Pediatric Endocrinology

PEDIATRIC ENDOCRINOLOGY: ADRENAL, THYROID, AND GENETIC DISORDERS

Quality of Life in Children and Young People With Congenital Adrenal Hyperplasia in the United Kingdom - Nationwide Multicentre Assessment

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Introduction: Impaired Quality of Life (QoL) in Congenital Adrenal Hyperplasia (CAH) has been demonstrated in adults, but research in children has yielded variable results. We investigated the impact of CAH on QoL of children and adolescents alongside clinical health outcomes (biometric and biochemical profiles). **Method:** We collected data from 14 tertiary UK centres to explore current health status of 8-18 year olds with CAH. QoL was assessed by using three different questionnaires; strengths and difficulties questionnaire (SDQ), Paediatric Quality of life (PedsQL) and Self-image profile (SIP), the former two completed by both patients and their parents. Height, weight and blood pressure were converted to age and sex adjusted z-scores. Serum markers included 17OH-progesterone (17OHP), androstenedione (D4), testosterone (T) and 11-ketotestosterone (11KT). **Statistical Analysis:** Statistical analysis comprised of principal component analysis (PCA) followed by multivariate analysis of variance (MANOVA), and post hoc regression. **Results:** Of the 107 CAH patients included in the study, median age 12.4 years (IQR 10.0-15.1), 55% were female and 104 completed at least 1 questionnaire. Adequate data for PCA was available from 73/107. Three Principal Components (PCs) with observed eigenvalues > 1 explained 71% of the total variance in the observed variables. PC1 reflected 'disease control' comprising 17OHP, D4, T and 11KT. PC2 reflected 'biometrics' comprising age, and height and weight z-score. PC3 reflected 'blood pressure', comprising systolic and diastolic z-score. PC1 correlated with outcomes in the parent and patient SDQ as well as parent PedsQL. PC2 and PC3 did not correlate with QoL. Regression analysis revealed higher scores (indicating lower QoL) in the SDQ domain of emotional problems and PedsQL domain of emotional health in patients where biomarkers suggested good control or overtreatment. Post hoc regression analysis revealed a rise in Androstenedione of 10nmol/L equated to an improved SDQ emotional problems score of 0.5 points and an improved PedsQL emotional health score of 3 points. **Conclusion:** The study found an interrelation between QoL and biomarkers of disease control in CAH. There were more emotional problems with higher levels of androgen suppression. Biochemical control within normal ranges did not predict emotional problems. However, unexpectedly, patients with very high levels of androgens were highlighted as reporting fewer problems with their emotional QoL. Further research into QoL in CAH and optimal levels of biochemical control will further understanding.

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Relationship Between Iodine Status and Thyroid Function in Preschool Children: From the Environmental and Development of Children (EDC) Study

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Background: We investigated iodine status and its association with thyroid function among preschool children residing in iodine-sufficient area. **Methods:** From the Environment and Development of Children study, 477 children were evaluated for thyroid function and urine iodine concentration (UIC) at age 6 during 2015-2017. After excluding children born with multiple birth and with congenital hypothyroidism or Hashimoto thyroiditis, 439 (231 boys) were included. Subclinical hypothyroidism (SCH) was defined as thyroid stimulating hormone (TSH) levels between 4.9-10 μIU/mL with normal free T4 levels. Iodine status was evaluated by UIC and children were categorized into 4 groups: iodine deficient (UIC < 100 μg/L), adequate (UIC, 100-299 μg/L), mild excessive (UIC, 300-999 μg/L), severe excessive (UIC ≥ 1000 μg/L). **Results:** Goiter was palpated in 64 (14.6%) with female predominance (26.0% vs. 4.3%, $P < 0.001$). Serum level of free T4 and T3 was 1.2 ± 0.1 ng/dL and 148.1 ± 18.5 ng/dL, respectively. The median TSH level was 2.3 (0.53-8.59) μIU/mL and the