ESPE Abstracts (2022) **95** P1-271

Serum Osteopontin, NGAL and Sclerostin concentrations in children and adolescents with overweight and obesity

Sofia-Iliada Karampatsou [1], George Paltoglou [1], Sofia-Maria Genitsaridi [1], Penio Kassari [1] & Evangelia Charmandari [1,2]

Author affiliations

[1]Division of Endocrinology, Metabolism and Diabetes, First Department of Pediatrics, National and Kapodistrian University of Athens Medical School, 'Aghia Sophia' Children's Hospital, Athens, Greece; [2]Division of Endocrinology and Metabolism, Center of Clinical, Experimental Surgery and Translational Research, Biomedical Research Foundation of the Academy of Athens, Athens, Greece

Background: Obesity in childhood and adolescence represents a major health problem and is associated with significant morbidity and mortality in adult life. Osteopontin, NGAL and Sclerostin are bone biomarkers, however, little is known about their role in obesity.

Objective and Hypothesis: The aim of our study was to determine the concentrations of Osteopontin, NGAL and Sclerostin in children and adolescents with overweight and obesity.

Methods: The study sample consisted of 345 subjects aged 2-18 years (mean age ± SD: 10.36 ± 0.16 years; 172 males, 173 females; 181 prepubertal, 164 pubertal). Subjects were classified as obese (63.8%) and overweight (36.2%) and were enrolled in a personalized, life-style intervention program of diet and physical exercise for at least one year. Body composition and biochemical and endocrinologic parameters were determined at the beginning and at the end of the study. The study was approved by the Committee on the Ethics of Human Research, and written informed consent was obtained by all parents.

Results: Following one year of the intervention program, there was a significant decrease in BMI (P<0.01), BMI z-score (P<0.01), DBP (P<0.01), Waist-to-hip Ratio (WHR) (P<0.01), Waist-to-Height Ratio (WHtR) (P<0.01), AST (P<0.01), ALT (P<0.01), γGT (P<0.01), total cholesterol (P<0.01), LDL (P<0.01), Apo-B (P<0.01), Osteopontin (P<0.01) and NGAL (P<0.01) concentrations, and percentage of fat mass (P<0.01) and an increase in HDL (P<0.01), Vitamin D (P<0.01), PTH (P<0.01), Lp(a) (P<0.01) and Sclerostin (P<0.01) concentrations, as well as percentage of muscle mass (P<0.01), bone mass (P<0.01) and free-fat mass (P<0.01). Osteopontin concentrations correlated positively with PTH (b=0.26, P<0.05) and vitamin D (b=0.294, P<0.05) concentrations in overweight subjects, with Ca concentrations (b=0.275, P<0.05) in obese subjects, and with glucose concentration (b=0.366, P<0.05) in all subjects. NGAL concentrations correlated positively with WHR (b=0.439, P<0.05) and HOMA-IR (b=0.4, P<0.05) in overweight subjects and with HbA1c in obese subjects (b=0.326, P<0.05). The change of NGAL concentrations correlated negatively with the BMI z-score (b=-0.494, P<0.05) in overweight subjects, with cholesterol (b=-0.271, P<0.05) in obese subjects and with HbA1c (b=-0.304, P<0.05) in all subjects. The change of sclerostin concentration correlated positively with insulin concentrations (b=0.46, P<0.05) in overweight subjects, and glucose concentrations (b=0.315, P<0.05) and HOMA-IR (b=0.3, P<0.05) in all subjects.

Conclusion: These findings indicate an association of Osteopontin, NGAL and Sclerostin with overweight/obesity, cardiovascular risk factors and glucose metabolism. Further studies are required to determine the underlying mechanisms responsible for the above associations.

Volume 95

60th Annual ESPE (ESPE 2022)

Rome, Italy

15 Sep 2022 - 17 Sep 2022

European Society for Paediatric Endocrinology

Browse other volumes

Summary