205 OBESITY IN CHILDREN IN THE REGIONS OF RUSSIA

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Introduction The upward steady trend in the prevalence of obesity in the pediatric population during the last decades is a significant medical and social problem.

Objectives Purpose of our research was to study the prevalence of obesity among schoolchildren living in various regions of Russia.

Material and Methods Totally 5701 schoolchildren (2668 boys and 3033 girls) had been enrolled in the cross-sectional study with the use of random sampling techniques at the All-Russian Children's Center 'Orlyonok'. All investigated children were subdivided into two subgroup: I – elementary school children aged 7 to 11 years; II – middle school children aged 12 to 16 years. We measured length and weight of the body and calculated body mass index (BMI). We diagnosed obesity if BMI value was above 95 percentile in accordance with the standards centile scale 'WHO Growth Reference 2007'. Data was analyzed using the statistical package 'STATISTICA v.7.0 © STATSOFT, USA'. The results are presented as P [CI]%, where P is the percentage, CI is the 95% confidence interval for share. Analysis of statistical significance of differences performed using Pearson χ^2 test (with Yates correction).

Results Obesity was diagnosed in 5.6 [5.3–5.9]% of schoolchildren. We have identified the following relationships between age, gender, place of residence and obesity. There were more than 16.9 [16.2–17.6]% of boys with obesity than 5.2 [4.8–5.6]% of girls ($p < 0.001$). There were more girls with obesity in group I (7.8 [6.6–9.0]%) than in group II (4.7 [4.4–5.1]%; $p = 0.0056$); the boys have no differences between the groups. More obese children were from Ural (15.4%), Southern (12.5%) and North Caucasian (12.1%) federal districts; lower in Far East (6.2%), Volga (7.1%) federal districts.

Conclusion It is important to continue analysis of the factors leading to deviations in the nutritional status of children.

206 QUALITY OF LIFE IN OBESE CHILDREN

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Objectives To examine the health-related quality of life of obese children. **Materials and methods:** We conducted a survey among 36 children between the ages of 13 and 17, who had been diagnosed with obesity class 2 and class 3 (according to WHO classification), during their routine examination in Regional Children's Clinical Hospital in Saint Petersburg. Results were compared with 22 schoolchildren of 9th grade of secondary school with normal body mass index in first health group in accordance with their medical records. We examined life quality with the Short Form-36. Patients filled out a questionnaire on their own when they were included in the study.

Statistical analysis of the results was carried out using Student's t-test.

Results The average values of the quality of life indicators on the general health perceptions scale (GH), which reflect the patients' assessment of their current state of health and disease resistance, were lower in obese children than in the control group (54.8 ± 3.7 vs 88 ± 1.2 , $p < 0.05$); vitality scores (VT), that reflect a feeling of being full of strength or, on the contrary, being exhausted, in obese children were lower than in the control group (62.8 ± 2.8 vs 90 ± 1.4 , $p < 0.05$) mental health scores (MH), which reflect moods and presence of negative emotions, again were lower among obese children (67.8 ± 3.8 vs 88 ± 1.6 , $p < 0.05$). The life quality indicators on the remaining scales in obese children although were lower than in healthy children, however, no significant differences were obtained.

So, physical functioning scores (PF), which reflect children's abilities to self-service and fulfill different physical activities were 81.7 ± 3.4 in obese children vs 92.0 ± 1.8 in control group, $p > 0.05$; Results of physical role functioning scale (RP), were 80.6 ± 7.7 vs 86 ± 2.1 , $p > 0.05$; Scores of social functioning scale (SF), which reflect the degree of how physical and emotional states limit levels of social adaptation and satisfaction were 84.8 ± 4.6 vs 90 ± 2.3 , $p > 0.05$; Finally, emotional role functioning scores (RE) were 85.2 ± 6.7 vs 94 ± 3.1 , $p > 0.05$.

Conclusion Life quality scores of obese children and adolescents are lower in comparison with control group. That is why physicians must target special interventions that could enhance health outcomes.

207 LEVEL OF ERYTHROPOIETIN, SVCAM-1 AND VEGF IN BLOOD OF OBESE ADOLESCENTS

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Introduction Erythropoietin is considered as a protective tissue cytokine that increases angiogenesis. Obesity is associated with the development endothelial dysfunction, playing a key role in the pathogenesis of metabolic syndrome complications.

Objectives To determine the level of erythropoietin and presence of markers of endothelial cell dysfunction sVCAM-1 and VEGF-A in the blood of adolescents with obesity.

Methods We examined 22 teenagers with obesity (body mass index – BMI – from 30.1 to 42.87) and 22 teenagers with normal BMI. The age of patients ranged from 13 to 18 years (average of 14.25 ± 1.2). We analyzed serum concentrations of vascular cell adhesion molecule 1 (sVCAM-1) and vascular endothelial growth factor A VEGF-A – markers that indicate the presence of endothelial dysfunction. Data was analyzed with the use of statistical package Statistica 10.0 for Windows-10. The significance of the differences was determined at P value < 0.05 .

Results Concentration of sVCAM-1 (1395.23 ± 264.73 ng/ml vs 847.44 ± 190.23 ng/ml; $p < 0.0001$) and VEGF-A (75.89 ± 54.79 pg/ml vs 6.22 ± 5.74 pg/ml; $p <$

0.0001) was higher in patients with obesity compare to the adolescents with the normal BMI. The correlation between the level of sVCAM-1 and BMI ($r = 0.45$; $p < 0.05$).

Erythropoietin level in obese children was lower than in children with normal BMI ($17,24 \pm 10.9$ and $36,31 \pm 31,41$; $p < 0,001$), a negative correlation between BMI and erythropoietin level ($r = -0.26$; $p < 0,05$).

Obese children revealed a negative correlation between the level of sVCAM-1 and the level of erythropoietin in the blood serum ($r = 0,48$; $p < 0,05$).

Conclusions Obesity in adolescents characterized by decreased erythropoietin and increased level of endothelial dysfunction markers sVCAM-1 more than 2 times, VEGF-A – more than 12 times compared to adolescents with a normal BMI. Evaluation of the protective role of erythropoietin in the prevention of endothelial dysfunction and its complications is necessary.

208 USE OF GLP-1 ANALOG IN A PATIENT WITH PRADER-WILLI SYNDROME

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Introduction Prader-Willi syndrome (PWS) is a rare genetic disease caused by deletions or imprinting defects in the region 15q11-q13 leading to hypothalamic-pituitary dysfunction, hyperphagia with excessive weight gain and behavioral disorders. Obesity is a hallmark of PWS, with consequently high incidence of impaired glucose tolerance and type 2 diabetes (T2D), particularly after puberty. Liraglutide, glucagon-like peptide 1 (GLP-1) analog is efficient in treatment of T2D, but also exhibits positive effect on body weight reduction and appetite suppression.

Case Report We present a 17-year-old girl with genetically confirmed diagnosis of PWS (46,XX, ish del (15)(q11q13)) who developed TD2 at the age

15 years. She was never treated with growth hormone. Basal-bolus insulin therapy was introduced but despite good treatment adherence the optimal glycemic control was not achieved. She was also steadily gaining weight although efforts were made to limit caloric intake. At the age of 17 years her body weight was 140 kg (+4.66SD), height 157 cm (-1.63SD), BMI 56.8

kg/m² (+4.78SD). Diabetes metabolic control was unsatisfactory (HbA1c 7.7%).

The treatment with liraglutide (Victoza) was introduced at dose 1.2 mg/day with gradual reduction and discontinuation of insulin therapy. Two months later, she lost 3.1 kg and her HbA1c level was 6.1%. She also reported reduced appetite. For the following 1.5 years her metabolic control was excellent (HbA1c below 6.5%), but after reaching nadir of 135.2 kg (BMI

54.85 kg/m²) she started gaining weight again and currently weights 143.2 kg. No side effects of the treatment were noted during follow up.

Conclusion GLP-1 analogs are effective in treatment of T2D in patients with PWS. However, the positive effect on the body weight, BMI and appetite regulation decreased over time. The literature data regarding use of GLP-1 analogs in patients with PWS are scarce, but they all report improved

metabolic control of T2D. Nevertheless, there are conflicting results regarding body weight and BMI improvement. The treatment with GLP-1 analogs seems to be safe and effective option for therapy of T2D in PWS. Further studies are necessary to confirm preliminary results and establish the guidelines for use of GLP-1 agonists among PWS patients.

209 ARE KIDNEY MALFORMATIONS POSSIBLE FEATURE OF MEN2B SYNDROME? – REPORT OF A PATIENT WITH MEN2B, TYPE 1 DIABETES, SITUS VISCERUM INVERSUS AND KIDNEY MALFORMATIONS

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Multiple endocrine neoplasia Type2b (MEN2b) is a rare familial syndrome caused by autosomal dominant mutations in the RET protooncogen. Patients with MEN2b suffer from aggressive form of medullary thyroid cancer (MTC), pheochromocytoma, multiple mucosal neuromas, gangliomatosis of gastrointestinal tract, and a marfanoid habitus, whereas hyperparathyroidism is exceedingly rare.

Aim To present a patient with MEN2b, diabetes mellitus type 1, situs viscerum inversus and hydronephrosis with megacystis-megaureter syndrome and explore possible etiologic associations between those entities.

Case Report Our patient was born from a normal pregnancy, at term. Fetal ultrasound imaging 'in utero' revealed bilateral dilation of ureters (megaureter), hydronephrosis, duplicated ureters, and situs inversus. On the 2nd day of life bilateral percutaneous nephrostomies were inserted. At the age of two years right upper pole heminephrectomy for ectopic ureter and antireflux surgery of the lower ureter were performed. He has been followed-up by pediatric surgeon and nephrologist. Kidney function was normal, he didn't show any symptoms and didn't require any treatment. At the age of 7 years he was diagnosed with type 1 diabetes. When he was 11,5 years old, during regular follow-up visit, an ultrasound examination of the thyroid gland revealed suspicious nodule and brought to attention an unusual appearance of the patient: thick, prominent lips with submucosal nodules, marfanoid body habitus, musculature weakness and hypotrophy, high arched palate- suggesting MEN2b syndrome. Laboratory evaluation (high calcitonin level) and pathohistological examination of extirpated thyroid confirmed metastatic medullary thyroid carcinoma. Molecular genetic analysis found RET-proto-oncogene pathogenic variant: c.2753T>C (p. Met918Thr) confirming MEN2b syndrome. There were no signs of pheochromocytoma.

Conclusion To the best of our knowledge there are no reports on association of MEN2b and type 1 diabetes or reversed position of major visceral organs.

However, there are scarce reports on kidney malformations in patients with MEN2b. Acknowledging a recognised role of RET gene in kidney development, we suggest that kidney malformations might be a feature of MEN2b syndrome that should be looked for.