g. The study group was divided into three subgroups according to gestational weeks (< 28 wk, n=79; 28–31 6/7 wk, n=204; 32–33 6/7 wk, n=145). Twenty five percent of the infants were small for gestational age (SGA). Mean age at first thyroid function evaluation was 18.3±12.5 days. Mean FT4 levels were 12.0±3.1, 14.1±3.3 and 17.7±3.9 pmol/L in three subgroups, respectively and significantly lower in infants < 28 weeks. In all subgroups SGA infants had lower FT4 levels, but it was significantly lower in only 28–31 6/7 and 32–33 6/7 weeks but not in < 28 weeks subgroup. Overall, the prevalence of hypothyroxinemia and hypothyroidism were 25% and 0.8%, respectively in the first evaluation. 17.6% of infants < 28 weeks had hypothyroxinemia (n=13) and all of them were treated. In the total group levothyroxine treatment was given to 51 (11.9%) infants. Mean treatment period was 1.6±1.2 years.

Conclusion Free T4 levels were lower in the early gestational age subgroups. SGA infants had lower FT4 levels.

652 PREVALENCE OF SENSORINEURAL HEARING LOSS IN PATIENTS WITH CONGENITAL HYPOTHYROIDISM

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Background and Aims Congenital hypothyroidism is mainly diagnosed through neonatal screening program. Normal physical and mental development can be maintained with pertinent replacement therapy. One of the associated abnormalities in these patients is the sensorineural hearing defect, which has a prevalence of about 20% according to relevant references. The purpose of this study was to obtain the prevalence of sensorineural hearing loss in children with congenital hypothyroidism identified in the screening program in Qazvin, Iran.

Methods All patients afflicted with congenital hypothyroidism identified in the screening program (in Qazvin, Iran) were enrolled in this study. They were both under observed and hormonal replacement therapy by referral Endocrine Diseases Clinic and auditory brainstem responses test (ABR) was performed for all subjects.

Results Of 169 patients with congenital hypothyroidism, 42.3% were female. The prevalence of sensorineural hearing loss was 5.3% (6 male, 2 female). Statistical analysis did not reveal any significant difference between the prevalence of sensorineural hearing loss with other variables of the study.

Conclusions A remarkable difference was observed between the results of our study with those stated in the references. Normal sensorineural hearing can be maintained with pertinent replacement therapy.

653 PLACENTAL WEIGHT: RELATION TO MATERNAL WEIGHT AND GROWTH PARAMETERS AT BIRTH AND DURING CHILDHOOD

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Background Human growth is a continuous process. Studies defining placental effect on growth focus on discrete time points (e.g., birth), overlooking the conditional nature of the process.

Material and Methods Two hundred mothers who gave birth at term after an uncomplicated singleton pregnancy were studied using conditional analysis. Placental weight, infant length (BL), weight (BW), and head circumference (HC) were obtained at birth and during childhood period (4.5 +/-2 years) of age. Placental weight was correlated with growth parameters of the child at birth and during childhood.

Results At birth, placental weight was correlated significantly with maternal weight ($r=0.21$, $p=0.031$), infant BW ($r=0.71$, $r < 0.001$), BMISDS ($r=0.589$, $p<0.001$), LSDS (0.567 , $p<0.001$), and HC ($r=0.699$, $p<0.001$). During childhood, placental weight was correlated with BMI SDS ($r=0.296$, $p=0.002$), HtSDS = ($r=0.254$, $p=0.009$). Length SDS at birth was correlated significantly with HtSDS during childhood ($r=0.445$, $p<0.001$).

Conclusion Placental weight is a good pointer of birth size (weight, length and HC) and may help forecast childhood growth.

654 THE DIFFERENTIAL-DIAGNOSTIC FEATURES OF THELARCHE SYNDROME IN GIRLS

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Aim To determine the most significant criteria in the diagnosis of true precoicosis puberty and premature thelarche.

Methods 68 girls were analyzed in the endocrinological department in Minsk over 2003–2011 yrs. Group 1(G1) - girls with isolated thelarche (IT) (58 (85.3%); group 2(G2) - with true precoicosis puberty (TPP) (10 (14.7%). Ultrasound (u/s) organs of the small pelvis, bone age, the levels of hormones (follicle-stimulating hormone (FSH), luteinizing hormone (LH), estradiol (E2); gonadotropin-releasing hormone analogue (GRH) stimulating test were conducted to all patients. Results were processed using the Statistica 6.1.

Results Breast development in G1: stages on Tanner 2 (84.3%), 3 (15.7%); G2: Tanner 2 (80%), 3 (20%). The onset of thelarche G1 1.2±0.3 yrs, G2 5.3±0.77 ($p=0.2$). Bone age(BoA)/biological age(Bia) G1 0.63±0.08 (< 1yrs), G2 3.3±0.01. Uterus length G1 28.1±0.83 (< 35 mm), G2 35.4±2.9 ($p=0.1$). There was an excess of prepubertal ovaries norm (>0.2ml) G1 65%, G2 48% with the presence of follicles G1 20%, G2 100%. Basal FSH levels G1 4.73±0.52 (1.8–10.5 IU/L), G2 4.25±0.87 ($p=0.3$); LH G1 0.76±0.13 (1–10 IU/L), G2 2±0.8 ($p=0.15$); E2 G1 0.12±0.02 (< 0.5 ng/ml), G2 0.14±0.05 ($p=0.08$). There was a pubertal excess of LH levels in G2 (39.4±20.4 IU/L) by conducting GRH stimulating test.

Conclusions The differential diagnosis between TPP and IT are: advance BoA to BiA, the excess of uterus length by u/s and E2 levels, excess of LH levels by conducting stimulating test with GRH (which is the most important feature).

655 GENDER PECULIARITIES OF THE COURSE OF GRAVES-BASEDOW DISEASE IN CHILDREN

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Aim To determine gender peculiarities of the course of Graves-Basedow disease (GBD) in children depending on the sex and stage of puberty.

Methods We analyzed retrospectively 28 children with GBD in the endocrinological department of University hospital over the 2011 year (boys(B)/girls(G) 3/25, mean±SD age 13.15±3.03 yrs). We conducted additional division on the subgroups of early (Tanner 2–3) and late (Tanner 4–5) puberty.

Results 67.8% children had complains (B losing weight (66.7%); G weakness (32%), heartbeat (24%). Family history wasn't burdened in 33.3% B and 64% G. Relatives with diabetes mellitus type 1 was in 7.1% G; thyroid diseases - 33.3% B and 28% G; other endocrinopathies 33.3% B, 12% G. There was a tendency of more early manifestation GBD in G 12.94±3.07 yrs (B 14.86±2.42 yrs) ($\delta>0.05$). The onset of GBD was mainly in late puberty regardless of gender. There was lower TSH 0,085±0.13 (0.23–3.4μIU/l) and higher free T4 62.13±34.34 (10–23.2pmol/l) levels in B (G 0.12±0.2 and

46.86±28.89 respectively, $\delta > 0.05$). After 6 months treatment free T4 levels were lower (8.5±5.48) in those patients (33.3%), which undergo higher dosage of thyrostatics and later levothyroxin treatment compared to levothyroxin treatment after 4 months after first appeal (16.6±2.92 $\delta < 0.05$). After 1 year treatment with thyrostatics in comparable dosages stable clinical-laboratory euthyrosis were reached in all children.

Conclusions GBD more often manifested in late puberty regardless of gender. More pronounced features of laboratory thyrotoxicosis in boys can say about late diagnostic. Normalization of free T4 was after 6 months treatment in 66.7% children.

656 ENHANCEMENT OF LINEAR GROWTH AND WEIGHT VELOCITY BY CYPROHEPTADINE IN CHILDREN WITH IDIOPATHIC GROWTH HORMONE DEFICIENCY RECEIVING THIS HORMONE

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Background The current study examined the hypothesis that Cyproheptadine can enhance linear growth and increase weight velocity in children with idiopathic GH deficiency.

Method 10 children with idiopathic GH deficiency received Cyproheptadine 0.3mg/kg three times per week plus GH0.6U/kg/day for six days a week for 1-year period, alternatively (GH plus Cyproheptadine for first and third trimesters, and GH plus placebo for second and fourth trimesters). Weight velocity and linear growth were assessed at baseline and at end of every trimester.

Result The repeated measure ANOVA test showed significant differences in weight velocity across the study trimesters so that the increase in weight velocity within first and third trimesters were significantly higher than other time intervals (ΔWV : first trimester 1.51±0.61kg; second trimester 1.13±0.46 kg; third trimester 1.87±0.65kg; and fourth trimester 0.74±0.34 kg, $p=0.026$). Similar trend was also observed regarding changes in linear growth that the increase in children height was significantly higher in first and third trimesters compared with other trimesters (ΔLG : first trimester 2.40±0.39cm; second trimester 1.65±0.41cm; third trimester 2.00±0.88kg; and fourth trimester 1.30±0.48 kg, $p=0.029$). The standard deviation of linear growth was gradually decreased during the study trimesters (4.75, 4.50, 4.25, and 3.88cm, respectively, however the changes in this parameter was not different between the two drug regimens.

Conclusion Our study showed improved linear growth and weight velocity following administration of Cyproheptadine in children given GH because of their GH deficiency.

657 THE ROLE OF GROWTH HORMONE IN BONE MATURATION: EVALUATION BY HAND X-RAY

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The maturation of the long bones and short bones of the hand differs from the carpal bones. We aimed to determine role of GH. Bone age x-ray was performed in 12 children with GHD, 19 ISS children age 5.5 ± 0.9 (m±sd) during 3 y of hGH treatment and 12 untreated ISS children. Individual bones were evaluated by a single blinded observer according to Greulich and Pyle, and are expressed as 'years' (y) of delay relative to chronological age.

In ISS, maturation was delayed by 1.87±0.3, 2.07±0.25 and 1.75±0.2 'y' for RU, C and S bones, resp. In GHD, maturation was delayed by 3.1±0.4, 4.5±0.2 and 2.9±0.4 'y' for RU, C and S bones, resp. In ISS over 3 y of GH treatment, RU advanced by a mean 3.5±0.4 'y', as compared with untreated 3.3±0.7 'y' ($p < 0.10$),

C advanced by a mean 4.2±0.7 'y' on hGH and 3.3±0.6 'y', in control ($p < 0.001$), and S bones by a mean 3.5±0.9 'y' on hGH and 3.15±0.7 'y' in control ($p < 0.058$). In GHD over 3 y of GH treatment, RU advanced by a mean 3.1±0.4 'y', ($p < 0.10$), C advanced by a mean 4.3±0.2 'y' ($p < 0.001$), and S bones 2.9±0.1 ($p < 0.06$).

These results suggest that GH strongly regulates and GHD interferes with bone maturation by inhibiting chondral osteogenesis and less so through delayed enchondroplasia, observed by RU and S maturation. These profiles help in the diagnosis of GHD.

658 CONGENITAL ANOMALIES IN INFANTS WITH CONGENITAL HYPOTHYROIDISM IN QAZVIN, IRAN

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Background and Aims In the last decade a high frequency of extrathyroidal congenital anomalies has been reported in infants with congenital hypothyroidism detected by neonatal screening. Approximately 10% of infants with congenital hypothyroidism have associated congenital anomalies. Cardiac anomalies are most common, but anomalies of the nervous system and eye have also been reported. The main objective of this study was identification of associated disorders in patients with congenital hypothyroidism.

Methods This descriptive study was performed on newborns with congenital hypothyroidism that had been diagnosed by screening in Qazvin province of Iran from 1385 to 1390. Variables were analyzed by Chi-square test.

Results In the screening 287 newborns with congenital hypothyroidism were diagnosed –122 female (42.2%). 36 (12.5%) of 287 patients had congenital anomalies. 10 (3.5%) Down syndrome, 10 (3.5%) cardiovascular anomalies, 9 (3.1%) hearing disorder, 2 (0.7%) eye disorder, 2 (0.7%) metabolic disease, 2 (0.7%) disorder of face and ear, 2 (0.7%) CNS disorder, one (0.3%) CAH, one (0.3%) panhypopituitarism and one (0.3%) pseudohypoparathyroidism were diagnosed.

Conclusions With respect to the association of congenital anomalies with congenital hypothyroidism, every newborn with congenital hypothyroidism should be carefully examined for cardiovascular disorders and other related anomalies.

659 HYPOPARATHYROIDISM AND PSEUDO-HYPOPARATHYROIDISM: ABOUT 9 CASES

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Introduction Hypoparathyroidism (HP) is an uncommon disorder of calcium metabolism characterized by hypocalcemia and hyperphosphatemia due to impaired parathyroid hormone (PTH) secretion. The pseudo-hypoparathyroidism (PHP) is characterized by a high level of PTH due to peripheral PTH resistance.

Objective Describe clinical, biochemical, radiological profile, treatment and outcome in 9 patients with HP and PHP seen over a period of 24 years.

Methods This study was performed in the pediatric department of Sfax during 24 years (from January 1988 to April 2012). The diagnosis of HP and PHP was based on demonstration of hypocalcemia, hyperphosphatemia with low or elevated PTH, respectively.

Results During the period of study, 9 children having HP or PHP were admitted. There were 5 girls and 4 boys. The mean age at presentation was 44 months (15 days– 10 years). The most common presenting manifestation was seizures (8 cases) followed by carpal spasm in one case. The mean serum calcium and inorganic phosphate concentrations were 1, 51 mmol/l and 3 mmol/l,