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T3P8: Correlation between pre-pubertal IGF-II and pubertal fat distribution: findings from the Avon Longitudinal Study of Parents and Children (ALSPAC)

The abstract has been presented by

Maiadah Alfares

Authors of the abstract:

M.N. Alfares¹, S.D. Leary², C. Perks¹, J.M. Holly³, J.P. Hamilton-Shield⁴;

¹University of Bristol School of clinical sciences Bristol/GB, ²University of Bristol NIHR Bristol Biomedical Research Centre, Nutrition Theme Bristol/GB, ³University of Bristol School of Translational Health Sciences, IGFs and Metabolic Endocrinology Bristol/GB, ⁴NIHR Bristol Biomedical Research Centre (Nutrition Theme) Bristol/GB

Prim. Univ.-Prof. Dr. Bernhard Ludvik
Congress President



Correlation between pre-pubertal IGF-II and pubertal fat distribution: findings from the Avon Longitudinal Study of Parents and Children (ALSPAC)

Maiadah Alfares¹, Sam Leary², Claire Perks³, Jeff Holly⁴, Julian-Hamilton Shield⁵

^{1,3,4}IGFs and Metabolic Endocrinology Group (IMEG), School clinical sciences, University of Bristol, Learning and research building, South mead hospital, Bristol BS101TD, UK.² Biomedical Research Unit in Nutrition, Diet and Lifestyle, School of Oral and Dental Sciences, University of Bristol, Bristol, UK.³Department of Paediatric Endocrinology, Institute of Child Health, University of Bristol, Royal Hospital for Children, Upper Maudlin Street, Bristol, UK.

Background: Recent reports have suggested a role for IGF-II in body fat regulation and metabolism. IGF-II has also been strongly linked to obesity in genetic studies. The genetic polymorphisms in IGF-II expression were also reflected in IGF-II circulatory levels; higher levels of IGF-II were associated with decreased body weight and less susceptibility to future weight gain in adults. However, limited studies have investigated IGF-II's role in children, and whether IGF-II levels may be an indicative marker for body weight and tissue compartment distribution in adolescents. **Subjects/Methods:** Data of 631 children were used for analysis; the participants were collected as part of the Avon Longitudinal Study of Parents and Children, Bristol, UK. IGF-II levels were determined using direct enzyme-linked immunosorbent assay (ELISA; Diagnostic Systems Laboratories, Inc., Sinsheim, Germany), and were measured from cord blood and at 61 months of age. Fat mass for (total, trunk, arms, legs, android and gynoid) and lean mass was measured by dual-energy X-ray absorptiometry at 15 and 17 years of age. Body mass index (BMI) was calculated as weight (kg) divided by height squared (m). Regression coefficient comparison between the outcome measures was performed using z-scores for fat mass compartments and lean mass. Data analysis was conducted using IBM SPSS statistics version 23 software. **Results:** Cord blood IGF-II showed strong evidence of an inverse association with total body fat (β -.014 ;P=0.017) and trunk fat mass (β -.016 ;P=0.011) measured at 17 years of age. These correlations were found when adjustment of sex and age confounders was used; however, the associations were attenuated when further confounders were adjusted. There was no evidence of an association between IGF-II and lean mass at puberty. **Conclusion:** Early life IGF-II levels have been associated negatively with body fat, particularly trunk fat mass measured by DXA at puberty. However, there is no evidence of an association with lean body mass.