sclerosis of lower limb arteries (up to 40%). There was no option for endovascular treatment for the patient, so he was recommended coronary artery bypass grafting. Leading cause of hospitalization was the presence of an ulcerative defect of the posterior surface of left tibia associated with neuropathic form of diabetic foot. Second patient (48 years old, BMI 34.1 kg/m^2) had no clinical and instrumental sings for the coronary artery disease (excluded after Tredmil-Test) or any other complications of T2DM. **Conclusion.** Patients with obesity need personalized strategy for management and treatment. Further studies are needed to evaluate novel markers for cardiovascular disease development in this group of patients. Promising can be the determination of the expression of cardiovascular associated microRNA and several growth factors.

KEYWORDS: microRNA, obesity, diabetes.

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MODY 3 AND PREGNANCY: COURSE AND TREATMENT

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Introduction. Diabetes caused by mutations in the HNF1-alpha gene (encoding hepatocyte nuclear factor-1 alpha) is one of the most common types of MODY. This gene contains is a blueprint for a transcription factor that is important in for the normal development of beta cells. MODY 3 is typically diagnosed before 30 years of age and is often misdiagnosed as Type 1 diabetes mellitus. MODY 3 usually manifests with symptoms associated with high blood sugars. These include increased frequency of urination (polyuria), increased thirst (polydipsia), and weight loss. Mutations can occur spontaneously but usually are passed on from a parent to a child. If a parent has MODY 3 there is a 50% chance that a child will inherit the mutation and be at risk of developing diabetes at a young age. Distinguishing MODY 3 from Type 1 diabetes can be difficult. In this case, we presents a woman with MODY 3 and pregnancy. **Clinical case**. A 44-year-old female patient diagnosed with MODY 3 Diabetes, during the first pregnancy, Ten years ago (GEN HNF_1A) mutation c.511 C> T (p.Arg171X.Treatment initial was insulin aspart 30 units day, after gestation received during 8 years glyclazide 30 mg daily. Second gestation was a year ago, treated with insulin lispro 14 units day. In both gestations there was hypertension treated with Trandate. In both gestations the delivery was cesarean due to fetal distress. Both deliveries were male, and the APGAR at 5 minutes was 10. No congenital anomaly was detected in any of the offspring. 8 months ago presented hypothyroidism due to Hashimoto's disease treated with 50 micrograms of levothyroxine. The patient's current state is stable. **Conclusion.** Monogenic diabetes is frequently mistakenly diagnosed as either type 1 or type 2 diabetes, yet accounts for approximately 1—2% of diabetes. Identifying monogenic forms of diabetes has practical implications for specific therapy, screening of family members and genetic counselling. The most common forms of monogenic diabetes are due to glucokinase (GCK), hepatocyte nuclear factor (HNF)-1A and HNF-4A, HNF-1B, m.3243A>G gene defects. In this case it was a MODY 3 diabetes that responded well to the use of Insulin. This knowledge is important for all physicians managing diabetes in pregnancy, given this is a time when previously unrecognised monogenic diabetes may be uncovered with careful attention to atypical features of diabetes misclassified as type 1, type 2, or gestational diabetes.

KEYWORDS: diabetes, HNF1-alpha gene, MODY 3.

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LIPODYSTROPHY SYNDROMES AND ASSOCIATED METABOLIC DISORDERS IN RUSSIAN POPULATION

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Background. Lipodystrophies are heterogeneous disorders characterized by selective loss of body fat, which can be generalized (GL) or partial (PL), inherited or acquired, and usually are associated with different metabolic disorders, like diabetes with marked insulin resistance, dyslipidemia, arterial hypertension, hepatic steatosis and hepatosplenomegaly, and so often remain not diagnosed, especially familial partial lipodystrophy (FPL). GL may be a sign of progeroid syndromes (PS). Genetic diagnostics may be challenging because of many candidate genes and similar phenotypes. There is a lack of information on clinical and molecular-genetic characteristics of lipodystrophy syndromes in Russian population and the condition is usually misdiagnosed. **Objective.** To assess the clinical and molecular-genetic characteristics of lipodystrophies in Russian population. **Material and methods.** 58 patients (45 adults and 13 children) from 51 families with different lipodystrophic fat loss patterns were included in the study: 40 (69%) patients with PL, 12 (20.7%) patients with GL, and 6 (10.3%) patients with PS. Detailed clinical examination and the assessment of metabolic abnormalities was performed. For genetic confirmation of the diagnosis 16 congenital lipodystrophies and progeroid syndromes with lipodystrophies candidate genes (*AGPAT2, BSCL2, CAV1, PTRF, LMNA, PPARG, PLIN1, AKT2, LIPE, LMNB2, POLD1, CIDEC, WRN (RECQL2), PPP1R3A, ZMPSTE24, BANF1*) were sequenced using a Custom Ion Ampliseq panel and PGM semiconductor sequencer (Ion Torrent). **Results.** There were considerable age differences between the groups with GL and PL: mean age

of the GL patients was 20.17±14.78 years, comparing to 36.07±16.13 years in the PL group (p=0.005). The median age of the diagnosis of lipodystrophy also differed significantly in those 2 groups: 2.5 (1; 14.8) years for GL comparing to 15.5 (8.5; 29.5) for PL (p=0.005). 87.5% of PL patients were female, comparing to the 58% in GL and 33% in PS. In the GL group 66.7% of patients had diabetes, 8.3% had pre-diabetes and 16.7% had relatives with diabetes, in the PL group 57.5% of patients had diabetes, 25% had pre-diabetes and 16.7% had relatives with diabetes, and in PS patients 50% had diabetes, 16.7% had pre-diabetes and 33.3% had relatives with diabetes. Mean HbA_{1c} levels were not significantly different in all 3 groups: GL — 7,4% (4,8; 8,2), PL — 6,7% (6,0; 9,2), PS — 5.85% (5.34; 10.03). However, patients with PL demonstrated significantly higher insulin resistance than patients with GL (HOMA-IR index for GL 1.36 (0.72; 6.22), for PL 8.0 (3.7; 18.86; p=0.024). Predictably, patients with GL had significantly lower leptin levels 0.95 (0.58; 2.00 ng/ml than patients with PL 5.2 (1.93; 11.4 ng/ml; p=0.004). Many patients had acanthosis nigricans: 41.7% of GL, 50% of PL, 16.7% of PS. Dyslipidemia was found in 33.3% in GL, 80% of PL and 50% of PS. Arterial hypertension was diagnosed in 57.5% of PL patients and in 16.7% of GL patients. As many as 41.7% of the GL patients had associated autoimmune disorders and there were no mutations in the candidate genes found for them. In 25% of GL patients mutations in *AGPAT2* (n=2) and *BSCL2* (n=1) were found. In PS group there were 3 patients with Werner syndrome in whom *WRN* mutations were found, 1 atypical progeria due to *LMNA* mutation, and in 2 patients no mutations in the studied genes were found: one with atypical Werner syndrome and one with mandibuloacral dysplasia. In 35% of PL patients mutations in the following genes were found: 4 in *LMNA*, 1 in *PPARG*, 1 in *AKT2*, 1 in *LMNB2*. The most common mutation was a heterozygous R482W mutation in the 8 exon (hotspot) of the *LMNA* gene found in 4 families (7 patients) with PL. Genetic variants with the unknown pathogenicity in candidate genes were found in 20% of PL patients and 8.3% of GL patients. **Conclusion.** Lipodystrophy syndromes in Russian population are very heterogeneous and can affect both children and adults. PL is more likely to be diagnosed in female young adults, and GL manifests in childhood. We recommend suspecting the possibility of a lipodystrophy syndrome in young patients with multiple metabolic disorders and the decrease of subcutaneous fat tissue. In case of FPL the search for the genetic cause should start from the 8 exon of *LMNA*. In other cases candidate genes panel is an effective diagnostic tool for differential diagnostics and confirmation of the diagnosis of the different forms of inherited lipodystrophies. When lipodystrophy is associated with autoimmune disorders it is less likely to find a mutation in a candidate gene.

KEYWORDS: lipodystrophy syndromes, *LMNA,* autoimmune disorders, insulin resistance.