wavelengths was noted between oxygen saturation levels and the pain intensities of the neonatal brain’s nociceptive neural circuits. Sucrose administration significantly affects the electrical activities as evidenced by EEG changes. It was also proven that oral NIPS, and while suckling sucrose (p = 0.039 respectively). Results also pointed to a significant correlation between random blood sugar levels and the frequency of both of alpha and beta EEG waves following induction of pain, without soothing (r = -0.529, -0.589 respectively and p = 0.014, 0.005 respectively). Moreover, Results also concluded that there is a significant positive relationship between heart rate and the frequency of beta waves at electrode position F3 following induction of pain, without soothing (r = -0.452 and p = 0.039). A significant correlation between oxygen saturation levels and the frequency of delta EEG waves at electrode position F4 was noted following induction of pain with NNS (r = -0.478 and p = 0.028). A significant correlation between heart rate and the frequency of theta EEG waves at electrode position F3 was detected (r = 0.448 and p = 0.042). Moreover, a significant correlation was noted between oxygen saturation levels and the pain scale score, as well as the frequency of both alpha and delta EEG waves (r = -0.492, 0.433, -0.453 respectively and p = 0.023, 0.049, 0.039 respectively). Results also pointed to a significant correlation between oxygen saturation levels and NIPS score, during sucrose suckling (r = -0.492 and p = 0.023).

Conclusion: Pain triggers nociceptive brain electrical activities as evidenced by EEG changes. It was also proven that oral sucrose administration significantly affects the electrical activities of the neonatal brain’s nociceptive neural circuits.

Plasma citrulline as a diagnostic biomarker for necrotizing enterocolitis in preterm neonates

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Background: Citrulline is an amino acid synthesized in small intestine’s enterocytes so it may be used as biomarker of its function. Necrotizing enterocolitis (NEC) represents an intestinal disorder with significant morbidity and mortality in preterm neonates.

Aim: Evaluate role of plasma citrulline level as a diagnostic marker of NEC in preterm neonates.

Methods: It was conducted on 40 preterm neonates with gestational age < 37 weeks, in cases and controls groups, each comprised 20 subjects, in addition to clinical, laboratory, and radiologic investigations of NEC, all preterm were subjected to investigating plasma citrulline level on day 1 of life and at time of clinical NEC diagnosis.

Results: Plasma citrulline levels of NEC cases were significantly lower than the levels of controls at time of NEC diagnosis, while there was no significant difference of plasma citrulline on day 1 between the two groups. Plasma citrulline significantly decreased according to severity and mortality (P < 0.001). Citrulline at a cutoff value 5.98 is 95% sensitive and 80% specific to diagnose NEC.

Conclusion: Plasma citrulline may be utilized as a biomarker for NEC diagnosis, yet more research is needed to determine its efficacy in using it as a prognostic value.

Vitamin A status in children and adolescent with chronic liver disease

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Background: Chronic liver diseases in children are relatively common disorders. Malabsorption of dietary fat and fat-soluble vitamins including vitamin A is one of the major complications of childhood cholestatic liver disorders, the reduced biliary secretion of bile acids during cholestasis causes vitamin A malabsorption and potential deficiency of vitamin A. Vitamin A deficiency (VAD) is associated with the progression of chronic liver disease (CLD).

Aim: To estimate the serum Retinol level in children and adolescent with chronic liver diseases (CLDs) and correlate them with disease severity and ocular examination in these patients.

Patients and Methods: This is a cross-sectional, case-control study that included sixty patients of children and adolescents following up at the Pediatric Hepatology Clinic at Faculty of Medicine Ain Shams University compared to 30 age, sex and pubertal stage matched clinically normal controls. Personal, medical history, anthropometric measurements, clinical examination, eye examination by slit-lamp, supplemented with tests to assess eye dryness and tear production (Fluoresceine Break up Time, FBUT) and schirmer test were done. Liver profile, and Serum assay of Retinol were also done.

Results: Cases had significant deficiency in serum Retinol level (P < 0.0001), serum Retinol level could be used in discrimination of cases from controls at a level of < 21.14ug/dl, with (93.3%) sensitivity and 100% Specificity. Cases had significant relation between serum Retinol level and hepatomegaly. There was negative correlation between level of serum Retinol level and liver enzymes, AST and ALT(r = -0.388, r = -0.393, P = 0.002, P = 0.049 respectively). There was no significant relation between deficiency in serum Retinol and severity of eye dryness using slit lamp, shirmer test and FBUT (P > 0.05). There was significant correlation between right and left slit lamp finding and prothrombin time (P = 0.010, 0.008 respectively). There was statistically significant relation between FBUT (Fluoresceine Break up Time) in both eyes with Prothrombin time and albumin level (P = 0.046, 0.027).

Conclusion: Patients with chronic liver diseases had significant deficiency in serum Retinol level, serum Retinol level may be a useful non-invasive biochemical marker that reflect the severity and prognosis of chronic liver diseases in children.

Hyperbaric oxygen for the treatment of autistic spectrum disorder

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Background: Autism is a neurodegenerative disease characterized by cerebral hypo perfusion, neuro inflammation, gastrointestinal inflammation and increased oxidative stress. Hyperbaric oxygen therapy (HBOT) helps overcome hypo
perfusion, has a potent anti-inflammatory effect and reduces oxidative stress. Furthermore, HBOT mobilize stem cells from bone marrow to the central nervous system.

**Objective:** To assess of Hyperbaric oxygen therapy (HBOT) for treatment of Autistic spectrum disorders (ASD). Methodology: This is a prospective study that was conducted on 50 autistic children (fulfilling the DSM V criteria). After history taking and clinical examination, Childhood autism rating scales (CARS) and Autism treatment evaluation checklist (ATEC) were done before and after 20-40 sessions of HBOT. Twelve patients underwent MRI perfusion of the brain before and after HBOT sessions for assessment of cerebral perfusion.

**Results:** Significant improvement was observed in all the ATEC subscales, the total ATEC score and in the CARS scores \( (p = 0.0001) \). The average improvement was 23.2% and 14% respectively. There was no statistically significant difference between patients less or more than years old as regard per cent of improvement in CARS or ATEC after treatment \( P = 0.450 \). And there was a positive correlation between number of sessions and the per cent of change in the total ATEC and CARS post HBOT \( (p = 0.015) \) and \( (p = 0.002) \) respectively. Regarding MRI perfusion of the brain there was a significant increase in ratio of Regional Cerebral Blood Flow (RCBF) to white matter after HBOT \( (p < 0.05) \).

**Conclusion:** HBOT is an effective modality for treatment in autistic patients. More studies are needed to confirm this findings.

**The psychological status of bed wetting Egyptian children before and after treatment**

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**Background:** Nocturnal enuresis is a common troubling problem for children and their families.

**Aim:** To evaluate the impact of bedwetting and its treatment on children’s Psychological status of Egyptian children Material and Methods: This prospective comparative randomized study was conducted on 230 children between aged 5-12 years old with significant Primary mono symptomatic Nocturnal enuresis (PMNE). All children underwent history taking, thorough physical examination, IQ testing and kept a strict urinary chart. They were evaluated before and after treatment with the Anxiety scale [Pediatric Symptom Checklist (PSC)] and the depression scale [Children’s depression inventory (CDI)]. They were divided according to treatment modality into 6 groups (behavioral therapy alone or enuresis alarm, desmopressin, antidepressants, selective or non-selective anti-muscarinic blockers in addition to behavioral modifications).

**Results:** At baseline, patients showed significantly elevated scores in both anxiety and depression scores. 44.2%, 9.1% and 10% suffered from severe, moderate and mild anxiety respectively. While, 24.8%, 21.8% and 21.1% suffered from severe, moderate and mild depression respectively. Our patients showed significantly lower mean anxiety and depression scores after as compared to before treatment. Also, there was a non-significant difference between groups receiving different modalities of therapy in the improvement of the mean anxiety or depression score. When correlating the improvement with the response to therapy (total or partial response), age or sex of the patients.

**Conclusion:** Bedwetting directly affects children’s psychological wellbeing and improves with any modality of treatment regardless of the response.

**Serotonergic 5-HT1B receptor gene polymorphism in a sample of Egyptian children with attention deficit hyperactive disorder**

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**Background:** Attention deficit hyperactivity disorder (ADHD) is a common neurodevelopmental disorder that affects approximately 5% to 10% of young people worldwide. Although still controversial, genetic factors have been suggested as the underlying etiology.

**Aim:** To study the association between the Serotonergic gene 5-HT1B polymorphism G861C allele and the development of ADHD in a sample of Egyptian children. We also aimed to perform a genotype-phenotype correlation among the ADHD spectrum disorder.

**Methods:** This case-control study included fifty patients with ADHD who were recruited from the Child an Adolescent, Psychiatry clinic, Children hospital - Ain Shams University, Cairo, Egypt. In addition to fifty controls of matched age and sex. Children with ADHD fulfilled DSM (V) criteria for ADHD syndrome and were further evaluated by Conner’s parent rating scale. All patients and controls underwent thorough history taking, complete physical examination, IQ assessment using the Arabic version of Wechsler intelligence scale for children (WISC) and Genotyping to detect 5-HT1B the allelic polymorphism G861C.

**Results:** There was a tendency of G allele to segregate in homozygosity (58%) than C allele (4%) with more prevalence of G allele among patients group (75%). Similarly, in the control group, there was a tendency of G allele to segregate in homogygosity (60%). The C allele appeared only in heterozygous state (20%) with more prevalence of G allele (80%). These mild differences between patients and control did not reach statistical significance \( (p > 0.05) \). Also, there was no statistically significant difference between the homogygous and heterozygous ADHD patients, nor the ADHD patients with privilege of either C or G alleles in relation to the ADHD phenotypes as regard the inattentive, hyperactive-impulsive or total ADHD index phenotype of when measured by the Conner’s parents rating scale or as regards the Wechsler intelligence scale.

**Conclusion:** This study revealed that the association between 5HT1B polymorphic locus G861C and this particular sample of Egyptian ADHD patients did not reach statistically significant values. And there was also no genotype-phenotype statistically significant correlations regarding the severity of symptoms. Larger studies are needed to reach a definitive Conclusion.

**Serum cystatin C as an early predictor of acute kidney injury in preterm neonates with respiratory distress syndrome**

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**Objectives:** To determine whether serum cystatin C (sCystC) on day 3 of life (D3) can early predict acute kidney injury (AKI) in preterm neonates with respiratory distress syndrome (RDS).