Reduced pancreas size and exocrine function in young children with recent-onset type 1 diabetes (Diabetic Med. 2020;37:1340-43)

This study evaluated 42 children with recent onset type 1 diabetes aged 5.5 median years and 90 controls. Ultrasound imaging was used to measure transverse and longitudinal areas of pancreas. Pancreatic fecal elastase-1 was measured using ELISA to assess exocrine pancreatic function. Both pancreatic area and exocrine function were reduced in children with recent onset type 1 diabetes. The mean transverse and longitudinal pancreatic area in type 1 diabetics was 6.2 cm² and 1.28 cm², respectively, which was lower than controls (8.32 cm² and 1.55 cm²). Fecal elastase-1 levels were lower (455 μg/g) in type 1 diabetics than in controls (1408 μg/g). Pancreatic area and exocrine pancreatic function were reduced in children with recent onset type 1 diabetes who presented very early in life, thus supporting role of changes in exocrine pancreas in pathophysiology of type 1 diabetes in children presenting very early in life.

Biomarker for hypothalamic obesity in children with craniopharyngioma (Obesity (Silver Spring). 2021;29:402-8).

Craniopharyngioma (CP) is associated with multiple pituitary hormone deficiencies and/or hypothalamic obesity. The present study evaluated 31 patients (median age of 16 years) with CP to assess the levels of leptin, neurotrophic factor (BDNF), and alpha-melanocyte-stimulating hormone (α-MSH) as peripheral biomarker for hypothalamic obesity. Two control groups of children without CP with obesity (n=27) and without obesity (n=25) were also compared. Seventeen patients with CP had hypothalamic obesity. The levels of leptin and BDNF (not α-MSH) correlated with BMI in all groups. However, levels of α-MSH were higher in 17 patients with CP and hypothalamic obesity than in other groups, suggesting it to be a potential biomarker of hypothalamic obesity.

Standard deviation scores of 17-OHP and other analytes in classical CAH (Horm Res Paediatr 2020;93:226-38)

The management of congenital adrenal hyperplasia is guided by clinical assessment and measurement of biochemical parameters, chiefly 17-hydroxyprogesterone (17-OHP) and androgen metabolites. However, a single cutoff value of these analytes is difficult to define, and levels may vary with age, phenotypes and between different laboratories and assay methods. This study measured and expressed the SD scores of levels of 17-OHP, androstenedione, dehydroepiandrosterone-sulphate (DHEAS), and testosterone using liquid chromatography-tandem mass spectrometry in 38 children (aged 3-18 years) diagnosed with classical CAH. The biohemeical profile was corroborated with the clinical outcomes. The majority (86%) of the patients had elevated 17-OHP levels while consuming hydrocortisone in replacement dose of 12.6 mg/m²/day. The levels of androstenedione were within ±2 SD but DHEAS levels were below -2SD. The authors reiterated the need to develop gender- and age-specific cutoffs while interpreting these hormonal levels for optimum titration of dose of replacement steroids.


Kisspeptin is an important neuropeptide involved in regulation of the hypothalamo-gonadal axis. The concentrations of this neuropeptide were measured using radioimmunoassay in 54 prepubertal children (22 boys) who were overweight or obese and compared with 25 normal weight prepubertal children. The metabolic (glucose and insulin levels after oral glucose load, total-LDL-HDL-cholesterol, triglycerides, uric acid), hormonal (fT3, fT4, TSH, IGF-1, leptin) and total antioxidative capacity were also measured and correlated. The levels of kisspeptin were found similar in obese and normal-weight children but were lower in obese males than females. Kisspeptin did not correlate with BMI, HOMA-IR, Insulin peak levels and total antioxidative capacity; however, it significantly correlated with fT3 levels. Leptin levels were higher in obese children and positively correlated with total antioxidative capacity. The authors concluded further studies to understand this complex central regulation and interaction with oxidative stress in children.

Seasonal fluctuations in T4 and TSH measurement in NBS program (Int J Neonatal Screen. 2021;7:8)

Newborn screening for hypothyroidism is universally practiced in most developed countries. This study from New York, USA evaluated the effect of seasonal changes in kits for NBS used on 2.4 million babies between 2008 to 2017. The measurement of T4 and TSH was based on fluroimmunoassay principle in dried blood spots. A higher level of TSH and T4 with higher false positive rate was seen in the colder months, indicating the effect of seasonal temperature variations in these kits. However, the number of confirmed hypothyroid cases remained the same irrespective of the season. They suggested the need to be aware of these fluctuations to optimize the recall rates in screen positive babies.


This study from Israel analyzed BMI acceleration patterns among 417,915 adolescents. Electronic health records of children between 2002 and 2018 were retrieved to devise a model to predict obesity (BMI >95th centile). The model recorded the greatest acceleration in BMI at 2-4 years of age in obese adolescents and accurately predicted obesity at 5-6 years of age (AUC 0.803). Thus, anthropometric parameters during early childhood were concluded as important predictors of obesity at a later age.

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