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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

Neil Richard Lawrence, MbChB¹, IRINA-ALEXANDRA BACILA,

CLINICAL RESEARCH FELLOW IN PAEDIATRICS²,

Sundus Mahdi, Bsc, Msc¹, Sabah Albi, MbChB, MD³,

Tim D. Cheetham, MD⁴, Elizabeth C. Crowne, MD⁵,

Urmi Das, MBBS, MRCPCH⁶, Jeremy Dawson, PhD⁷,

Mehul Tulsidas Dattani, DCH, FRCPCH, FRCP, MBBS, MD⁸,

Justin Davies, MBBCh, MRCP, FRCPCH, MD⁹, Eveline Gevers,

MD, PhD¹⁰, Ruth Krone, MD¹¹, Andreas Kyriakou, MD¹²,

Leena Patel, MBBS, MD (India), FRCPCH, MHPed, MD (Res),

SFHEA¹³, Tabitha Randell, PhD¹⁴, Fiona Ryan, MRCPCH¹⁵,

Brian George Keevil, MSc FRCPATH¹⁶, Syed Faisal Ahmed,

MBChB, MD, FRCPCH¹⁷, Nils Peter Krone, MD FRCPCH¹⁸.

¹SHEFFIELD CHILDREN'S HOSPITAL, Sheffield, United

Kingdom, ²THE UNIVERSITY OF SHEFFIELD, SHEFFIELD,

United Kingdom, ³Great North Children's Hospital, Newcastle,

United Kingdom, ⁴Dept of Paediatrics, Newcastle upon Tyne,

United Kingdom, ⁵Bristol Royal Hospital for Children, England,

United Kingdom, ⁶Alder Hey, Liverpool, United Kingdom,

⁷The University of Sheffield, Sheffield, United Kingdom, ⁸UCL

Institute of Child Health, London, United Kingdom, ⁹University

Hospital Southampton, Southampton, United Kingdom, ¹⁰Barts

Health NHS trust, London, United Kingdom, ¹¹Birmingham

Women and Children's Hospital, Birmingham, United Kingdom,

¹²Glasgow University, Glasgow, United Kingdom, ¹³University

of Manchester, Manchester, United Kingdom, ¹⁴Nottingham

University Hospitals, Nottingham, United Kingdom, ¹⁵Oxford

University Hospitals, Oxford, United Kingdom, ¹⁶Manchester

University NHS foundation Trust, Manchester, United Kingdom,

¹⁷Royal Hospital for Children, Glasgow, Scotland, United

Kingdom, ¹⁸University of Sheffield, Sheffield, United Kingdom.

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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PEDIATRIC ENDOCRINOLOGY: ADRENAL, THYROID, AND GENETIC DISORDERS

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

Yun Jeong Lee, MD¹, You Joung Heo, MD¹, Yunsoo Choe, MD¹, Sang Hee Park, MD¹, Youn-Hee Lim, PhD², Bung-Nyun Kim, MD, PhD³, Johanna Inhyang Kim, MD, PhD⁴, Yun-Chul Hong, MD, PhD⁵, Sun Wook Cho, MD, PhD³, Young Joo Park, MD, PhD⁵, Choong Ho Shin, MD, PhD¹, Young Ah Lee, MD PhD¹.

¹Seoul National University Children's Hospital, Seoul, Korea, Republic of, ²University of Copenhagen, Copenhagen, Denmark,

³Seoul National University Hospital, Seoul, Korea, Republic of,

⁴Hanyang University Medical Center, Seoul, Korea, Republic of,

⁵Seoul National University College of Medicine, Seoul, Korea, Republic of.

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