who assess 4 times daily 68.6% of them have HA1c < 7 and all patients who assess 6 and 7 times daily have HA1c < 7.

Conclusions: More frequent SMBG more than 3 times was associated with better glycemic control and less diabetic complications. As regard factors and barriers affecting compliance of SMBG of type 1 diabetic children and adolescents we found that regular and irregular SMBG children and adolescents faces the common barriers and factors.

The critical level of vitamin D in childhood asthma
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Objectives: Studies have suggested a significant link between vitamin D status and asthma. We sought to determine the cut-off level of vitamin D that is significantly linked to asthma status in children.

Patients and Methods: Our cross-sectional study comprised 90 asthmatic children, aged 2-18 years. They were evaluated clinically and classified according to asthma severity and control. Asthma control test (ACT) was performed in those aged above 4 years. Pulmonary functions were performed in cooperative children (n = 59). Serum 25 hydroxy-vitamin D levels were measured by ELISA in all patients.

Results: The study comprised 52 boys (57.7%) and 38 girls (42.3%) with mean age 7.03 ± 4.36 years. Thirty-six patients (40%) had mild asthma, 37 (41%) moderate asthma and 17 (19%) had severe asthma. Forty-two patients (46.6%) had controlled asthma; 14 (15.6%) partially controlled and 34 (37.8%) had uncontrolled asthma.

ACT score ranged: 11-26, with a mean score: 18.9 ± 4.3 SD. Serum 25 hydroxy-vitamin D levels ranged between 2-48 ng/ml (mean± SD: 12.2 ± 9 ng/ml); levels were comparable among different grades of asthma severity (f = 1.975, p = 0.145), while the uncontrolled asthma group showed the lowest levels (f = 8.511, p < 0.001). Vitamin D levels correlated positively with ACT score (r = 0.369, p = 0.001) but not with inhaled steroids doses or any of the parameters of the pulmonary function tests. Vitamin D level of 7.5 ng/ml was associated with partial/complete uncontrolled asthma; 8.51 ng/ml was associated with high risk asthma.

Conclusion: Vitamin D levels below 7.5 ng/ml are associated with poor asthma status in children.

Evaluation of quality of care offered to children and adolescents with beta-thalassemia major: single center experience
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From the Faculty of Medicine, Ain Shams University, Department of Pediatrics

Background: Over the past few decades, there has been a remarkable improvement in the survival of patients with thalassemia in developing countries. Availability of safe blood transfusions, effective and accessible iron chelating medications, the introduction of new and non-invasive methods of tissue iron assessment and other advances in multi-disciplinary care of thalassemia patients have all contributed to better outcomes.

Objective: To evaluate the quality of care offered to patients with thalassemia major against the standard of care at Hematology/Oncology Unit, Ain Shams University Children’s Hospital.

Subjects and Methods: Two hundred patients with beta thalassemia major with age range between 2 and 17 years were recruited. Data was collected by reviewing the patients’ records then compared with thalassemia international federation guidelines for care of transfusion dependent thalassemia patients.

Results: The mean value of pre-transfusion Hb among our patients was 7.26 ± 0.89 g/dl. Initial extended red cell antigen typing had been done in 45% of patients. Almost all the studied patients (198/200) were on chelation therapy either as mono-therapy or combined chelation therapy with DFO/DFX being the most frequently used combination. Many patients suffered endocanicular complications with short stature being the most common complication (39%). Twenty-eight patients had delayed puberty while hypothyroidism and hypoparathyroidism were uncommon (only one patient for each). Liver and myocardial iron concentrations (LIC and MLC) assessment using MRI T2* was done in 13.5% of the patients. Most patients had moderate to severe degree of hepatic iron overload (30% each), while only 7.4% had high risk myocardial iron deposition. HCV infection was prevalent among one fifth of the patients.

Conclusion: Specialized care is mandatory for the patients with beta thalassemia. Assessing the quality of care is of utmost value in guiding resources and redirecting therapy.

Anthropometry, body and food composition analysis of patients with drug resistant epilepsy: a case control study
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Aim: Growth, body and food composition assessment in children with drug resistant epilepsy.

Subjects and Methods: The study included 150 children with drug resistant epilepsy, their weight, height, midarm circumference, triceps skin fold thickness and body mass index (BMI) were measured. Body composition analyzer was used to measure body fat, fat free mass, muscle mass and body water. A three-day food diary was used to calculate their food intake for the past consecutive three days to estimate their average daily intake of calories, carbohydrate, fat and proteins. Patients were further classified into two subgroups according to the antiepileptic drugs used; those who were on valproate and those who were on other antiepileptics than valproate. Another 150 apparently healthy children served as control.

Results: All anthropometric analysis assessed were higher in patients compared to control and were further higher together with body composition measurements in the valproate group compared to the non-valproate group; for body fat 12.29+/− 6.66 and 7.44+/− 5.29 kg (p = 0.004), fat free mass 32.30+/− 8.81 and 34.97+/− 7.01 kg (p = 0.002), muscle mass 30.64+/− 8.36 and 23.25+/− 6.77 (p = 0.001) and body water 23.64+/− 6.44 and
Growth hormone (GH) is secreted by the anterior pituitary gland in a pulsatile manner under the regulation of growth hormone releasing hormone (GHRH), somatostatin, and GH-releasing peptide (ghrelin). Obesity attenuates both spontaneous GH secretion and GH response to exercise. The decrease in spontaneous 24-h GH secretion in obesity has been attributed to a diminished pulsatile GH release and a shorter half-life of endogenous GH.

**Aim:** To determine the impact of body mass index (BMI) on Results of GH stimulation testing in children with short stature.

**Subjects and Methods:** Subjects included 546 GH naive children with short stature. They were subjected to history, anthropometric assessment and Tanner pubertal staging. BMI and height standard deviation scores (SDSs) were calculated using National Child Health Statistics 2000 standards. They underwent GH stimulation testing using insulin and clonidine, without sex steroid pretreatment; and bone age assessment. Children with known genetic syndromes, congenital heart disease, renal failure, chronic hemolytic anemia, neoplasms, other endocrinopathies or receiving medications that may affect endogenous GH secretion were excluded.

**Results:** Mean BMI SDS was -0.17±2.1. Median peak GH level by insulin provocation was 5.6 μg/liter. On univariate analysis, BMI SDS was significantly and negatively associated with peak GH by clonidine (r= -0.23; P <0.0001) and insulin (r= -0.13; P <0.003). Height, BMI SDS, bone age and Predicted adult height SDSs all were significantly associated with peak GH by insulin. Univariate analysis showed significant positive correlation between age and peak GH level by both clonidine and insulin (P= 0.60 and 0.51, respectively). It also showed significant positive correlation between height SDS, bone age SDS and peak GH by clonidine provocation. Significant negative correlation between BMI SDS and peak GH level by clonidine. Similar finding with peak GH level by insulin. Univariate association between BMI SDS and peak GH by insulin provocation was stronger in pubertal children (prepubertal, r= -0.06, P= 0.35, pubertal r= -0.19, P= 0.002) and equivocal between the both pubertal and prepubertal children by clonidine provocation (prepubertal, r= -0.2, P= 0.002, pubertal r= -0.2, P= 0.002 ). Peak GH by both insulin and clonidine provocation was highest in children with BMI SDS less than -1.

**Conclusion:** Long term nutritional status presented by BMI affect peak GH level. GH levels response to provocative test decreases with increased BMI SDS. This relationship between BMI and peak GH is not unique to obesity but rather persists in the normal and underweight pediatric population.

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**Glutathione-S-transferase in neonates with gross congenital anomalies**

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**Background:** Congenital anomalies are structural or functional defects that occur during intrauterine life. One of the most recent theories causing congenital anomalies is the disturbance in the intrauterine redox hemostasis, resulting in altering the pathways that control the embryonic reactive oxygen species (ROS) balance. Oxidative stress posttranslationally modifies redox-regulated transcription factors with subsequent gene expression in embryo. Glutathione-S-transferase (GST) is one of the important constituents of cellular antioxidant enzyme system and its consumption indicates a state of intrauterine oxidative stress.

**Objective:** Measuring the serum level of glutathione-S-transferase to evaluate the role of oxidative stress in neonates with gross congenital anomalies.

**Methods:** Two groups were enrolled in the study; Group A included 40 neonates with gross congenital anomalies (20 term & 20 preterm), Group B included 20 healthy neonates born to healthy mothers. History of consanguinous marriage, exposure to obvious teratogens, apparent syndromic combination and history of chorioamnionitis were the exclusion criteria. Detailed History taking, clinical examination together with the appropriate imaging were done. A venous cord blood sample (2-3ml) was collected immediately at birth. Serum GST was measured using ELISA.

**Results:** In Group A, cardiovascular anomalies (VSD, ASD, TGA and Fallot tetralogy) represent 22.5% of cases, Central nervous system anomalies (hydrocephalus, meningomyelocele and spina bifida) and gastrointestinal anomalies (omphalocele and TEF) each represent 20% of cases. Cleft lip, hypospadias and polydactyly represent 15%, 12.5% and 10% respectively. Group A had a highly statistically significant (p = 0.000) lower mean serum GST level compared to healthy controls. Within Group A, preterm neonates had a high statistically significant (p = 0.000) lower mean serum GST level compared to full term neonates. Serum GST was lowest in CNS anomalies and highest in the cleft lip anomaly. Serum GST below 14.1 U/I (cutoff point) showed a 75% sensitivity and 90% specificity for the development of congenital anomalies (AUC = 0.832). In Group A, 60% were born to mothers with late or interrupted supplementation of oral iron and folic acid. GST level was not statistically different from those to the non supplemented mothers.

**Conclusion:** Low serum GST in the cord blood of neonates is a promising indicator of an intrauterine oxidative stress which has an embryopathic role in the development of congenital anomalies.

**Effect of body mass index on peak growth hormone in children with short stature**

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**Introduction:** Growth hormone (GH) is secreted by the anterior pituitary gland in a pulsatile manner under the regulation of growth hormone releasing hormone (GHRH), somatostatin, and GH-releasing peptide (ghrelin). Obesity attenuates both spontaneous GH secretion and GH response to exercise. The decrease in spontaneous 24-h GH secretion in obesity has been attributed to a diminished pulsatile GH release and a shorter half-life of endogenous GH.

**Aim:** To determine the impact of body mass index (BMI) on Results of GH stimulation testing in children with short stature.

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**Results:** Mean BMI SDS was -0.17±2.1. Median peak GH level by insulin provocation was 5.6 μg/liter. On univariate analysis, BMI SDS was significantly and negatively associated with peak GH by clonidine (r= -0.23; P <0.0001) and insulin (r= -0.13; P <0.003). Height, BMI SDS, bone age and Predicted adult height SDSs all were significantly associated with peak GH by insulin. Univariate analysis showed significant positive correlation between age and peak GH level by both clonidine and insulin (P= 0.60 and 0.51, respectively). It also showed significant positive correlation between height SDS, bone age SDS and peak GH by clonidine provocation. Significant negative correlation between BMI SDS and peak GH level by clonidine. Similar finding with peak GH level by insulin. Univariate association between BMI SDS and peak GH by insulin provocation was stronger in pubertal children (prepubertal, r= -0.06, P= 0.35, pubertal r= -0.19, P= 0.002) and equivocal between the both pubertal and prepubertal children by clonidine provocation (prepubertal, r= -0.2, P= 0.002, pubertal r= -0.2, P= 0.002). Peak GH by both insulin and clonidine provocation was highest in children with BMI SDS less than -1.

**Conclusion:** Long term nutritional status presented by BMI affect peak GH level. GH levels response to provocative test decreases with increased BMI SDS. This relationship between BMI and peak GH is not unique to obesity but rather persists in the normal and underweight pediatric population.

**Diagnostic and prognostic value of lactate clearance in pediatric patients with sepsis and septic shock**

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**Background:** Sepsis is a systemic inflammatory response syndrome caused by infectious etiology. A lactate level rise is a