychloroquine and primaquine. The second incident involved a three-year old girl of the same family. Both the diagnosis and the treatment were the same.

Conclusion: The prolonged fever, the detailed information extracted from the patients and the objective examination, consist the first attempt to thoroughly diagnose and treat the two medical incidents. This is the first attempt to deal with a disease, which has not been reported in Greece, for the last twenty years.

ACUTE GASTROENTERITIS DURING CHILDHOOD IN BOLU, TURKEY: 3 YEARS OF EXPERIENCE

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Objective: To evaluate clinical and laboratory characteristics and costs of acute gastroenteritis cases during childhood in our city.

Material and methods: We evaluated the children with the complaint of diarrhea in our hospital for a period of 3-years

Results: In this period, 6563 acute gastroenteritis cases were included in the study. 29,1% were below 2 years of age, 37,4% were 2-5 years of age and 33,3% were over 5 years of age. 22,3% were admitted during spring, 33,5% were admitted during summer, 23,6% were admitted during autumn and 20,4% were admitted during winter. The most common etiologic agents were rotavirus (16,1%), entamoeba histolytica (0,8%), giardia lamblia (0,5%) and salmonella spp (0,3%). The cost of the out-patient's clinic was 18,7 \$ and hospitalized patient was 74,3 \$.

Conclusion: Acute gastroenteritis may be diagnosed by easy tests including direct microscopic fecal assessment and viral antigens in feces. The most common agent in the childhood gastroenteritis is rotavirus.

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SUBOPTIMAL COMPLIANCE TO TARGETED TUBERCULOSIS TESTING AND VACCINATION PROGRAM IN GREEK CHILDREN

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Introduction: In 1993, the World Health Organization (WHO) declared Tuberculosis (TB) to be a global public health emergency. The global burden of TB remains enormous. In 2011, there were an estimated 8.7 million new cases of TB and 1.4million people died from TB. In Greece children are vaccinated with BCG at the age of 6 years old after a negative tuberculin skin test (TST), at school.

Purpose: The aim of our study is to assess the level of compliance to targeted tuberculosis testing by TST and vaccination with BCG in Greek children.

Materials and Methods: We studied in retrospect the medical records of immunization of 10210 children, aged 6 years old, and of the school area visited by the vaccination team of our hospital from 1992 to 2012. For the statistical analysis we used SPSS 20.0 (IBM Corp), and x²- test was applied.

Results: 109 children had a positive TST, 4847 children were vaccinated, and 3339 children were vaccinated previously. The children that did not participate in the vaccination program were 1915. Among them 744 children did not get TST and BCG because their parents did not consent for them to participate. The overall number of children that did not participate in the program in the years 2002-2012 was significantly higher compared to the period before 2002 ($p < 0,028$). The number of parents that refused to consent for their children to participate was increased as well ($p < 0,001$).

Conclusions: Tuberculosis still is a serious concern for the Greek Public Health System. It is imperative that all health care providers stay alert and continue to inform the public about the necessity of TB surveillance, with targeted TST, and vaccination of the population at risk.

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COMPARISON OF VITAMIN A, D & ZINC SERUM LEVELS BETWEEN CHILDREN WITH URINARY TRACT INFECTION AND CONTROL GROUP

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Background: Urinary tract infection (UTI) is one of the most common infections in infants and children, especially in their first decade of life. These patients are more susceptible to renal scars and other possible complications like growth retardation, arterial hypertension, proteinuria, isostenuria, and finally chronic renal failure. Trace elements like vitamins and minerals are essential for efficient metabolism and proper function of various body systems namely immune system. In this trial we compared the relation between serum levels of zinc, vitamins A and D in children inflicted with UTI and control group.

Methods: a cross-sectional study on 25 patients with UTI admitted to pediatric wards and in Tehran. They were compared to 40 controls. Serum levels of zinc, vitamins A and D were measured in both groups.

Results: The average age was 2.17. Despite the lower levels of vitamins A and D in cases than controls, the difference was not significant ($P=0.4$ and $P=0.9$, respectively). However, serum levels of zinc were significantly lower in cases than controls ($P<0.05$).

Conclusion: Vitamins A and D may play some role in patients' vulnerability to UTI, but this supposition needs more research on larger samples. Lower levels of zinc were associated with susceptibility to UTI; thence, its administration might be helpful.

IS THERE A CORRELATION BETWEEN THE ENTERIC ADENOVIRUSES AND BLOOD TYPES

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Background: Several publications report a correlation between some disease factors and blood types. Objective of this study was to investigate whether there is a correlation between adenoviruses that are an important cause of gastroenteritis in childhood period and blood types.

Material and methods: Of 6924 newborns who were born live in our hospital between January 2009 and December 2011, recordings of 56 cases diagnosed with adenovirus gastroenteritis were studied.

Results: Mean age of the cases was 13 month. Four (7.1%) of the patients presented in winter, 9 (16.1%) in spring, 25 (44.6%) in summer and 18 (32.1%) in autumn. We found that rate of the presentation was markedly frequent in summer ($p < 0.001$). O blood type was found in 2,056 (27.7%) of the newborns who were born in our hospital and in 24 (42.9%) of the patients who were diagnosed with adenovirus gastroenteritis. Rate of O blood type was significantly high in the individuals having adenovirus gastroenteritis (OR=0.56, 95% CI (0.33-0.95), $p = 0.032$). However, the cost did not differ in the cases with O blood type who have adenovirus gastroenteritis ($p > 0.05$).

Conclusion: Adenovirus gastroenteritis are more common in summer period. Adenovirus gastroenteritis is more frequently seen in the persons having O blood type.

ALITHIASIC CHOLECYSTIS & HEPATITIS A

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Introduction: Alithiasic cholecystitis is a classic but uncommon manifestation that may reveal hepatitis A. Here is reported the case of an 11 year old girl in whom several symptoms lead to diagnose alithiasic cholecystitis and infection by Hepatitis A Virus (HVA).

Case presentation: From few days, a teenager girl of eleven years presents moderate asthenia, temperature and nausea. She is examined in the hospital emergencies and investigations are immediately ruled. Abdominal echography shows evident signs of acute alithiasic cholecystitis, transaminases are very elevated and serology is positive for HAV. No treatment is prescribed. Close clinical survey associated to biological and ultrasonographic controls, note a spontaneous resolution and all parameters normalize within one month.

Conclusion: Acute Hepatitis A Virus infection may result in alithiasic cholecystitis. This situation should be well-known by physicians, especially in HAV endemic areas. Prognosis is habitually excellent.

Medical Education

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REFLECTIONS FROM A UK E-LEARNING PROGRAMME FOR HEALTH PROFESSIONALS IN THE FIELD OF CHILDREN WITH COMPLEX AND PALLIATIVE CARE

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Introduction: In June 2010, the Department of Health (DoH), UK released a call to apply for funding to support projects focused on benefiting the lives of children and young people with complex health care needs (Craft and Killen 2007). Coventry University, UK, led by Professor Coad, was awarded £1.4 million to develop and deliver a new and innovative accredited blended e-learning programme.

Purpose: The purpose was to improve accessible learning to health professionals in this growing field of complex and palliative care in paediatrics and child health. This innovative programme now runs for nurses, doctors and allied health and social care professionals and has the potential to internationally impact on learning in the field.

Materials and Methods: Sound educational materials at post-graduate level were developed and piloted by a new partnership approach of academics, expert clinical staff and Learning Technologists. The programme includes a suite of seven new online modules which can be taken as stand-alone units of learning; a Post Graduate Certificate or Masters degree. Blended online learning includes a combination of new e-learning materials including video films, trigger case studies and second life avatars. Modules meet the needs of a range of professionals including specialist medicine management and neonatal care.

Results: Evaluation has been robust including an external review. Numbers accessing the programme have now totaled forty-five students across all field of paediatrics and child health or social care. Results highlight that the programme is contemporary in content focusing on the complex and end of life care needs and end of life care of the neonate through to the child and young person.

Conclusions: The presentation will share some of the new materials but will also focus on our learning and experiences. Experiences encountered by the team at Coventry University include issues relating to consultation, innovation, design, construction and development of an e-learning programme. International delegates will benefit from the lessons learned and use of e- learning in health education.

THE EFFECT OF IVIG ON LATE HYPOREGENERATIVE ANEMIA SECONDARY TO RHESUS HEMOLYTIC DISEASE OF THE NEWBORNSaleh Alalaiyan ; Hussain Alsaïd Ahmad ; Fahad Al-Hazzani ; Mai AlHasan*King Faisal Specialist Hospital and Research Center, Saudi Arabia*

Background: Hyporegenerative anemia is well known complication of HDN with incidence ranges from 71 to 83%, that present within 1-3 weeks of age and it can last up to 3 months. Its occurrence is most probably due to intramedullary destruction of RBC precursors, bone marrow suppression from intrauterine transfusions, and erythropoietin deficiency relative to the degree of the anemia. In this retrospective study, we aimed to determine the effect of IVIG on late hyporegenerative anemia secondary to HDN. **Methodology:** All infants admitted to the NICU with HDN from January 2005 to December 2010 were identified utilizing the NICU log book and the NICU database. Late anemia was defined as a hemoglobin level below thresholds requiring a top-up transfusion during the first three months of life. Relevant neonatal and maternal data were collected from the medical records of infants and their mothers that include, maternal age, complications during pregnancy, affected previous children, intrauterine blood transfusion, infant demographic data, hemoglobin levels, bilirubin levels, use of phototherapy, simple and exchange transfusions, age when late anemia was diagnosed and age when late anemia resolved. All infants were followed up as outpatients for a period of 2-3 months. During the follow up, complete blood count was done for all infants every two weeks to diagnose the late hyporegenerative anemia. The infants were classified into two groups, group 1: infants received IVIG and group 2: infants did not receive IVIG. Infants with major congenital anomalies were excluded from this study.

Statistical methods: the continuous variables with normal distribution; paired St-t-test was used, and for categorical data; Fisher's Exact test was used, $P < 0.05$ was considered statistically significant.

Results: There were 66 infants with HDN enrolled in this study. Forty two infants (IVIG-group) received IVIG as 0.5-1 gram/kg, administered over 4 hours and repeated in 12 hours, if necessary. The other 24 infants (no-IVIG group) did not receive IVIG who were used as a control for IVIG-group. In the table, there were no statistical differences between the two groups in maternal age, number of previous affected children with HDN, intrauterine transfusions, GA, BW, Apgar

NEONATAL TRANSIENT MYASTHENIA GRAVIS AND A CASE WITH INTESTINAL PERFORATIONHuseyin Altunhan¹; Mervan Bekdas¹; Sevil Bilir Goksugur¹; Hulya Ozturk²; Fatih Demircioglu¹¹*Abant İzzet Baysal University Faculty of Medicine Department of Pediatrics, Turkey;*²*Abant İzzet Baysal University, Faculty of Medicine Department of Pediatric Surgery, Turkey*

Neonatal Transient Myasthenia Gravis (MG) is observed in newborn babies whose mother's are diagnosed with MG. It is a situation, which is rarely observed among neonatal hypotonia and intestinal perforation etiologies. In this study in which we have aimed at drawing attention to the etiology of the neonatal intestinal perforation, we have attempted to present a case that was born to a mother, who was followed up for MG, and that had developed intestinal perforation during neostigmine treatment. Our patient was a 31-week old girl weighing 2280 grams born to 27-year old mother followed up for MG through C-Section. Dyspnea, tachypnea, and groaning respiration were observed in the patient a short time after birth. The patient, who was diagnosed with advanced hypotonic, was transferred to the ICU with prematurity and RDS. 4 cc/kg intratracheal surfactant was prescribed. She was subject to neostigmine test to facilitate separation of the baby from mechanical ventilator since her mother was known to be suffering from MG. The test results were positive. Therefore, neostigmine treatment began during 41st hour of hospitalization. However, direct abdomen x-ray in standing position was taken from the patient since her general condition had worsened during the 56th hour of hospitalization and abdomen distention had developed. The findings were conforming to perforation. The patient was subject to colostomy. Neostigmine was stopped and the patient follow up continued in the mechanical ventilator. Pathology results were consistent with spontaneous intestinal perforation. The patient was extubated on her 19th day of hospitalization. She recovered from hypotonia. The patient was discharged with full recovery on the 35th day of hospitalization.

In **conclusion**, we determined that intestinal perforation may be observed in babies with neonatal transient MG, particularly when neostigmine is used. Therefore, we wanted to emphasize that more attention shall be paid to this situation.

FEATURES OF FORMATION OF THE FIRST ORIENTING REACTIONS IN INFANTS WITH PERINATAL PATHOLOGY CNS

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Introduction: The formation of the first psychological responses to the impact of environmental stimuli in children depends on the severity of the suffering perinatal CNS, the nature and structure, the effects caused by them. Identifying characteristics of manifestations of unconditioned reflex responses in the newborn will determine the optimal conditions for the development of the child's mind in the early stages of ontogeny.

Purpose: Our purpose was to study the the process of becoming the first tentative reactions and social behavior in children with perinatal CNS.

Materials and Methods: Psycho-pedagogical study of 85 children with perinatal pathology of various origins and severity of gestational age from 32 to 42 weeks, was carried out for 4 months. Diagnosis of psychological achievements of age was conducted by the method composed Pantyukhina G., Pechora K., and Frucht E., Bailey Scales of Infant Development.

Results: Found that the peculiarities of the first unconditioned reflex responses and orienting reactions in children with perinatal CNS effects are early predictors of mental development. The timely appearance of the unconditioned reflex responses in 60% of children indicates minimal risk of poor mental development. Manifestations of weakness and rapid exhaustion of the unconditioned reflex responses, worn orientation reaction to novelty detected in 23.3% of children and may be the basis for the onset of mental disorders interaction with the outside world, these children are at high risk of poor mental development. The absence in 17.6% of the children first unconditioned reflex reactions, decreased motor activity indicates that the formation of their psyche is delayed or in violation of pace.

Conclusions: The majority 77.6% of children with perinatal CNS effects occur peculiarities of the first unconditioned reflex reactions and orientation on the impact of environmental stimuli, indicating a high risk of violation their mental development. In order to prevent the negative impact of health problems on the formation of the child's mind to the first days of life of children to create educational conditions of the environment and use special teaching methods for optimizing the impact of their psychological relationship with the outside world, as well as to train mothers emotional and developmental processes for communicating with a newborn.

ADMISSION CHEMISTRY BLOOD TESTS AND CULTURE FROM UMBILICAL CORD AND FROM INFANT: ARE THEY COMPARABLE?

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Background: in preterm infants early-onset anemia is mostly due to phlebotomies performed within the first hours or days after NICU admission. For the smallest patients these initial samples might equal up to 10-20% of their circulating blood volume. Umbilical cord blood drawing has been proposed as an alternative to run all the admission blood tests.

Objective: to assess the comparability between cord and infant blood on C-reactive protein (CRP), procalcitonin (PCT), blood urea nitrogen (BUN), creatinine, electrolytes, transaminases, $\hat{\Gamma}^3$ -glutamyltranspeptidase ($\hat{\Gamma}^3$ GT), lactate dehydrogenase (LDH), creatinine phosphokinase (CPK), albumin, total proteins, alkaline phosphatase (AP) and blood culture (BC).

Methods: a prospective bicentric cohort study comparing chemistry test and BC results of paired samples of cord and infant blood. Intraclass Correlation Coefficient (ICC) and % of agreement in terms of in/out reference intervals were used to assess the concordance between the obtained values. Difference between blood culture results in terms of specificity was assessed using McNemar test.

Results: 59 infants (GA34i,±3.3w - BW1990i,±802g) were studied. CRP, BUN, Ca and $\hat{\Gamma}^3$ GT showed a good concordance (ICCi,³0.8), while PCT, creatinine, P and Mg values showed a moderate yet significant concordance (ICC 0.5-0.8, p<0.001). The % of agreement was >90% for CRP, BUN, Ca, $\hat{\Gamma}^3$ GT, PCT, P, Mg, Cl, LDH, albumin, AP, total proteins, and >70% for the remaining values except for K. BCs were positive in 1 infant (specificity=98%), but not in the corresponding cord blood, and in 6 cord blood samples (specificity=89%), but not in the corresponding infants. Difference in terms of false positive rates was not significant. No sepsis was confirmed by CRP and PCT in any of the studied infants.

Conclusions: Umbilical cord blood is an acceptable replacement source for admission tests and BC in infants. Due to the lack of septic infants, we were not able to assess the false negative incidence on cord blood.

THE REDUCTION OF MICROBIAL FLORA IN NEONATAL INTENSIVE CARE UNIT (NICU) BY USING ANTIMICROBIAL COPPER ALLOYS

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Aim: The aim of this study was to investigate the effectiveness of the application of antimicrobial copper alloys (Cu +) in a Neonatal Intensive Care Unit (NICU) in relation to the reduction of microbial flora. **Materials & Methods:** At a Level III Neonatal Intensive Care Unit of a pediatric hospital, with the capacity of twenty-six (26) incubators, antimicrobial copper (Cu +) was implemented on touch surfaces and objects. The copper alloy contains Cu 63% - Zn 37% (Lead Low). Microbiological cultures were taken in three different time periods, before and after the application of Cu+, using dry and wet method technique. **Results:** In the above NICU, the reduction of microbial flora after the implementation of the antimicrobial copper (Cu +) on the selected surfaces and objects was statistically significant (n = 15, p <0,05) and was recorded at 90%. The pathogens isolated at high rates (CFU / ml) prior to copper implementation were as follows: Klebsiella spp., Staph. Epidermidis, Staph. Aureus, Enterococcus spp.

Conclusions: This study highlights the positive impact of antimicrobial copper (Cu +) and demonstrates that copper implemented surfaces and objects are effective in neutralizing bacteria, which are responsible for Health Care Acquired Infections in the nosocomial environment (HCAs).

«HALO» PHENOMENON (PHENOMENON "STEFANIS") IN RELATION WITH ANTIMICROBIAL COPPER IMPLEMENTATION

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Aim: The aim of this study was to evaluate the antimicrobial action of copper alloys in the form of a 'circle' ("halo" phenomenon), resulting in a further reduction of microbial loads in non antimicrobial copper implemented multi-touch surfaces.

Method - Material: In a Neonatal Intensive Care Unit (NICU) with the capacity of 26 beds (boxes) of a pediatric hospital implemented with antimicrobial copper Cu+ (Cu+63% Zn - 37% low lead) and certified for the antimicrobial activity of objects and surfaces, samples and cultures were taken within 50cm distance from the Cu+ implemented objects and surfaces, in order to measure the microbial flora. This process took place the period before, during and 2 months after Cu+ implementation. Parameters such as Operational Protocols and staffing of the NICU during the research were not differentiated.

Results: The reduction of microbial load on multi-touch surfaces of Cu+ was recorded at 90%, and at a distance of 50 cm from the Cu+ implemented objects or surfaces the reduction of microbial loads (cfu / ml) was recorded at a rate of 70-75% (N = 36-P <0,05). Microbial strains found were: Klebsiellasp., Staph. Epidermidis, Staph. Aureus, Sphingomonaspaucimobilis.

Conclusions: The recorded 'radial action' of the Cu+ alloys in a circular form ("halo" phenomenon) provides further confirmation of copper's antimicrobial ability. The «halo» phenomenon enables Cu+ to reduce microbial flora and increase its beneficial effects on health sector and sets the bases for further comparative research.

NEONATAL SEPSIS WITH FATAL EVOLUTION FOLLOWING MATERNO-FETAL INFECTION WITH STREPTOCOCCUS AGALACTIAE-A CASE REPORT

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Objectives: Materno-fetal infection is still an important cause of morbidity and mortality.

Methods: A 28 weeks baby boy was born by vaginal delivery from a 35-year old mother with preterm labor and intact membranes. Birth weight was 1100 g, the infant had cervical circular umbilical cord, severe generally status, intense cyanosis, absence of respirations and heartbeats, hypotonia, Apgar 1/3/5. After resuscitation the heart rate was 138/min, respiratory frequency 50-60/min, arterial blood pressure 69/48/34 mmHg, SaO2 80-92% on IPPV system, FiO2 80-100%, PIP-20/22/25/27/30/34 cm H2O and PEEP-5/6/8 cm H2O. Laboratory data showed anemia with leucopenia and neutrophilia, intense inflammatory syndrome, hypocalcemia, respiratory acidosis; thoracic X-ray showed diminished pulmonary transparency with reticulonodular pattern of ground-glass appearance. A group B Streptococcus agalactiae was identified in skin, throat and external auditory canal culture and also in mother's lochia culture. Hemoculture was negative. Despite broad spectrum antibiotherapy and intensive care the evolution was unfavorable with pulmonary and CNS hemorrhage, bradycardia, hypotension and cardiorespiratory stop unsuccessfully resuscitated.

Results: We report a particular case of S.agalactiae materno-fetal infection without premature rupture of the membranes followed by fatal neonatal sepsis

Conclusions: Due to serious complications of group B streptococcus infection, screening of cervico-vaginal colonization in pregnant women is mandatory.

ASSOCIATION OF INFANTILE COLIC AND LEVEL OF CORD TOTAL IGE WITH THE MANNER OF DELIVERY AMONG HEALTHY TERM INFANTS

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Objective: To determine the association of infantile colic (using the Rome III diagnostic criteria for functional gastrointestinal disorder) and the level of cord total IgE in a subset of patients with the manner of delivery.

Methology: All babies delivered at a tertiary government hospital during a 3-month period were included in the study. The incidence of infantile colic between abdominal and vaginal deliveries was compared. In a subset of patients, the total cord blood IgE was determined using ECL (electro-chemi-illuminiscent) process to ascertain increased levels in a particular manner of delivery.

Results: Abdominal deliveries were associated with increased incidence of infantile colic [p value of 0.01 and RR of 2.37 (95% CI 1.46-3.86)] and increased levels of cord blood IgE in a subset of patient quantitatively (means of 0.86 ± 0.34) and qualitatively (increased values at 1.2UI/ml with p value of 0.04).

Conclusions: The data suggest that abdominal delivery can be an additional risk factor for the development of infantile colic. It is also associated with a possible allergic predisposition as shown by the increased levels of total cord blood IgE.

Nephology PP65

IS THERE A NEPHROPATHY RISK FOR CHILDREN WITH ASTHMA WHO USE INHALED STEROIDS?

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Introduction: Asthma is one of the most common chronic inflammatory diseases in children, but whether these patients, who require long-term follow-up and medication, carry a risk for nephropathy is unknown.

Purpose: The purpose of this study was to investigate whether the urinary microalbumin level and urinary microalbumin/creatinine ratio, early indicators of nephropathy, increase in children with asthma. **Materials**

and Methods: Asthmatic children aged 10 years or older who had been on medication for at least 4.2 ± 2.7 years were selected for this study. All patient medical histories, physical examination results, and serum amyloid A (SAA), urinary microalbumin, and urinary creatinine measurements were evaluated. **Results:** Twenty-one children with asthma (13 boys, eight girls) were evaluated, including 12 medication-controlled cases (57.1%) and nine cases admitted during an acute attack (42.8%). SAA levels in the acute attack cases (0.16 ± 0.06 vs. 3.5 ± 7.8 mg/dl, $p < 0.001$) were significantly higher than those in medically controlled cases. Urinary microalbumin was not significantly different between groups, although it was higher during acute attacks (15 ± 19 vs. 22.6 ± 35.2 mg/l). Ten of the patients with asthma (47.6%) had been on medication for <5 years, and 11 (52.3%) for ≥ 5 years. The urinary microalbumin levels (8.2 ± 4.8 vs. 27.5 ± 34.6 mg/l, $p = 0.02$) and urinary microalbumin/creatinine ratios (0.06 ± 0.02 vs. 0.14 ± 0.11 , $p = 0.016$) were significantly higher in those receiving medication for ≥ 5 years compared with those receiving medication for <5 years.

Conclusions: SAA levels increased in patients suffering from acute asthma attack. The urinary microalbumin levels and urinary microalbumin/creatinine ratios of children with asthma who had received a long-term inhaled steroid were significantly higher than those of children who had not.

	Patients receiving medication <5 years (n=10)	Patients receiving medication ≥ 5 years (n=11)	p
Time of medication (years)	2.4 ± 0.9	5.8 ± 2.8	<0.001
SAA (mg/dl)	0.2 ± 0.1	2.9 ± 7.2	0.55
Um (mg/l)	8.2 ± 4.8	27.5 ± 34.6	0.02
Um/c	0.06 ± 0.02	0.19 ± 0.23	0.016

SYSTEMIC CAPILLARY LEAK SYNDROME (SCLS), RHABDOMYOLYSIS, ACUTE RENAL FAILURE AND COMPARTMENT SYNDROME ASSOCIATED WITH INFLUENZA H1N1 INFECTION

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Introduction: Influenza H1N1 infection complicated by rhabdomyolysis leading to acute renal failure or compartment syndrome have been reported in a few children or adolescents. However, the association of influenza H1N1 and systemic capillary leak syndrome has not been reported so far.

Purpose: To describe the unique case not reported to date, in whom SCLS, rhabdomyolysis, acute renal failure and compartment syndrome were associated with influenza H1N1 infection.

Case report/Results: A 7-year old boy presented with severe myalgia, severe bilateral thigh and calf pain and swelling on the background of 2 days history of fever, headache, and vomiting. His condition deteriorated in the next day by edema, oliguria and hypotension. After resuscitation at local hospital he was referred to our hospital. On admission, he was tachypneic, hypotensive (60/30 mmHg), oliguric with periorbital edema and he had exquisite pain and tenderness to palpation in his upper and lower legs bilaterally which were tense to palpation.

Laboratory investigations: Hb 195 g/l, RBC 6.04x10¹²/l, hematocrit 0.585, WBC 52.5x10⁹/l with 0.633 neutrophils; serum values were as follows: protein 27 g/l, albumin 15 g/l, urea 14.7 mmol/l, creatinine 174 μmol/l, Na 121 mmol/l, LDH 2269 IU/l, (N), CK 45800 IU/l (N), pH 6.92, BE -25.8 mmol/l, pCO₂ 31.8 mmHg; Urinalysis: trace of protein, 8-10 WBC/hpf and 35-40 RBC/hpf. Blood and urine culture were negative. Treatment with i.v. fluid and dopamine resulted in normalization of blood pressure and urine output. A gradual improvement on symptomatic treatment ensued the next 3 weeks: blood counts, serum protein and albumin became normal at the end of first, urea and creatinine at the second, and LDH and CK in the third week, concomitantly with resolving of legs edema and ability to walk. Antibody titer to influenza H1N1 rose from 1/32 to 1/64 within 2 weeks. Clinical presentations of peripheral edema, hypotension, low serum albumin, hemoconcentration with complications of rhabdomyolysis acute renal failure and compartment syndrome are feature that should alert the clinician to consider SCLS, with or without infective trigger. In our case, the causative role of H1N1 influenza virus was inferred on the basis of season when illness occurred and rising titre of anti-H1N1 antibodies.

Neurology/ Neurodevelopmental Paediatrics

PP67

SUBCLINICAL IMMUNE REACTIONS TO VIRAL INFECTIONS MAY CORRELATE WITH CHILD AND ADOLESCENT DIAGNOSIS OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A PRELIMINARY STUDY FROM TURKEY

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Introduction: ADHD is one of the most important neuropsychiatric disorders of childhood and adolescence. There are some report for the relationship of viral infections and ADHD.

Purpose: To evaluate the relationship between viral agents of cerebellitis and the diagnosis of ADHD.

Materials and Methods: The study group was formed of 60 consecutive ADHD patients and 30 healthy children. Ig G levels for Cytomegalovirus, Ebstein-Barr virus, Herpes Simplex virus, varicella zoster virus, measles, mumps and rubella were evaluated.

Results: Males were significantly higher among patients with ADHD (65% vs. 40%, $p=0.025$). Patients with ADHD displayed significantly higher positivity for Measles IgG (80% vs. 60%, $p=0.044$). When patients with ADHD were classified according to their pubertal status, adolescents with ADHD displayed higher positivity for mumps (100% vs. 74.4%, $p=0.043$). Most of the patients were diagnosed with ADHD-Combined or Hyperactive/Impulsive Subtypes (56.6%) while 43.3% were diagnosed with ADHD-predominantly Inattentive type. When patients with subtypes of ADHD were compared in terms of seropositivity, it was found that patients with ADHD-Combined/ Hyperactive-Impulsive subtypes had significantly elevated reactions for Rubella (100% vs. 88.5%, $p=0.044$).

Conclusions: Although limited to a single center and may be prone to sampling biases, our results may support the notion that immune reactions may be related with ADHD among children and adolescents. Further, prospective studies from multiple centers are needed to support our findings and establish causality.

PP68

RISK FACTORS & COMPLICATION OF CEREBRAL PALSY IN MISURATA HOSPITAL- LIBYA

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Objective: THE AIM OF THE STUDY TO KNOW THE ETIOLOGICAL FACTOR ,CLINICAL TYPE,VARIABLE COMPLICATION OF CEREBRAL PALSY IN MISRATA HOSPITAL , AND TRY TO PREVENT THIS CHRONIC ILLNESS LATER.

Study design: DESCRIPTIVE STUDY BASED ON HOSPITAL RECORDS.

Study setting: PEDAITRICS DEPARTMENT MISRATA CENTRAL HOSPITAL.

Study population and period of study: 116 PATINTS WHO WERE ADMITTED WITH DAIGNOSIS OF CERABRAL PALSY FROM 1/7/2010 TILL 30/6/2013.

Study variable: RISK FACTOR OF CERAL PALSY SUCH AS BIRTH WEIGHT, GESTATINAL AGE, CONSANGUINITY, AND MODE OF DELIVERY, SIMILAR ILLNESS IN THE FAMILY AND OTHER RISK FACTOR OF CEREBRAL PALSY WERE STUDIED. OTHER VARIABLE SUCH AS COMPLICATION, MALNUTRITON ASSESSED BY WEIGHT FOR AGE, ANEMIC STATUS AND ASSESSMENT OF MOTOR FUNCTION WERE ALSO STUDIED.

Result: THEY WERE 116 PATINT 69 WERE MALE AND 47 WERE FEMAL.THE MALE TO FEMAL RATIO WAS 1.46:1. BIRH ASPHYISIA ACCONTEED FOR 42(36%) OF CASES, LOW BIRTH WIGHT ACCONTEED FOR 11(10%) OF CASES, VERY LOW BIRTH WEIGHT ACCUONTEED FOR 1(0.8%).NEONATAL MENINGITIS WERE 12(10%), PREMATUR WERE 10(8.6%) AND THE ETIOLOGY WAS UNDTERMINED IN 22 CASES (18.6%). THE SPASTIC CEREBRAL PALSY WAS THE

MOST COMMON TYPE OCCURRING IN 77% OF CASES, ATONIC 13% AND MIXED VARIETIES OF CEREBRAL PALSY IN 10%. RECURRENT SEIZURES WERE SEEN IN 54% OF CASES, 25% OF CASES HAD MUSCULOSKELETAL COMPLICATION MAINLY IN FORM OF TENDON CONTRACTURE. 25% OF CASES WERE MENTALLY RETARDED AND ABOUT 50% HAD MALNUTRITION AND THEIR WEIGHT BELOW THIRD CENTILE, 56% OF THEM WERE ANEMIC. VARIABLE OCULAR PROBLEM DETECTED IN ABOUT 50% OF CASES IN FORM OF OPTIC ATROPHY AND STRABISMUS.

Conclusion: THE ETIOLOGICAL FACTORS OF CEREBRAL PALSY ARE LARGELY PREVENTIBLE IN OUR CITY. IMPROVEMENT IN ANTENATAL, NATAL, PERINATAL CARE IS ESSENTIAL TO REDUCE THE INCIDENCE OF CEREBRAL PALSY. REHABILITATION CENTER SHOULD BE ESTABLISHED AT COMMUNITY LEVEL TO OFFER INTEGRATED SERVICES TO CHILDREN WITH CEREBRAL PALSY IN ORDER TO REDUCE MORBIDITY AND MORTALITY IN THIS AGE GROUP. WE SHOULD DIRECT OUR HEALTH SERVICE TOWARD REDUCTION IN INCIDENCE OF CEREBRAL PALSY. THE COST OF SUCH PROGRAM IS FAR LESS THAN THOSE ASSOCIATED WITH TREATMENT AND REHABILITATION.

Other
PP69

ANALYSIS OF QUESTIONNAIRE ON SATISFACTION OF NEW MOTHERS IN SERBIA

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Introduction: A ten-day research was carried out in 93 representative health centers in Serbia, in February 2013, within the mutual project of the Institute of Mother and Child Health Care of Serbia and the Serbian Ministry of Health.

Purpose: to determine influences on satisfaction of expecting and new mothers and difference in satisfaction between mothers who gave birth in hospitals previously certificated as Baby Friendly hospital (BF), and in those that were not.

Materials and Methods: In line with the methodology applied in the "Woman-friendly maternal health services" research conducted by the Ministry of Health throughout 2009/2010, standardized questionnaires were used, with cooperation of community nurses during the first visit to the newborn and mother. The survey was voluntarily and anonymous. Data was analyzed in SPSS 20 software. Connection of the outcome variables of new mothers' general satisfaction with their hospital stay and independent variables was examined by multivariable logistic regression. The difference in maternity wards in the region was analyzed (Student's t-test).

Results: 1280 questionnaires were distributed to health centers, 972 questionnaires from 53 maternity wards were collected. The lowest mean scores were recorded for questions on satisfaction with advice and assistance on breastfeeding and care in the first few days (breast care, expression, diapering 3.76); BF Program, if implemented at the hospital, and assistance from staff 3.74; treatment immediately after birth (immediate information on baby's and her condition, possibility to see the baby at once (4.19); option for husband to be present at birth and participate actively 3.16. General score is 3.74. Community nurse visit the day after discharge to 99%, and 99.6% of mothers feel the nurse gave them all necessary information on baby care, feeding and health. High statistical significance to general satisfaction with hospital stay: satisfaction with conditions (cleanliness of rooms and toilets) and admission/discharge procedures (length of wait and administration). Lowest mean scores relate to satisfaction with BF program.

Conclusions: Most important for new mothers' satisfaction is to receive all necessary information for delivery and newborn care, with advice and assistance on breastfeeding and care in the first few days. BF standards need to be applied.

PP70

ANTIMICROBIAL COPPER (CU +) IMPLEMENTATION AND ITS INFLUENCE TO THE EPIDEMIOLOGICAL DATA IN ELEMENTARY SCHOOL POPULATION

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Aim: The aim of this study was to evaluate the epidemiological data in elementary school students after implementing Cu+ in multi- touch surfaces.

Methods: Antimicrobial copper alloy (Cu 63% - Zn 37%, Low Lead) was used to cover or replace multi-touch surfaces (handrails, stair railings), in five elementary schools (N = 1596 students). Epidemiological surveillance of flu-like symptoms was conducted from the 40th week of 2011 to 15th week of 2012 and recorded absenteeism among students based on a specific protocol.

Results: A significant reduction of pathogenic strains and viruses after the implementation of antimicrobial copper Cu+ influenced the occurrence of respiratory infections of viral etiology. A decrease of seasonal influenza (Influenza Like Illness) was recorded on the students of these schools. Clinical morbidity index of students was recorded at 36, 01% (average 5 schools), while in the community the same period (2011-2012) the rate was 48, 8%.

Conclusions: The use of antimicrobial copper in places with great population concentrations and crowded places such as schools is an innovative application, which in combination with hand hygiene contributes significantly to the reduction of viral respiratory tract infections and emerging as one of the most important allies to the Public Health.

PP71

YIELD OF EXPANDED NEWBORN SCREENING ON INBORN ERRORS OF METABOLISM IN THE NETHERLANDS

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Introduction: On 1 January 2007 the Dutch newborn screening program for inborn errors of metabolism disorders was expanded from one (phenylketonuria) to 14 disorders (biotinidase, galactosemia, glutaric aciduria type 1 (GA1), HMG-CoA-lyase deficiency, homocystinuria, holocarboxylase synthase, isovaleric acidemia, long-chain hydroxyacyl CoA dehydrogenase (LCHAD)/ mitochondrial trifunctional protein (MTP), maple syrup urine disease, medium chain acyl CoA dehydrogenase (MCAD), 3-methylcrotonyl-CoA carboxylases (3-MCC), tyrosinemia type I, very-long-chain acyl CoA dehydrogenase (VLCAD)).

Objective: Report and evaluate the results of the expanded newborn screening program.

Methods: Data were collected on all newborns with a screening result indicative for a metabolic disease from January 1, 2007 to December 31, 2012. The prevalence of the diagnosed metabolic diseases was compared to retrospective data from the Dutch Diagnosis Registry for Metabolic Diseases (DDRMD; www.ddrmd.nl).

Results: In 6 years 1611 newborns (0.0015% of all newborns) were referred and in 455 diagnosis was confirmed (ratio true to false positives 1:3.5). MCAD deficiency was the most prevalent disorder (incidence of 1:7500). False negative screening results were demonstrated for twelve patients. Due to screening methodology patients with Organic Cation Transporter (OCTN2) deficiency (14) were also found. To improve true to false positive ratios screening methods were adjusted for galactosemia, tyrosinemia type I and VLCAD. Screening on homocystinuria was insensitive and stopped in 2010. An abnormal newborn screening result caused by maternal enzyme deficiency was found for GA1 , 3- MCC, MCAD and OCTN2.

Conclusion: Compared to historical data the number of patients diagnosed since the introduction of the screening program is substantially higher. This is largely due to detection of milder forms of enzyme deficiencies. However, also despite early detection by screening, all patients with MTP died in the first month after birth. Nonetheless, it is obvious that the expansion of the screening programme lead to considerable health benefits as a result of early detection.

PP72

USE OF ONLINE MEDICAL INFORMATION AMONGST AFRICAN PAEDIATRICIANS: A CROSS- SECTIONAL SURVEY

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Introduction: Medicine is always rapidly evolving, with research about new approaches to treatment and new diseases being published online regularly. Many of these papers contain information that has the potential to improve outcomes for children in the developing world, making it essential that paediatricians in these countries stay up to date with medical evidence. To optimise dissemination, it is important to have data on how paediatricians access online medical information, how they use the available information and the limitations experienced in keeping up to date.

Purpose: This study aimed to describe how African paediatricians use the internet to access online medical research.

Method: A cross-sectional survey of paediatric trainees, surgeons and consultants in eight African countries was conducted. Questions were developed after reviewing the literature on doctors use of online research. The survey was piloted with a focus group of trainee paediatricians and adjusted to improve clarity. An online link to the survey was emailed to eight African Paediatric societies, social media groups and research forums. Telephone surveys were conducted with consenting paediatricians.

Results: The survey was completed by 72 Paediatricians (9 trainees, 7 general Paediatricians, 54 paediatricians with a subspecialty interest and 2 paediatric surgeons). Twenty-three percent of respondents were accessing online medical information more than 10 times a week, 48% 6-10 times a week, 27% 3-5 times and no paediatricians less than once a week. Google and Pubmed were the most frequently accessed sites for medical information. Fifty-five percent had access to HINARI at their institution, 25% did not and 20% of respondents were not certain. The two most common challenges to accessing medical information selected was "subscription fees" (58%) and "not enough open access papers" (47%). Four respondents (5.5%) felt that published medical research was not relevant to their patient population. Sixty percent of respondents had used online evidence to influence a clinical decision in the preceding week. When asked how frequently they found published research that improved their clinical practice: 3% said always, 73% often, 20% rarely and 3% never.

Conclusion: In order to reach the appropriate clinicians publishing findings in open access journals should be a key priority for researchers.

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SIDE EFFECTS OF EPILEPSY DRUG: EFFECT OF PHENYTOIN AND AGING ON REGULATION OF 3 ENZYMES OF GINGIVAL FIBROBLASTS IN PEDIATRICS AND ADULTS

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Introduction: Epidemiologic data has shown that gingival overgrowth as a side effect of Phenytoin, one of the major drugs against Epilepsy is more common in pediatrics than in adults. The alteration of cytokine balance is suggested to exert greater influence on gingival overgrowth compared to the direct effect of drug on the regulation of extracellular matrix metabolism or proliferation of gingival over growth.

Purpose: Current study was performed to evaluate the Phenytoin effect on the regulation of Collagen, Lysyl oxidase and Elastin in the gingival fibroblasts in pediatrics and adults.

Methods and materials: Normal human gingival fibroblasts (HGFs) were obtained from 4 healthy children and 4 adult. Samples were cultured with phenytoin. MTT test was used to evaluate the proliferation and ELISA was performed to determine the level of IL1B and PGE2 production by HGFs. Total RNA of gingival fibroblasts was extracted and RT-PCR was performed on samples. The Analysis of proliferation was assessed by Independent ANOVA; Kruskal-Wallis was used to assess the production of mediators with an alpha error level less than 0.05.

Results: There was significant difference in the expression of Elastin between the controls and treated samples in both adult and pediatric groups and also in the Lysyl oxidase expression of adult controls and treated adult. No significant difference was found between the Collagen expressions in adults.

Conclusion: The only significant difference was in the Elastin and Lysyl oxidase expression between adult and pediatric samples indicating the significant effect of age in their production of both control and experimental groups.

PP74

Â FINANCIAL BENEFITS AFTER THE IMPLEMENTATION OF ANTIMICROBIAL COPPER IN INTENSIVE CARE UNITS (ICUS)

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Aim: Aim of this study was to evaluate the reduction on Intensive Care Unit (ICU) microbial flora after the antimicrobial copper alloy (Cu+) implementation as well as the effect on financial - epidemiological operation parameters.

Methods: Medical, epidemiological and financial data into two time periods, before and after the implementation of copper (Cu 63% - Zn 37%, Low Lead) were recorded and analyzed in a General ICU. The evaluated parameters were: the importance of patients' admission (Acute Physiology and Chronic Health Evaluation - APACHE II and Simplified Acute Physiology Score - SAPS), microbial flora's record in the ICU before and after the implementation of Cu+ as well as the impact on epidemiological and ICU's operation financial parameters.

Results: During December 2010 and March 2011 and respectively during December 2011 and March 2012 comparative results showed statistically significant reduction on the microbial flora (CFU / ml) by 95% and the use of antimicrobial medicine (per day per patient) by 30% (p = 0,014) as well as patients hospitalization time and cost.

Conclusions: The innovative implementation of antimicrobial copper in ICUs contributed to their microbial flora significant reduction and antimicrobial drugs use reduction with the apparent positive effect (decrease) in both patients hospitalization time and cost. Under the present circumstances of economic crisis, survey results are of highest importance and value.

PP75 - WITHDRAWN

PP76

THE BENEFITS OF QUALITY ANTENATAL EDUCATION TO MATERNITY CARE PROVIDERS

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Introduction: The provision of antenatal education is a fundamental role of the midwife. The provision of antenatal education is not only important for preparing women for the birth of their babies but also to promote confidence and develop coping strategies to care for a newborn baby.

Purpose: Demographic changes, such as increased birth rates, have meant that midwives have focused upon antenatal visits and prioritised care and support for women in labour finding less time to prepare for and deliver classes. In order to provide the women of Coventry with antenatal education University Hospitals Coventry and Warwickshire NHS Trust decided to outsource the provision of these classes in 2012. The aim of the project was to provide cost effective, efficient and appropriate antenatal preparation to meet the specific needs of women living in Coventry.

Materials and Methods: The team of academic midwives who were successful in gaining the bid each held current registration with the Nursing and Midwifery Council and a recordable teaching qualification. The parent education programme consisted of five two hour sessions each with content around childbirth, baby care and support for partners making each session discreet enabling women to choose those which are pertinent to them should they not be able to attend every session. Expert colleagues in physiotherapy, mental health and health visiting provided 'added value' by delivering supplementary information.

Results: More than eight hundred women and their partners were accommodated. The programme was oversubscribed which resulted in a waiting list. Parents were asked to complete an evaluation form at the end of the programme. Their feedback was extremely positive. It highlighted the informative, interactive and informal nature of the sessions. Parents reported that the programme met the needs of both pregnant women and their partners, provided relevant information, that the programme was well worth doing and that they would recommend it to other parents.

Conclusion: The presentation will highlight the importance of using quality interactive materials, appropriate health professionals and the benefits to maternity care providers.

PP77

ACUTE RESPIRATORY DISTRESS SYNDROME ASSOCIATED WITH SCORPIONS VENOM: A CASE REPORT

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Introduction: Scorpion sting is an acute life-threatening medical emergency condition in African Countries, India, Middle-East and tropical countries. Local and systemic symptoms as well as complications arise due to scorpion venom. The local ones are local swelling, pain and numbness while the systemic ones include cardiac associated with mortality(hypertension, arrhythmia, acute heart failure), neurological (coma, tremors, paralysis of the respiratory muscles), respiratory (pulmonary edema, ARDS:acute respiratory distress syndrome) and pancreatic complications.

Purpose: The study aims to evaluate the complications caused by scorpion venom and possible treatment

Materials and Method: The study involves a 7 year old male with scorpion venom (5 cm long, yellow colour) transferred from one of the State Town Health Unit to Dicle University Hospital, Paediatric Emergency Unit.

Results: The consciousness of the patient was confused, oxygen saturation was about 78%, heart rate was 140/min, respiratory rate was 36/min, arterial blood pressure was 56/43 mmHg, body temperature was 38.2 °C. An erythematous lesion in the upper part of the neck was observed. A systemic examination of the patient and by listening to the sounds of the heart murmur was indicative of tachycardia while breath sounds indicated a decrease on the right and common crepitan crackles on the left. The patient was provided with oxygen via a mask (10 L/min rate) and then transferred to the Intensive Care Unit with saline fluid loading. The blood gas results showed that pH was 7.34, pCO₂ was 36, pO₂ was 34, HCO₃ was 18 mmol/L and biochemistry showed that ALT was 89 IU/L, AST was 142 IU/L, CK was 2108 U/L. The other parameters were normal, the WBC hemogram was 25.8 mm³, coagulometer results were normal and cardiac marker levels were within normal limits. The PA radiography displayed pulmonary edema and atelectasis on the right chest while infiltration and microatelectasis on the left. The patient was treated with antibiotherapy, steroids and diuretic. Mechanical ventilation was supplied because of increased respiratory distress for 32 hours. He was completely discharged after 8 days.

Conclusion: Respiratory failure as result of scorpion poisoning may be of cardiac origin or due to ARDS. The treatment should be immediately given with the application of mechanical ventilation with a positive pressure.

PP78

AN APPROACH TO MODEL THE PREMATURE EPIDERMAL BARRIER IN ADULT SKIN

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Introduction: Fragility of the *stratum corneum* places premature infants at high risk for sepsis, irritation and dehydration. Thus, skin care is a special concern in the neonatal intensive care unit (NICU) and diaper area hygiene particularly so given the need for more vigorous cleansing to remove feces and urine. The present work builds on our interest to develop human *in vivo* skin models to test and develop cleansing products for the special needs of premature infants (1-3).

Purpose: (a) To model epidermal barrier conditions of premature infants; (b) to compare the effect of different wipes on barrier repair.

Materials and methods: Sites on the volar forearms of adult females were tape stripped to emulate levels of transepidermal water loss (TEWL) of premature infants. The next 4 days, three sites were wiped with one of 3 different wipes (exaggerated over daily needs) and one site remained untreated to simulate post-birth barrier maturation. TEWL and visual erythema were recorded daily.

Results: TEWL at the untreated site decreased to 30% of post-damage levels within 4 days. Cotton washcloth and water significantly delayed skin barrier repair, whereas two disposable wipes allowed repair at a rate comparable to the unperturbed site.

Conclusions: Based on similarities between wipes in this study and those tested in the NICU (3), we postulate that perturbation of barrier repair offers a viable metric to test the impact of topical products that may be used in the care of premature infants. We also conclude that the two wipes tested met a rigorous criterion of minimal interference with barrier repair (as a model of barrier maturation) and were meaningfully gentler than cotton washcloth and water.

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FECAL COLIFORM CONTAMINATION IN THE DOMESTIC ENVIRONMENT OF CHINESE INFANTS: EFFECT OF NEWBORN AND DIAPER PRACTICE

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Introduction: Globally, domestic hygiene may be the most effective and economically sustainable prevention strategy of reducing a significant proportion of infectious disease that occurs in the home¹⁻³.

Purpose: This study compared frequency (prevalence) and density of fecal coliform contamination in the home environment of newborn Chinese infants, associated with use of reusable (cloth) or disposable (Pampers) diapers.

Materials and methods: 450 households with an expectant, primiparous resident were randomized to exclusive use of cloth or disposable diapers balancing gender and child delivery mode. Microbiological samples were taken before birth and 1, 2 and 4 weeks after arrival of the child from the hands of the mother caregiver and from multiple home surfaces. Standard culture techniques determined the presence/density of fecal coliforms. Hygiene behaviors were surveyed.

Results: Demographic, socio-economic status, parental education, home amenities (plumbing), and hand wash did not differ between groups. Among cloth diaper households, fecal coliform contamination increased 2-3 fold from baseline within one week child arrival and was sustained for duration of the study with a frequency on caregivers' hands over 80%. Use of disposable diapers was associated with 30-50 % reduction in fecal coliform contamination in both human and inanimate surfaces, compared to cloth diapers.

Conclusions: The arrival of a newborn causes substantial deterioration in the domestic hygiene as determined by prevalence and density of fecal coliform contamination. Use of disposable diapers markedly improved the hygiene condition of hands and surfaces within the homes, compared to cloth, supporting the use of disposable diapers as a simple newborn care intervention that can contribute significantly to a cleaner environment. Even under improved conditions, hand contamination was substantial, emphasizing the hygiene value of proper hand wash education.

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MODERN DIAPER CONSTRUCTION, MATERIALS AND SAFETY: A REVIEW

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Introduction: It is estimated that an infant using disposable diapers may be subject to more than 3800 diaper changes before being toilet trained. This level of exposure to diapers makes it important that their materials and safety are well understood.

Purpose: A review of the literature on diapers and diaper rash reveals that many clinicians are unfamiliar with modern diaper construction and materials as well as diaper safety testing methods. This poster is designed to provide an up to date review of diaper materials and construction.

Results: The bulk of the materials in disposable diapers are solid polymeric compounds that consist of large molecules that are essentially inert, are not soluble in water or most solvents, and are not absorbed into the skin. Super absorbent materials are crucial to modern diaper absorbency have been evaluated in more than 450 safety studies. Other materials occur in small amounts and have been extensively tested for safety. Typical modern diapers do not contain ingredients of concern such as latex and disperse dyes, but use ingredients such as spandex and pigments with a favorable safety profile.

Conclusions: Today's disposable diaper is a high performance product whose carefully designed layers and liners provide optimal urine and feces absorption and an ever more clothing-like and comfortable fit. This is possible due to a variety of specialized polymer materials that provide optimal absorption of urine and feces thereby minimizing skin exposure.

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SLEEP DOES A RELATIONSHIP GOOD: EXAMINING THE RELATIONSHIP BETWEEN INFANT SLEEP AND MOTHER-INFANT INTERACTIONS IN CHINA

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Introduction: Many parents experience difficulty with infant night waking during the first year of life, but little research has been conducted to examine how variability in infant sleep habits relates to mother-infant interactions.

Purpose: In the present study, we examined characteristics of mother-infant interactions both before the initiation and near the completion of a 6-week sleep intervention conducted with 6-month-old Chinese infants.

Materials and methods: Infants were randomly assigned to wear high-absorbency disposable diapers or to continue wearing low-absorbency cloth diapers; we also informed the parents of infants in the disposable diaper group about the benefits of their use.

Results: The results indicated that infants who wore disposable diapers were less negative in affect relative to infants who wore cloth diapers; mothers of infants who wore disposable diapers were more responsive to infant nondistress and less intrusive relative to mothers of infants who wore cloth diapers. Correlations between maternal and infant behaviors near the end of the intervention indicated that mother-infant behaviors were significantly related.

Conclusion: The findings indicate that a sleep intervention designed to promote consolidated nighttime sleep in 6-month-old Chinese infants led to differences in mother-infant interaction over time. These data suggest that infants and children with less optimal nighttime sleep patterns may receive somewhat less supportive and more intrusive care from their parents.

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INITIATIVES POSTER PRESENTATION

Global Breastfeeding Initiative Posters

GBFI_PP1

GROWING CHILDREN WITH BOVINE METABOLISM: FOLLOW-UP RESULTS FROM RUSSIA

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Background: Number of recent studies examining the effects of early formula feeding revealed a significant effect on later obesity. Our study investigated a long-term impact of feeding whole cow's milk. Initial nutritional survey of a random sample of 436 mothers conducted in Nizhny Novgorod, Russia, in 2001, had revealed a low prevalence of exclusive breastfeeding and high incidence of whole cow's milk feeding in infants. We evaluated consequences of whole cow's milk feeding in infancy on Body-Mass Index (BMI), blood pressure (BP) and insulin metabolism. We hypothesize that such feeding practice has long-term negative effect on metabolic health.

Method: Case-control cohort analysis of 79 children, aged 6 years (74.95 ± 17.8 months), recruited from a clinical population ($n=436$) who had participated during infancy in the 2001 feeding practice survey. Participants were divided into 2 groups according to type of feeding in infancy: those breastfed for a minimum of 9 months (BF; $n=36$), and those who had a high daily volume of cow's milk during the first year (CM; $n=43$). We measured BMI, BP, fasting and 2-hour glucose and insulin levels following an oral glucose load (1.75 g/kg ; 75 g max).

Results: CM children demonstrated higher BMI, beginning at 6 months and persisting through the most recent measurement at which time the difference had become 1.3 times higher ($B=1.697$, $p=.003$). CM children showed higher systolic and diastolic BP (99.58 vs 93.39 mm Hg, $p<0.001$; 68.23 vs 63.67 mm Hg, $p=0.003$), and a significant upward trend in 2-hour insulin (18.5 vs 9.52 mIU, $p=0.049$). There was no significant difference in glucose level between the groups either in fasting or 2-hour levels. There was a significant correlation between BMI, BP and insulin level ($p=0.001-0.006$).

Conclusion: dietary patterns in infancy have immediate effects into toddlerhood and through age 6 years. Cow's milk feeding in infancy may predispose children to increased body mass, BP and insulin resistance.

GBFI_PP2

EFFECT OF KANGAROO MOTHER CARE IN REDUCING PAIN DUE TO HEEL PRICK AMONG PRETERM NEONATES: A CROSSOVER TRIAL

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Introduction: Exclusive breastfeeding is an important component of Kangaroo mother care (KMC). There are only few studies on Kangaroo mother care (KMC) in reducing pain among preterm neonates. More evidence on this aspect will bring down non baby friendly methods for procedural pain.

Method: This crossover trial was conducted at a tertiary care teaching hospital in south India. Premature Infant Pain Profile (PIPP) related to heel prick was assessed in 50 preterm neonates undergoing KMC and compared with 50 preterm babies without KMC. Gestational age, behavioral state, changes in heart rate and oxygen saturation, brow bulge, eyes squeeze and nasolabial furrow were observed and recorded as part of PIPP assessment. Chi square test or Fisher exact t-test was used to compare the categorical data between the two groups. Mixed ANOVA was used to compare changes over time in the means of both groups. A p value less than 0.05 was considered significant.

Results: In the KMC group, mean PIPP scores at 15 minutes and 30 minutes after heel prick were 4.3 ± 3.02 and 3.84 ± 1.34 respectively. These scores were significantly less compared to those of the control group (5.76 ± 2.5 and 5.24 ± 2.33). The Mean PIPP difference between baseline and 30min after heel prick was also significantly low in KMC group compared to control group. (-0.1 ± 1.24 Vs -0.8 ± 2.08). Discussion: KMC is effective in reducing pain due to heel prick among preterm babies. Hence, this cost effective mother driven strategy should be included in the NICU armamentarium for reducing pain among preterm neonates.

GBFI_PP3

ASSOCIATION BETWEEN BREAST FEEDING, CARIES, TOOTH ERUPTION AND JAW DEVELOPMENT IN CHILDREN

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Introduction: Breast feeding in the first six months of life has been shown to have many advantages including decreased infant mortality. Despite the extensive study and numerous articles published on breast feeding and the health of the mother and child, very few studies have been done on the effects of breast feeding on the oral health of the child. This abstract will discuss on the findings of a literature review on the association between breastfeeding and oral health of children.

Objective: A literature review was conducted specifically to identify the associations between breastfeeding, caries, tooth eruption and jaw growth and development. Literature search was limited to years 2011 to 2013.

Methodology: A extensive search of the literature was conducted using available search engines including google and pubmed. The key words were breast feeding, oral health, caries, tooth eruption and jaw growth.

Results: Most publications on breastfeeding and caries seem to suggest that prolong breast-feeding (breast feeding for 18 months or longer) tended to be positively associated with a risk of caries in children below 76 months of age. Also, six months of exclusive breastfeeding appears not to confer protective benefit on dental caries when compared to partial breastfeeding. There was a significant increase in caries prevalence in children accustomed to the practice of on-demand breast feeding and when breastfeeding at night. Caries severity however, appears higher in those who are bottle fed compared to those who are breastfed. The duration and form of breast feeding did not have an impact on pattern and timing of tooth eruption. Breast feeding however contributes an important influence on the anthropometric development (thrust and growth) of the mandible.

Conclusion: Studies seems to show breast feeding has potential benefits and risk to some oral health parameters. However, exclusive breast feeding for six months is not associated with any of the risk identified. It would be important to educate mothers who choose to breastfeed on some oral health implications of prolong breastfeeding and ways to prevent risk associated with prolong breastfeeding for the infants and toddlers.

GBFI_PP4

IN-VITRO STUDY OF ANTI-PROTOZOAL EFFECT OF HUMAN BREAST MILK

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Background: Giardiasis and amoebiasis are the most commonly reported pathogenic protozoal diseases in tropical and subtropical countries including Egypt. Some reports showed that the incidence of Giardiasis and amoebiasis were decreased in breast fed infants. This protective effect has been attributed to the anti-infective and anti-inflammatory properties of human breast milk.

Objective: to assess the direct in-vitro lethal effect of colostrum, and mature human milk on *E. histolytica* and *Giardia lamblia* trophozoites and compare their effect with that of artificial milk.

Methods: Sixty samples (30 of colostrum and 30 of mature human milk) were collected from 60 apparently healthy lactating mothers and another 30 samples of artificial humanized milk were prepared for comparison. Different milks were added in the cultured media with *E. histolytica* and *Giardia lamblia* trophozoites at different concentrations (2%, 5% and 10%). Tubes were incubated for 30 min, 1hour, 4 hours and 18 hours respectively. At the end of incubation, only motile parasites were counted with a haemocytometer. All experiments were done in triplicate and repeated at least twice.

Results: There were more lethal effects on both *E. histolytica* and *Giardia lamblia* trophozoites in the media supplemented with colostrum and mature human milk rather than artificial milk and the control after 30 minutes and the differences were statistically significant. Furtherly, there were increasing lethal effects of different concentrations of colostrum and mature milk on *E. histolytica* and *Giardia lamblia* at different periods of incubation with statistically significant differences between them.

Conclusion: Colostrum and mature milk have significant lethal effect on *E. histolytica* and *Giardia lamblia* and protect breast fed infants than artificial milk. **Recommendations:** Advice mothers to breast fed their babies immediately after delivery and for two years. Health education for mothers and health care personnel to encourage maintenance of breast-feeding during attacks of gastroenteritis as an anti-infective measure.

GBFI_PP5

SOME TONGUE-TIE INFANTS FIT WITH THEIR MOTHER'S FORCEFUL EJECTION

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Introduction: Tongue-tie often causes breastfeeding difficulties. Forceful milk ejection can be a source of embarrassment too. But what happens when these two conditions co-exists?

Objective: The purpose of this study was to observe if 3 days old tongue-tie infants are breastfeeding efficiently when their mothers have forceful milk ejection.

Material and Methods: We selected 40 tongue-tie, 3 days old newborns and their mothers with forceful milk ejection. We observed the milk intake for 24 hours by test-weighing the infants. We considered an effective suckling at the third day, a minimum 200ml milk intake/day. We also recorded the mothers' complaints.

Results: From the test group, 97.5% of infants were breastfed efficiently on the third day. A high percent (83.4%) of tongue-tie infants presented short upper labial frenum too. Regarding mothers, 50% have complained during suckling (pain, sore nipple).

Conclusion: The majority of tongue-tie infants, whose mothers have forceful milk ejection, are able to effectively breastfeed at 3 days after birth. **Discussion:** In case of fast milk flow infants tend to clamp down the nipple to stop milk flow. In tongue-tie infants the extension of tongue is restricted, latch is shallow and the nipple is compressed into the hard palate (Ramsay d.), which slows milk flow. Also in an attempt to slow milk flow, the upper lip of the infant sweeps. This is easier if the infant has tight upper lip frenum, which is rigid and not able to flanging. It seems that in some cases of early forceful ejection the infant's mouth, with tongue-tie and tie upper lip, fits to cope the mother's fast milk flow. It remains a question if frenotomy must be performed in these cases and, when this is performed, if reflux-like symptoms or choking appear. An extended study is required.

GBFI_PP6

UPDATE: BREAST FEEDING AND IMMUNOLOGY

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Breast milk is the norm & the essential diet for neonates. It has large no of benefits to the neonate, mother, family and society as a whole. One of these is the immunological role. Neonates are born with limited immune defences.

This is overcome by compensatory mechanisms namely the transplacental transfer of IgG, the protective & immunological components of breast milk. Breast milk has antimicrobial agents (including lactoferrin, slg, etc...)

These are reflected by significant decrease in infant mortality & SIDS. In addition there is decrease in allergic disease, (bronchial asthma, rhinitis & atopic eczema). There is also decrease in coeliac disease, IBD, DM1&2 & leukaemia. All of these findings have been well documented by well controlled studies and confirmed by evidence based reviews. This emphasises the role of paediatrician as an advocate of breast feeding and the importance of baby friendly hospital initiative.

ATTITUDE TOWARDS BREASTFEEDING AMONG MOTHERS OF LOW AND EXTREMELY LOW BIRTH WEIGHT INFANTS

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Introduction: The fact of the premature birth of a child negatively impacts on the emotional state of a woman and can cause a depression. Additional stressors for mothers are the necessity of inpatient stay with the child in the first months of his or her life and the destruction of the earlier formed vision of the future. The prolonged emotional stress that some women suffer in the postpartum period causes difficulties with lactation, as well as deviations in the "mother-infant" dyad relationships. Purpose: Our purpose was to study the emotional state and attitude towards breastfeeding among mothers of low and extremely low birth weight infants.

Materials and Methods: The study involved 158 mothers of children with birth weight 900 to 1500 grams, age 10 days to 2 months of life. In the assessments the Parenting Stress Index Short Form and Edinburgh Postnatal Depression Scale (EPDS) were used.

Results: Based on analysis of examination results, mothers of premature infants were classified into three groups: Group I -- 28% of mothers are characterized by a stable emotional state, they understand the importance of breastfeeding and follow the doctor's recommendations to maintain and increase lactation Group II -- 55% of mothers are emotionally unstable, they are in doubt about the benefits of breastfeeding for a premature baby, are afraid to take to breastfeeding only, are not sure that they will have enough milk to improve the infant's health and physical development Group III -- 17% of mothers are emotionally depressed, they do not understand the importance of breastfeeding, prefer artificial nutrition because in their opinion it has a curative effect for a premature baby.

Conclusion: At obstetric hospitals and special care nurseries of the second and third phases of care it is necessary to provide psychological assistance for mothers in order to normalize their emotional state and develop attachment to the child, to explain the importance of breastfeeding for the infant's mental development, to organize trainings on breastfeeding and to promote the maintenance of breastfeeding only up to 6 months of life, as recommended by the WHO.

THE EFFECT OF AN EDUCATIONAL INTERVENTION ON THE BREASTFEEDING KNOWLEDGE, ATTITUDE AND PRACTICES AMONG NURSES, MIDWIVES AND PEDIATRIC RESIDENTS AND BREASTFEEDING SUCCESS RATE IN THE MEDICAL CITY

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Introduction: As more mothers are choosing to breastfeed, physicians need to be prepared to successfully support them. If medical personnel lack training on breastfeeding they may inadvertently give the wrong information hence, obstructing instead of supporting breastfeeding. This study aims to determine the impact of an educational intervention on the knowledge, attitude and practices of medical personnel and the breastfeeding practices in a tertiary hospital.

Methods: Pediatric residents, midwives and nurses rotating at the Neonatal Intensive Care Unit in a tertiary hospital were included in the study. Mothers who gave birth at the nursery from May to June 2010 were also included. A two part interactive educational intervention including lectures, video, role-playing and group practice regarding breastfeeding was done. Knowledge, practices and behavior of residents, midwives and nurses and breastfeeding rate was measured before and after the educational intervention.

Results: Twenty six health care providers were recruited in the educational intervention. The nurses made up most of the participants followed by residents, then midwives. The results showed that there

was a significant increase in knowledge and clinical practice (p values <0.0001) after the intervention. For the performance of acceptable behaviors, no significant difference (p value of 0.07) in the total number of performed behaviors was observed. For the breastfeeding rates, breastfeeding initiation rate significantly decreased at post intervention. No significant difference was observed between the breastfeeding status pre and post intervention (p value of 0.90). Discussion: The educational intervention improved the knowledge, clinical practice and confidence on breastfeeding among residents, midwives and nurses. It failed to show improvement in observed behavior and breastfeeding rates. Inclusion of the breastfeeding curriculum on the training of the residents, nurses and midwives is thus recommended to further strengthen the hospital's lactation program.

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PEARL_PP1

OBESITY DEGREE AND CARDIOMETABOLIC RISK AMONG SCHOOL STUDENTS

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Rationale: Childhood obesity is a risk factor for developing cardio metabolic diseases in adulthood. **Objective:** Studying the association of cardio metabolic risk factors in students (7 - 16 years) with different degrees of obesity.

Methods: Cross-sectional study including 169 student: 72 obese [body mass index (BMI) > 95th percentile] and 97 extremely obese (BMI > 97th percentile) for age and gender based on Egyptian Growth Reference Charts. Interrelationship between risk factors prevalence: hypertension, high waist circumference (WC), impaired fasting glucose, hyperinsulinaemia, insulin resistance, and dyslipidaemia (abnormal TC, LDL-C, HDL-C, and triglyceride), according to age groups and degree of obesity were assessed. A set of cardio metabolic risk factors were defined for each individual, ranging from 0 (no risk factors) to 9 (all risk factors).

Results: In younger age group (7 - 11 years), extremely obese students were proven to have higher frequencies of cardio metabolic risk factors in comparison to obese group, with highly significant differences regarding fasting glucose level and WC. Older students aged 12- 16 years recorded insignificant differences in the frequency of cardio metabolic risk factors between obese and extremely obese ones. For both age groups, elevated total and LDL-Cholesterol were significantly linked to disturbances of carbohydrate metabolism; indicated by fasting glucose level. Highly significant positive interrelationships between WC and triglycerides for children, and diastolic blood pressure for adolescents were detected. Among extremely obese students, 81% of younger and 60% of older had a cluster of at least three risk factors or more in comparison to only 56.7% and 48.7% of obese.

Conclusion: Cardio metabolic risk factors are associated with degree of obesity in young age (7-11 years), but not in those aged 12-16 years. Elevated triglycerides are the most common risk factors in both age groups.

PEARL_PP2

METABOLIC SYNDROME AMONG OBESE SCHOOL STUDENTS IN EGYPT

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Pediatric Metabolic Syndrome (MS) has been reported to predict adult MS.

Objective: Assessment of the prevalence of MS and other metabolic features (i.e. hypertension, impaired fasting glucose, hyperinsulinaemia, insulin resistance and dyslipidaemia) among obese school students.

Methods: This study included 462 (174 boys and 288 girls) Egyptian school students suffering from obesity (body mass index \geq 95th percentile). Their age ranged between 7 and 18 years (their mean age was 13.43 \pm 2.65 years). Clinical, anthropometric, pubertal (Tanner stages) and laboratory assessments were done to all cases. Diagnosis of MS was attempted using modified WHO criteria adapted for children (1999).

Results: Prevalence of obesity among 5798 students was 8.0% (6.6% in boys and 9.2% in girls), while 11% were overweight (9.2% in boys and 12.6% in girls). Prepubertal students represented 26.4% and pubertal 73.6%. Cases that were diagnosed as having MS represented 39.7% of the whole percentage of cases. The incidence rate among prepubertal students (45.5%) was higher than among pubertal ones (37%) ($P < 0.001$). Prevalence of MS was higher in girls than boys in pubertal group, while boys have the higher prevalence in prepubertal age. Hypertension was significantly higher in pubertal (22.3%) than in prepubertal group (14.8%) ($P < 0.000$). Prevalence of hyperinsulinaemia in prepubertal group (13.6%) was significantly higher than in pubertal group (3.3%) ($P < 0.001$). However, prevalence of impaired fasting glucose (25.0%) and insulin resistance HOMA-IR (22.8%) in pubertal group was significantly higher than prepubertal group (20.5% and 13.6% respectively) ($P < 0.01$). Dyslipidaemia in prepubertal group was 93.2% and in pubertal group was 91.3% with significant differences ($P < 0.000$).

Conclusions: Prevalence of MS in the studied sample was higher in prepubertal than pubertal students and in girls more than boys.

PEARL_PP3

THE IMPORTANCE OF WEIGHT LOSS IN TREATING PCOS IN AN ADOLESCENT GIRL

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Introduction: PCOS is the most common hormonal disorder in women and the most common cause of amenorrhea.

Aim: To present PCOS teenager and her successful non-pharmaceutical treatment. Case description: 14 years and 4 months teenage girl was seen at the OPC for secondary amenorrhea. She had menarche at 12 yrs and 10 mos old and had only had 1 menstruation period since. Suffering from obesity since the age of 9 years old. Clinical examination: HT: 161,5 cm (90-95th percentile), BW: 81,2 Kg (> 95th percentile), BMI: 31., BP: 121/100 mmHg (10th / > 95th percentile), WC: 102 cm Breasts, axillae, pubic hair Tanner stage V, Skin: Acanthosis nigricans, Hirsutism FERRIMAN GALLWEY SCORE 13 .Laboratory findings: DHEA-S: 4,230 (0.7 to 3.9 n.v.), T: 0,641 ng/ml, E2: 44,06 pg/ml, Prl: 332.6 mIU/ml, LHRH stimulation test: LH / FSH = 6,5 HbA1c: 5.4%, OGTT: glucose within normal limits, significant degree of insulin resistance. HOMA-IR: 2,26 Pelvic U/S: Typical picture of polycystic ovaries. Treated with increased physical activity, 2-4 hours per week of aerobic exercise of moderate intensity and maintaining a strict diet program. Compliance was exemplary and resulted in progressive weight loss, reappearance of menstruation periods, resolution of signs of hyperandrogenaemia. Menses resumed after 5 months, when BMI was 26.9, and in OGTT 0min: G:72 mg/dl and Ins: 7.5 μ U/ml, and in 120min G: 89 μ mol/L :110 μ U/ml. Two years later her BMI is 24.2 and she has normal cycle.

Conclusions: The treatment of obesity and insulin resistance with diet and increasing physical activity may be the treatment of choice for obese teenage girls with PCOS.

PEARL_PP4

CARDIOVASCULAR DISEASE RISK FACTORS IN NIGERIAN SCHOOL CHILDREN

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Introduction: Cardiovascular disease (CVD) is a major cause of death among adults worldwide. It is acknowledged that its risk factors have their roots in childhood. The present study evaluated cardiovascular disease risk factors in primary school children of Jos South LGA, Plateau State with the aim of stratifying for risk and proffering help on prevention and treatment.

Methods: A total of two hundred and forty one (241) primary school pupils selected by systematic sampling method from three schools in Hwolshe ward of Jos South LGA, Plateau State were studied for the prevalence of cardiovascular disease risk factors.

Results: From the total children studied, 104 (43.2%) were males and 137(56.8%) were females (M:F=0.76). Socioeconomic classification showed 131(62.7%) of the study population were from the middle class, 59(24.5%) from lower class, while 31(12.9%) were from the upper class. The mean age of the study population was 9.19 ± 1.65 years (male mean= 9.28 ± 1.65 and female mean= 9.12 ± 1.66 years, $p > 0.05$). Subjects from lower social class were older (9.42 ± 1.87 years), followed by upper class subjects (9.16 ± 1.24 years) and middle class subjects (9.10 ± 1.64 years) $p > 0.05$. The overall prevalence of at least one cardiovascular risk factor in the present study was found to be 54%. Sedentary lifestyle was the commonest CVD risk factor in 32.4% of subjects followed by obesity in 13.7%, adverse CVD event in family in 11.6%, high LDL-C in 10.3%, high TC in 9.1% and hypertension in 9.1% (7.1% diastolic and 5.8% systolic). This study also found 44% of the school children had modifiable risk factors for cardiovascular disease such as physical inactivity, hypertension, obesity, and dyslipidaemia.

Conclusions: From the findings of the present study, interventions related to modifiable risk factors, such as encouragement of physical exercise and sports in schools, healthy and prudent diet, and weight control programmes should be undertaken early in life

PEARL_PP5

ASSESSMENT OF THE RELATION BETWEEN MOTHERS' BMI IN THE BEGINNING OF PREGNANCY AND BREASTFEEDING IN THE FIRST 6 MONTHS AFTER DELIVERY

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Introduction: One of most important factors which may influence the successful breastfeeding is BMI of mothers at the beginning of pregnancy however we have no published study about it.

So, the aim of this study was Assessment of the relation between mothers' BMI in the beginning of pregnancy and breastfeeding in the first 6 months after delivery

Methods: This cohort study included 2 groups of mothers with normal BMI (150 persons) and obese (150 persons) in the first 3 months after pregnancy. These 2 groups were followed until the first 6 months after delivery and newborns' breastfeeding was followed. So in this study, the exposure was mothers' obesity in the first 3 months after pregnancy and the outcome was the breastfeeding **Results:** From 150 mothers with normal BMI, 135 mothers (90%) exclusively breastfed the infant in the first 6 months after delivery, one of them (0.7%) only used supplementary milk and 14 mothers (9.3%) used both simultaneously. From 150 obese mothers, 111 mothers (74%) exclusively breastfed the infant in the first 6 months after delivery, 10 mothers (6.7%) only used supplementary milk and 29 mothers (19.3%) used both of them. This difference of exclusively breastfeeding was significant (90% vs 74%), so the mothers who had normal BMI and breastfed exclusively, were more frequent than mothers who were obese and breastfed exclusively ($\chi^2 = 14.94, df=2, p=0.001$). The relative risk of being not able to breastfeed exclusively was 2.6 ($RR=2.6$, 95%CI=[1.5-4.51]). The mean time gap between delivery and first breastfeeding in normal BMI was 1.97 hours with SD of 4.72. In the obese group, it was 3.32 hours with SD of 8.75 hours. Comparison of this time gap between delivery and breastfeeding did not show any significant difference (Mann-Whitney U test=9326, $p=0.37$). Other variables possibly acting as confounder in the relationship of breastfeeding and BMI were: mother's age, spouse emotional support for breastfeeding, to learn the breastfeeding method and its benefits by hospital and being comfortable as the main motivation of breastfeeding. Thus we put the above variables and BMI (normal BMI/Obese) into logistic regression analysis ($\chi^2=28.42, df=4, p=0.0001$). The only variable which remained in this model was BMI and all of 4 possible confounders excluded from this model. So, ultimately the factor affecting exclusive breastfeeding in the first 6 months after delivery was mothers BMI before pregnancy ($\text{Exp}(B)=R=3.02$, $B=1.11, p=0.001$). The correct predictive value of this model was only in the 6.6% of cases (Nagelkerke $R^2=0.066$).

Conclusion: According to above findings, the odd of not having exclusive breastfeeding in obese mothers to normal mothers is 3.02. This highlights the importance of normal weight before pregnancy. The significance of these findings should be emphasized in this society by mass media and health promotion programs. The obese women should decrease their weight to the normal range before pregnancy.

PEARL_PP6

HYPO-CALORIC DIET EFFECTS ON LIVER STEATOSIS IN OBESE CHILDREN

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Background and aims: There is a rapid rising prevalence of obesity in pediatrics and obesity is a risk factor for hepatic steatosis. So we investigate the effect of hypo caloric diet and weight loss on hepatic steatosis in obese children.

Methods: 150 overweight ($BMI \geq 85$ for age and sex) or obese ($BMI > 95\%$ for age and sex) children underwent abdominal ultrasonography in view of fatty liver after obtaining of written consent from their parents. Dietitian consultation for patients with hepatic steatosis was done. Hypo caloric diet for 6 month prescribed and after this period abdominal ultrasonography was repeated. Demographic data, liver function tests and abdominal ultrasonography results were collected and processed with SPSS V16. The χ^2 test was used when

comparing group differences. The Student's t-test was used to determine differences between mean values. A P value <0.05 was considered to be statistically significant.

Results: In a total number of 150 children with high BMI for age and sex, 36 patients (24%) have had hepatic steatosis. 23 patients were male and 13 were female with the mean age of 13.5±3.19 and mean BMI of 30.5±5.47. Eighteen subjects had grade I steatosis and 18 had grade II steatosis. There was no correlation between grade of steatosis and severity of obesity (p=0.51). After 6 months hypo caloric diet with decreasing BMI, steatosis was reduced in grade or disappeared which statistically was significant (p<0.01). **Conclusions:** Weight loss with reducing diet calories has a great impact in reduction of steatosis. Thus hypo caloric diet should become a main part in management of hepatic steatosis in obese children.

Key Words: Fatty liver, Liver Steatosis, Children, Obesity, Hypocaloric Diet.

PEARL_PP7

PHYSICAL ACTIVITY: NOT EVERYTHING IS GOOD, NOT EVERYTHING IS BAD -- HOW TO THROUGH AWAY THE BATH DIRTY WATER WITHOUT DROPPING THE "HEALTHY BABY"?

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Introduction: A considerable amount of literature in the last decades demonstrates an association between physical activity (PA) to health. For example, individuals who are physically active are described as having a better health and more life satisfaction. However, some studies also suggest an association between PA and sports practice with alcohol consumption, violent behaviour, injuries, exercise abuse and the use of doping strategies..

Methods: The purpose of this study is to determine the behaviours that can have a positive or negative association with PA. Based on the Health Behaviour in School-aged Children, 5050 portuguese adolescents attending 6th (30.8%), 8th (31.6%) and 10th (37.6%) grades (M = 13.98, years old, SD =1.85; 52.3% girls) answered a survey concerning a variety of health behaviours and self-perceptions.

Results/ Discussion: Results suggested that being more active is positively associated to better nutrition ("eating fruit"), and perceptions of life satisfaction and good health. However, PA is also related to violent behaviour, injuries and alcohol abuse. Although small effects are reported, this pattern is consistent across age groups. It is therefore recommend finding ways to keep and enhance the several well-documented benefits of PA by preventing its adverse side effects.

PEARL_PP8

CHILD OBESITY IN MIDDLE EAST

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Moh, Al-Bashir H, Jordan

Introduction: Childhood obesity is a well recognized public health problem with high prevalence in developed countries. It is also being reported with increased frequency in developing countries.

The aim of this review is to present data of childhood obesity from Middle East countries including Jordan.

Patients and Methods: Recent studies from various Middle East countries regarding childhood obesity were reviewed. Emphasis was on prevalence, risk factors and the problem of metabolic syndrome.

Results: Prevalence of childhood obesity in Middle East countries is quite variable. The lowest are in Yemen and Iraq (1.6%) & the highest is in Bahrain (38%). Studies in KSA shows wide variation in different provinces. Moreover, studies from several countries showed an increasing prevalence compared to a decade ago. In Jordan, Khader Y et al 2009, reported obesity in 5.6% and 5.5% of girls. Several risk factors have been identified including urban residence, family history and dietary habits among others. In addition, metabolic syndrome is being reported with relative increased frequency.. in Turkey (20%), and in Iran (10%).

Conclusion: Childhood obesity is a growing problem in Middle East countries. It needs to be addressed seriously with implementation of preventive and early intervention programs.

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