

ePoster Session 24 - BMI

eP185

Overweight adolescents: a group at risk for metabolic syndrome (Tehran adolescent obesity study)H. Moayeri¹¹Tehran University, Imam Khomeini Hospital, Pediatrics Endocrinology, Tehran, Iran, Islamic Republic of

Background: Metabolic syndrome not only is a serious problem for adults, but is also afflicting an increasing number of children and adolescents. This syndrome is a risk factor for type 2 diabetes mellitus and cardiovascular diseases. The aim of this study was to estimate the prevalence of metabolic syndrome in a sample of Iranian adolescents.

Methods: A total of 554 overweight adolescents (aged 11 - 17 years) participated in a community-based cross sectional survey. Anthropometric examinations including height, weight, body mass index, and blood pressure were assessed. A fasting blood sample was taken for measurement of glucose and lipid profile. Metabolic syndrome was determined by the definition released by the National Cholesterol Education Program Adult Treatment Panel III, which was modified for age.

Results: The overall prevalence of metabolic syndrome was 26.6%. There was no gender difference in the distribution of metabolic syndrome. When stratified by body mass index, 22.5% were overweight (BMI > or =95th percentile) besides having the criteria for metabolic syndrome, while the remaining 4.1% of the adolescents were at risk for overweight (BMI between 85th and 95th percentile) together with metabolic syndrome. Hypertriglyceridemia was the most common and high-density lipoprotein was the least common constituent of metabolic syndrome.

Conclusion: This study suggests a high prevalence of metabolic syndrome among overweight Iranian adolescents. This poses a serious threat to the current and future health of Iranian youth.

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Indices of carbohydrate exchange in adolescents with obesityD. Latyshev¹, O. Latyshev², Y. Lobanov³, T. Karkova⁴¹Altai State Medical University, Barnaul, Russian Federation, ²Russian Medical Academy Continous Professional Education, Moscow, Russian Federation

Objectives: To study the carbohydrate metabolism in adolescents with obesity in view of the degree of obesity

Methods: 29 children (boys 11), aged 10 to 15 years with obesity were examined. Three groups were formed: 1- SDS BMI >1 < 2.5 - 10 (girls 8); 2 - SDS BMI >2.6 < 3.0 - 10 (girls 6); 3 - SDS BMI >3.1 < 3.9 - 9 (girls 4). Fasting glucose, insulin (6.0-27 microU/ml), C-peptide (1.0-5.0 ng/ml), HOMA-IR (<2.7) were investigated.

Results: The fasting glucose value was 4.44 ± 0.87 mmol/l. The increase is noted in 33.7% (4/28), boys 9.1% (1/11), girls 16.7% (3/18) ($p = 1.000$). The glucose level was elevated only in patients from group 2 - 30, 3% (3/10) and 3 - 11.1% (1/9) ($p = 0.582$). The insulin level was increased in 27.5% (8/29), in 8.1% (2/11) of boys and in 30.0% (6/18) of girls ($p = 0.671$). The level of basal insulin was 18.88 ± 16.44 μ U/ml. The insulin level was raised in the 2nd group - 50, 0% (5/10) and 3 group - 30, 0% (3/9) ($p = 0, 650$). The level of C-peptide was 3.87 ± 3.99 ng/ml. The increase level of C-peptide -17.2% (5/29), boys - 9.1% (1/11), girls - 22.2% (4/18) ($p = 0, 622$). The increase in the HOMA-IR is observed in 48.3% (14/29), boys - 45.5% (5/11), girls - 50.0% (9/18) ($p = 1,000$). The HOMA-IR was 4.18 ± 4.30 . Elevated HOMA-IR values have been observed since the first degree of obesity: 20.0% (2/10) of children of the 1st group,

40.0% (4/10) of the 2nd group and 88.8% (8/9) of the 3rd group (between 1 and 3 group differences were significant, $p = 0.005$).

Conclusions: The increase glucose level was observed in 33.7% of obese children. Signs of hyperinsulinism were detected more often: the level of insulin was increased in 27.5% and HOMA-IR - in 48.3%. There were no gender specific features. There was a tendency to the dependence of the severity of carbohydrate metabolism disorders on the degree of obesity.

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Body composition in girls between 12-15 years of age, with type 1 diabetesK. Jeppesen¹, H.B. Mortensen¹, B.S. Olsen¹, J. Johannesen¹, J. Tinggaard², K. Main²¹Herlev Hospital and University of Copenhagen, Childrens Department E, Herlev, Denmark, ²Rigshospitalet, Department of Growth and Reproduction, Copenhagen, Denmark

Aim: To investigate body composition, mainly focused on fat distribution, in adolescent girls with Type 1 diabetes (T1D).

Research design and Methods: In this cross-sectional study, the body composition of 29 pubertal (Tanner stage ≥ 2) females between 12 and 15 years of age with a diabetes duration of more than one year, were examined using dual-energy X-ray absorptiometry (DXA). Furthermore height and weight were measured while waist-hip ratio, BMI (kg/m^2) and daily insulin dose ($\text{U}/\text{kg}/24\text{h}$) were calculated. A total of 96 age and gender matched healthy peers, already examined 1 year in advance in another study, served as controls. 27 out of 29 patients used an insulin infusion-pump, while the remaining 2 were on the traditional pen treatment. SD scores for total body fat, weight, height and BMI were calculated from national references [ref. Wohlfahrt-veje C, European Journal of Clinical Nutrition 2014 og Tinggaard J, Acta Paediatrica 2014]. To compare total body fat percentage, weight and height as well as BMI in diabetic patients and healthy controls we used student's t-test.

Results: Total body fat was increased for the diabetic patient group with a mean value which was 1.15 SDS higher compared to healthy control group ($P < 0.0001$). Weight and height were 0.99 SDS ($P < 0.0001$) and 0.42 SDS higher ($P = 0.04$), respectively. Likewise BMI was significantly higher in the diabetic patients with a score of 0.95 SDS ($P < 0.0001$). BMI SDS was significantly correlated with daily insulin dose ($r = 0.34$; $P = 0.001$). The fat distribution as assessed by waist to height ratio was borderline but not significantly positively associated with the HbA1c level ($r = 0.12$; $P = 0.06$).

Conclusion: Despite modern insulin management and diabetes care for T1D girls they still have significant differences in body composition, resulting in increased total body fat, height, weight and BMI compared to healthy controls. BMI SDS was correlated to an increased insulin requirement.

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Relevant weight loss and improved metabolic status in morbidly obese adolescents with prediabetes following endoscopic and totally reversible bariatric procedure - duodenal-jejunal bypass linerP. Kotnik^{1,2}, M. Homan^{2,3}, R. Ore^{2,4}, T. Battelino^{1,2}¹University Children's Hospital, University Medical Centre Ljubljana, Department of Endocrinology, Diabetes and Metabolism, Ljubljana, Slovenia, ²Medical Faculty, University of Ljubljana, Ljubljana, Slovenia, ³University Children's Hospital, University Medical Centre Ljubljana, Department of Gastroenterology, Hepatology and Nutrition, Ljubljana, Slovenia, ⁴University Children's Hospital, University Medical Centre

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Title:

Overweight adolescents: a group at risk for metabolic syndrome (Tehran adolescent obesity study)
Heshmat Moayeri, Professor of Pediatric Endocrinology, Imam Khomeini Hospital, Tehran University of Medical Sciences, Iran.

Abstract: (Your abstract must use Normal style and must fit into the box. Do not enter author details)

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