Gastroenterology & Nutrition Abstracts

Does low birth weight predict hypertension and obesity in schoolchildren?

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Background: Birth weight appears to play a role in determining high blood pressure and obesity during childhood. The purpose of this study was to investigate the association between birth weight (BW) and later obesity and hypertension among 10 to 13-year-old schoolchildren.
Methods: A total of 1184 primary school students were selected from 20 randomized schools between 2011 and 2012 in Iran. Height, weight, waist circumference (WC) and blood pressure (BP) were measured using standard instruments. Data were analyzed using Stepwise regression and Logestic regression models.
Findings: 13.5% of children had a history of Low Birth Weight (LBW). First-degree family history of obesity, excessive gestational weight gain and birth weight were significantly correlated with obesity/overweight and abdominal obesity ($p<0.001$), whereas only birth weight was associated with high blood pressure ($p<0.001$). An inverse correlation was found between WC and SBP/DBP. Duration of breastfeeding in children with LBW was inversely correlated with obesity/overweight, abdominal obesity and hypertension.
Conclusion: The results suggests that BW is inversely associated with blood pressure and also with obesity and abdominal obesity. Duration of having been breast-fed could prevent any later hypertension, obesity and abdominal obesity. Further studies are needed to test these correlations as well as diagnosing early life factors to prevent young adult obesity, overweight or hypertension.
Keywords: Low Birth Weight, Children, Obesity, Hypertension

Comparison of sequential and standard triple therapy for eradication of Helicobacter pylori in children

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Background: Purpose of this study was comparing of sequential and conventional therapy regimens in eradication of Helicobacter pylori (H. pylori) infection in children.
Methods: Children with gastrointestinal complaints undergoing diagnostic endoscopy in Children's Medical Center Hospital between 2013 and 2014 which were 2 to 14 years old were enrolled in this study and 2 gastric antral wall biopsy specimens were taken for histologic investigation and rapid urease test (RUT). If Helicobacter pylori infection was documented by histology or RUT then the patient was included in intervention. Patients were divided randomly to two intervention groups. One group received conventional triple treatment including omeprazole 1 mg/kg/day for 30 days and a 10-day course of combination therapy with amoxicillin 50 mg/kg/day and metronidazole 20 mg/kg/day. Another group received sequential therapy including omeprazole 1 mg/kg/day for 30 days and a first 5-day course of amoxicillin 50 mg/kg/day followed by a second 5-day course of combination therapy with claritromycin 15 mg/kg/day and metronidazole 20 mg/kg/day. Patients received all drugs with divided doses two times a day. All patients were reinvestigated by stool antigen test for H. pylori eradication 1 month after finishing the accomplished treatment.
Findings: At all 87 children recruited for this study. Thirteen patients didn't complete the treatment or follow-up test. Sixty four patients enrolled in analysis which had a mean age of 9.13± 3.13 (range: 2-14) years. There were 28 male (43.75%) and 36 female (56.25%). Totally treatment was successful in 71.9% of patients. The sequential therapy-treated group showed more eradication rate than conventional therapy-treated group (83.9% versus 60.6%) that was statistically significant ($P<0.039$). Treatment side effects (abdominal bloating, nausea and vomiting) were not different significantly between 2 groups, but diarrhea was less frequent during sequential therapy ($p<0.003$). The most common clinical presentation was abdominal pain and the most common endoscopic finding was gastric nodularity.
Conclusion: Our study demonstrated that sequential therapy is greatly effective in eradicating H. pylori in children. This therapy regimen would be useful for the first-line option for H. pylori eradication.
Keywords: Helicobacter Pylori, Sequential Therapy, Standard Triple Therapy

Extra intestinal manifestation of celiac disease

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Background: Celiac is a common multisystem autoimmune disease with prevalence of about 1%. For every recognized case of celiac disease, 8 more remain undiagnosed. Asymptomatic or minimally symptomatic celiac disease is probably the most common form of the disease, especially in older children and adults. Celiac disease is no longer a disorder limited to childhood and adolescence; it has even been diagnosed for the first time in elderly patients. Infants and young children typically present with chronic diarrhea, anorexia, abdominal distension, abdominal pain, poor weight gain or weight loss, and vomiting. Severe malnutrition can occur if the diagnosis is delayed. Behavioral changes are common and include irritability and an introverted attitude. Rarely, severely affected infants present with a celiac crisis, which is characterized by explosive watery diarrhea, marked abdominal distension, dehydration, hypotension, and lethargy, often with profound electrolyte abnormalities, including severe hypokalemia. Older children with celiac disease who present with GI manifestations may have onset of symptoms at any age. GI symptoms in older children are typically less evident and include nausea, recurrent abdominal pain, bloating, constipation and intermittent diarrhea. Because of the myriad and frequently enigmatic presentations of celiac disease, the challenge of diagnosis falls squarely on the shoulders of primary care practitioners. In infants and toddlers, GI symptoms and

FTT predominate, whereas, during childhood, minor GI symptoms, inadequate rate of weight and height gain, and delayed puberty tend to be more common. In teenagers and young adults, anemia is the most common form of presentation. In adults and in the elderly, GI symptoms are more prevalent, although they are often minor. The main extraintestinal manifestations of celiac disease are as follows: dermatitis herpetiformis, dental enamel hypoplasia, aphthous ulcers, delayed tooth eruption, Iron-deficiency anemia, short stature and delayed puberty, chronic hepatitis and hypertransaminasemia, arthritis and arthralgia, osteopenia and osteoporosis, neurological problems, psychiatric disorders (autism, attention deficit hyperactivity disorder), subfertility or infertility. Celiac disease is also known to be strongly associated with numerous disorders, specifically with autoimmune conditions and genetic syndromes .
Keywords: Celiac, Extraintestinal, Autoimmune

A study of food regurgitation prevalence, clinical manifestations and risk factors in under 1.5 year old infants in Tehran

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Background: Food Regurgitation (FR) is reflux of the acidified food during or after eating and is very common among infants. It is a benign condition and usually is resolved during the age of 12-18 months of life; however, sometimes it gets pathologic and interferes with the child growth and development.
Methods: In this cross-sectional study, we selected 5 health care center in south of Tehran randomly and then from each center about 90 under 1.5 year old infants have been chosen conveniently. A structured questionnaire has been used for interviewing to the mothers and included infant's age, sex, birth weight, gestational age, birth order, type of feeding during the first 6 months of life, history of FR in the siblings, maternal age and existent of food regurgitation. In infant's with FR, the age onset of FR, the volume and texture of the regurgitated milk, the time and frequency of FR, relation of FR with feeding, and existence of associated symptoms.
Findings: 344 (76.4%) of infants had FR included 180 male (53.8%) and 164 female (42.6%). 186 (52.8%) of involved infants were younger than 6 months and 158 (47.2%) were 6-18 month old. 313 cases (75.6%) were breast-fed. In most of the cases FR started during the first week of life (244, 69.7%). History of FR was positive in 65 cases(18.4%). 243 cases was the first baby of the family (72.7%). In 82% of cases the maternal age was in 21-35 year range. 43.6% of FR have occurred throughout the day. The volume of FR in each time was low in most of the cases (97.9%) and its texture was curd-like in 93.3%. In 99.7% of cases FR have occurred after feeding and the most frequent time of FR was 2 times the day which have occurred in 38.4% of cases. Generally, we didn't find any significant relationship between FR and the studied risk factors.
Conclusion: Despite the similarity between our findings and the result of other studies, we recommend that designing and performing prospective studies in larger population of infants could result in more accurate data collection and find out the true incidence, risk factors, natural history, characteristics and complications of FR.
Keywords: Food, Regurgitation, Iran, Infant, Prevalence, Risk Factor

Management of GI compromised children

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Gastrointestinal function can be compromised in children with a variety of disorders either directly as in Crohn's disease and short bowel syndrome, or indirectly as in cerebral palsy. Whey-based diets have been shown to reduce the degree of regurgitation, gastric emptying times, and gagging in neurologically impaired children. Even an energy-dense (1.5 kcal/mL) whey-based formula showed equally good tolerance and gastric emptying as compared with a regular strength (1 kcal/mL) formula . These diets are well-tolerated and provide nutrition to maintain and achieve growth. Gastrointestinal disorders should be to meet their nutritional needs and promote growth without compromising tolerance. Peptide-based enteral diets are often used as the basis of nutritional therapy for some children with compromised gastrointestinal function. A 100% whey, peptide–based diet containing insoluble and prebiotic fiber was as well tolerated as a commercially available, fiber-free control diet in a small and heterogeneous population of children with impaired gastrointestinal function and was associated with a substantial improvement in stool consistency, especially in neurologically impaired children.
Keywords: Gastrointestinal Compromised, Children, Management

Assessment quality of life in Iranian food allergic patients` families

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Background: Food allergy is common disorder especially in the first years of life (Incidence=6-8%). Food avoidance is the only effective method for controlling signs symptoms of this disorder up to now. But strict avoidance need continuous vigilance of caregivers about feeding related matters and activities that causes persistent stress and decreases their quality of life. We decided to assess burden of food allergy on parents in Iranian patients. For this aim we provided and approved first Persian food allergy specific quality of life questionnaire.
Methods: We chose FAQL-PB questionnaire and after translation approved its Reliability and Validity. Then in a cross-sectional study we assessed quality of life in 90 Iranian parents of under avoidance food allergy patients in Tehran children hospital with that questionnaire during 2012.
Findings: Our questionnaire reliability was approved (ICC=0/75& CRONBACHa=0/09). The most common allergens were wheat (60%) and cow milk (42%). The greatest burden of food allergy on quality of life observed in emotional domain. In this domain, half of parents had extremely affected quality of life. Quality of life was obviously affected in parents of female patients than male patients (P<0/002). History of anaphylaxis had not burden on each domains.

Conclusion: Our questionnaire is validated and efficient instrument for quality of life assessment in Iranian parents. Presence of food allergic patients considerably affect all domains of quality of life. Mothers more affected than fathers. In parents of multiple avoided food affected patients burden is significantly higher than single one, but type of allergen is not correlated variable.
Keywords: Food allergy, quality of life, questionnaire

Liver function tests in children

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Liver, the largest internal organ in the body has many complex functions. It acts as a filter of the blood received from the GI tract through the portal vein. It synthesizes proteins that are involved in vital functions and is an important site of carbohydrate, protein and lipid metabolism. It detoxifies toxins, metabolizes drugs and hormones, conjugates bilirubin and excretes it through the bile. Liver dysfunction, therefore, has catastrophic consequences on the body. Liver function tests comprise of a battery of tests that are used: a. as a tool for screening and documenting liver injury, to provide vital clues to the etiology of liver disease, to monitor the disease progression and response to treatment and to assess prognosis in children with liver failure. The liver function tests can be categorized into five: A. Tests to detect hepatocyte injury B. Tests to detect cholestasis or impaired bile flow C. Tests that assess synthetic function of liver D. Tests that assess metabolic and excretory function of liver E. Tests that assess liver fibrosis. Appropriate utilization of the tests requires knowledge of the injury patterns in liver diseases. 1. Liver function tests must be interpreted in the context of a clinical diagnosis 2. These tests lack sensitivity and so normal results do not confirm absence of disease. 3. Liver function tests are useful in identifying the pattern of liver disease rather than arriving at an etiological diagnosis. 4. Age specific normal values have to be employed when interpreting lab tests like alkaline phosphatase, GGT and prothrombin time. 5. Gross elevation of transaminases occurs in primary hepatocellular diseases while ALP and GGT are very high in cholestatic diseases. 6. Increasnig bilirubin with falling transaminases denotes poor prognosis in acute severe failure.
Keywords: Liver Diseases, Liver Function Test, Children

The effect of adjuvant probiotic therapy on recovery from acute gastroenteritis in outpatient children over 2 years: a double-blind randomized controlled trial

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Background: Acute gastroenteritis is one of the important causes of mortality in infants and children and one of the six factors of death among children. The aim of this study was to compare the effect of Zinc Sulfate and Saccharomyces boulardii probiotic (Yomogi) on children over 2 years with acute gastroenteritis admitted to the pediatric clinic during 2011 to 2013.
Methods: In this clinical trial children were studied in two groups of case and control. The control group received standard treatment of diarrhea (fluid therapy, continuing feeding and Zinc Sulfate syrup 5 cc QID) and case group received Saccharomyces boulardii probiotic capsule with trade name of Yomogi (250 mg daily) in addition to standard treatment. Patient assigned to placebo received the same capsules as Saccharomyces boulardii probiotic capsule but without Saccharomyces boulardii probiotic. Demographic information, diarrhea status, appetite recovery and mean frequency of diarrhea before and during the treatment period were recorded and then data were analyzed.
Findings: There were 100 children in each group. Average age of children was 35.93±6.18 months in the control group and 37.65±3.64 months in case group. Mean duration of symptoms and times of diarrhea after treatment in the two groups had a significant difference. In addition, the number of days until recovery, patient's appetite and satisfaction between two groups had a significant difference. But Age, gender and the number of times of diarrhea before starting treatment did not have any significant difference and before treatment, both groups were similar in terms of severity of disease.
Conclusion: According to this study, a combination of zinc sulfate and saccharomycesboulardii probiotic (yomogi) is recommended in children with acute gastroenteritis.
Keywords: Zinc Sulfate, Yomogi, Gastroenteritis, Children

Prevalence of malnutrition based on three nutritional risk scores in an eastern Iranian pediatric hospital

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Background: Malnutrition is a major health problem in hospitalized paediatric patients. It is reported that the number of malnourished paediatric patients varies between 21% and 80% according to the level of the country's development. It is essential that patients who are malnourished or at risk of malnutrition be identified as soon as they are admitted to the hospital. A recent study applied three of nutritional risk screening tools(STRONGkids, STAMP and PYMS) to children admitted to a tertiary children's hospital in Iran. This study aimed to evaluate the nutritional status of hospitalized children in a tertiary paediatric hospital in Mashhad-Iran and compare the validity, ease of use, and the varying prevalence of malnutrition according to these three nutritional risk screening tools.
Methods: Three nutritional risk score tools were applied to all patients and classified into low, medium and high-risk groups. The anthropometry of hospitalized children was determined and classified using standard criteria. The validity and the ease of use of the tools was assessed.
Findings: Of children classified, 30.6% were found to be undernourished based on their WFH z-score and the prevalence of moderate and severe malnutrition was 22.8% according to the HFA. PYMS identified 23.5% in the medium-risk group and 52.2% in the high-risk group. STAMP identified 20.9% in the medium-risk group and 69.6% in the high-risk group. STRONGkids classified 71.3% of children as medium and just 7.8% as high-risk.

STAMP detected more malnourished children (21⁄21) compared to PYMS (20⁄21) and STRONGkids (17⁄21). **Conclusion:** NRS tools were able to detect children at a higher risk of nutrition deterioration; however, variable utility was observed. Further assessment of NRS tools in developing countries is required. In these countries, PYMS was the most reliable tool.
Keywords: Malnutrition, Paediatric, Nutrition Screening Tool, Iran

Congenital gastrointestinal anomalies in pediatric patients and their nutritional management

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Studies of other defects associated with specific congenital anomalies may be helpful to identify the causes of congenital anomalies, determine recurrence risks, and guide expectations for the efficacy of prevention strategies. Infants born with congenital anomalies demand individualized nutritional evaluations and recommendations. The anatomical changes of neonatal surgical diseases create specific physiological constraints. Patients with different congenital anomalies have different nutritional support needs. It is essential to know the exact physiology of these anomalies in order to be able to manage and provide them with appropriate and suitable nutritional supports. This article reviews several nutrition-centered options to aid the medical provider caring for babies with common surgical diseases.
Methods: Medline searches were performed using the keywords congenital anomalies, gastroesophageal reflux, nutrition and the text word nutrition in congenital GI anomalies. Bibliographies of recent review articles and relevant primary research reports, as well as current contents of ASPEN, ESPEGHAN guidelines were reviewed for additional relevant citations.
Findings: Several commonly encountered surgical diseases of infants involved Foregut and midgut anomalies, pulmonary hypoplasia, congenital diaphragmatic hernia, abdominal wall defects and also diseases treated with enterostomy.
Conclusion: Just within general and thoracic pediatric surgery, diseases include congenital anomalies in the infant, common acquired conditions such as pyloric stenosis and necrotizing enterocolitis, trauma, feeding tube replacement, and organ transplantation. To successfully support these patients, the dietitian must understand not only the essential details of these diseases, but also the particular ways that the diseases and their surgical treatments impose demands and constraints on nutritional support.
Keywords: Congenital Anomalies, Motility, Nutrition, Gastroesophageal Reflux

Pediatric gastrointestinal emergencies: priorities in use of different modalities

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There are a large number of gastro-intestinal diseases which manifest themselves as a life threatening emergency needing immediate diagnosis and treatment. An accurate history and data of physical and laboratory findings are necessary for an adequate imaging procedure. From a practical point of view the gastro-intestinal diseases should be divided into two groups. The first group includes neonates and infants under the age of three months. The congenital malformation is the most frequent finding in this period of life in the form of different types of atresia, stenosis or other functional and anatomic GI disorders. However acquired GI abnormality in this age group is not uncommon such as necrotizing enterocolitis or pyloric stenosis. The second group consists of infants and older children over the age of 3 months who suffer mostly from acquired gastro-intestinal disorders like appendicitis, intussusception and others. Congenital abnormalities are not frequent in this age group. Diagnostic imaging: The abdominal plain film is the first step in the evaluation of an acute abdomen. Look for pathological gas distribution, fluid levels, pneumoperitoneum or pathological masses. Sonography is an additional modality to search for inflammatory changes, free fluid, thickening of bowel wall and motility disorders of the intestine as well as cystic or solid masses. MR enteroclyses and endoscopy have high priority in some gastro-intestinal disorders like Crohn's disease. CT sometimes is a valuable modality especially in abdominal trauma and suspicion of surgical complications. Nuclear scanning is useful in the detection of Meckel's diverticulum or intestinal duplication. Contrast studies of the GI tract are necessary in some emergency cases. The aim of this workshop is to give an overview of pediatric gastrointestinal abnormalities with special attention to emergency cases. The priorities in the use of different modalities will be interactively discussed.
Keywords: Emergency, Priority, Imaging, Children, Gastrointestinal

Evaluation serum selenium level in children with acute gastroentritis admitted in Mofid Children's Hospital

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Background: Gastroenteritis refers to the passage of three or more loose or watery stools per day. Selenium (Se) is suggested that like other trace mineral and anti-oxidant enzymes is one of the important immune factor that neutralized free oxygen radicals. Selenium deficiency affects the occurrence, virulence, or disease progression of some viral infections. Recent research has suggested that selenium deficiency has role in gastroenteritis, therefore we designed a study for relation between serum selenium level and acute gastroenteritis.
Methods: This is a case-control study which performed on 80 infants and children in age of 6-36 months. In case group were 35 children with acute gastroenteritis and in control group were 45 healthy children. We measured serum selenium level by atomic absorption spectrophotometry method in groups. In control group performed one time and in case group two times during admission and recovery phase 7-10 days after disease. Data entered in SPSS software version 18 and analyzed by statistical tests.

Findings: Mean serum selenium level in acute phase is 80.8±18.2 µg/L and after 7-10 days in recovery phase is 105.6±18.4 µg/L. Mean serum selenium in control group is 94.5±15.3 µg/L. therefore mean serum selenium level in acute phase was less than control group and recovery phase. Serum selenium level was decrease significantly in severe dehydration than mild and moderate dehydration (P<0.001). There is no relation between selenium level with age, weight, sex, breastfeeding, socioeconomic and underlying disease. No correlation was detected between serum selenium levels and the parameters above. **Conclusion:** The results of this study indicate that decrease selenium level in acute phase of gastroenteritis compare to control group. In recovery phase, selenium level has significantly increased. We suggest for treatment of gastroenteritis pay attention to selenium deficiency and further studies are required for more result.
Keywords: Selenium, Children, Acute Gastroenteritis

Health effects of probiotics in infancy

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Based upon a wide range of putative modes of action involving modification of the gut microbiome probiotics have been the target of intensive research efforts. Consequently, there is now a massive literature on the health effects of probiotics with >800 completed randomized controlled trials and >100 meta-analyses. Many of these relate to infants and have been assessed by ESPGHAN and AAP to form the basis of their recommendations on the topic. It is important to appreciate that any health effects may vary according to the genera, species and strain of probiotic bacteria. They may also vary by dosage, timing, duration and the matrix with which they are administered. Thus health practitioners should take care to review the evidence carefully before prescribing. Both ESPGHAN and AAP conclude that probiotics in infant formula are safe and may have benefit in reducing GI infections. Probiotics administered separately from formula, and including to breast-fed babies, show strong (but sometimes species/strain specific) protection against acute gastroenteritis, antibiotic associated diarrhea, and nosocomial diarrhea and respiratory tract infections. There is evidence for protection against infant colic and against later allergy, asthma and eczema but further studies are needed. ESPGHAN, AAP and ASPEN all conclude that the evidence that probiotics protect premature babies against NEC is insecure.
Keywords: Probiotic, Gastroenteritis, Asthma, Allergy

Infant feeding and later risk of obesity: the role of protein

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Evolution has determined that human infants should grow very slowly compared to other species. This is to allow ample time for the development and training of a complex brain. A consequence of this evolutionary choice is that, after the first 3m of life, an infant's nutrient needs for growth are very low. This is reflected in the composition of human milk where, in particular, protein levels are very low. Mature breastmilk milk contains ~0.8g protein per 100ml and ~0.25g non-protein nitrogen; about one quarter of the concentration in cow's milk. Therefore old-fashioned milk formulas used to have a much higher protein content than babies are 'designed' to consume. There are competing hypotheses about what effect an excess of protein may have on infant growth and later adiposity. One view holds that high protein is obesogenic, whilst the alternative 'protein leverage' hypothesis would postulate the reverse. The former view was based largely on uncontrolled epidemiological association studies and the latter view has not been examined in children. Fresh light has been cast on the issue by the very recent publication of a controlled trial in which infants were randomized to receive formula containing two different concentrations of protein (selected as being at each end of the range permitted by CODEX regulations). This gives strong evidence that babies consuming the higher protein formula grow faster and fatter than those consuming the lower protein formula. This has implications for the continued trend towards humanizing infant formula milks.
Keywords: Obesity, Milk Formula, Infant Feeding