childhood SBP. **Methods:** Brachial SBP was measured for 75 children aged 3-6 years from the Manchester BabyGRO Study, using a Tensiomed®Arteriograph with a child-sized cuff. SBP quartiles were generated. Participants were born to mothers who had attended a specialised clinic, following identification of higher FGR risk based on abnormal maternal serology (pregnancy associated plasma protein-A, β-human chorionic gonadotrophin, α-fetoprotein, Inhibin-A). Antenatal ultrasound data at 23 weeks gestation were obtained. Uterine artery Doppler (UtAD) notching was assigned a rank (0=absent, 1=unilateral, 2=bilateral). Random forest (RF) is a machine learning approach that generates many independent, uncorrelated decision trees based on multiple variables. This was used to determine the relative importance of antenatal variables in prediction of upper quartile of childhood SBP. Variables included in the model were maternal body mass index (BMI), parity, ethnicity (black/white/asian/mixed), maternal SBP and diastolic BP (DBP), maternal serology relating to FGR risk, UtAD pulsatility index, resistance index and notching rank (all measures of uteroplacental blood flow resistance), placental size measurements, 23 week estimated fetal weight (EFW) centile, Δ23w EFW-birthweight centile and birthweight SDS. A receiver operating characteristic (ROC) curve was generated, providing an area under the curve (AUC). A variable of importance (VIP) score was calculated for each marker that was significant in the model. All analyses were conducted in R (version 3.6). **Results:** RF analysis demonstrated antenatal markers relating to FGR risk predict the upper quartile of childhood SBP with an AUC 0.97. The top five ranked variables were maternal DBP (VIP score 14.0), birthweight SDS (11.5), parity (9.9), notching rank (9.5) and Δ23w EFW-birthweight centile (9.1). **Conclusion:** Maternal and antenatal markers, as well as birthweight SDS are linked with the upper quartile of SBP at 3-6 years. Antenatal markers were within the top five ranked and could help identify those babies at risk of higher SBP in childhood.

# Pediatric Endocrinology

## PEDIATRIC ENDOCRINOLOGY: ADRENAL, THYROID, AND GENETIC DISORDERS

### *Are Current Normal Values of 11DOC Useful for Diagnosis of Non Classical Congenital Adrenal Hyperplasia Due to 11β- Hydroxylase Deficiency?*

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**Background:** A non-classic form of 11β-hydroxylase deficiency (NC 11β-OHD) has been reported to cause mild androgen excess, with a clinical presentation of precocious puberty, menstrual cycle abnormalities, or hirsutism during adolescence. Since genetic diagnosis of NC 11βOHD is yet not routinely available, the current gold standard for biochemical diagnosis is elevated 11 DOC levels after corticotropin stimulation test (ACTHstimT). However, there are no clear hormone level cutoffs. One of the accepted references for basal and stimulated levels for the pediatric population was published in 1991 by Lashansky et al[1]. **Aim**: To determine the correlation between 11DOC levels measured during ACTHstimT, clinical symptoms attributed to NC11βOHD and androgen levels at presentation, and long-term follow-up among children and adolescents with hyperandrogenism. **Methods:** a retrospective study including all patients who underwent ACTHstimT between 20072015, in one center, during which 11 DOC levels were routinely measured as part of the test. Clinical data was collected from the patients' medical files and, by telephone calls for complete long-term follow-up. 11DOC levels before and after ACTHstimT were categorized as elevated according to both pre-defined cut-offs; greater than 1.5 times the 95th percentile according to Lashansky[1] normal level for sex and age, and greater than 1.5 times the upper limit of the normal level of the commercial kit. **Results:** Data were complete at presentation for 136 patients, 92 females, and for long for 98 patients, 68 females, mean follow up duration of 3.1 years (1.37,5.09). There was no statistically significant difference in the number of cases with elevated 11DOC according to both cut-offs, among patients with precocious and early puberty, premature adrenarche nor acne. Higher baseline and stimulated 11 DOC levels were demonstrated in females who presented with mild hirsutism and regular menses. Long term data demonstrated no statistically significant difference in the number of cases with elevated 11DOC levels among patients with compromised final adult height, PCOS or hyperandrogenism. There was negative correlation between stimulated 11 DOC levels and basal levels of testosterone, androstenedione and DHEAS levels. **Conclusions**: This report demonstrates that the current interpretation of 11DOC levels, basal and ACTHstimulated in children, according to 1.5 times the highest range, of both, the Lashansky[1] acceptable norms for children, and some of the laboratory's kit, are not clinically applicable.

[1]Lashansky G, Saenger P, Fishman K, Gautier T, Mayes D, Berg G and Reiter E. Normative data for adrenal steroidogenesis in a healthy pediatric population: Age- and sex-related changes after adrenocorticotropin stimulation. J. Clin. Endocrinol. Metab. 1991; 73(3): 674-686.

# Pediatric Endocrinology

## PEDIATRIC ENDOCRINOLOGY: ADRENAL, THYROID, AND GENETIC DISORDERS

### *Associations of Size at Birth and Metabolic Syndrome Antecedents With Serum Spexin Levels in Prepubertal Children*

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**Background:** Spexin is a novel peptide implicated in food intake and obesity. The primary aim of this study was to analyze whether serum spexin levels, along with total leptin and active ghrelin levels were different in prepubertal children born small for gestational age(SGA)