Embyronic stem cells in metabolic syndrome

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Observed were 12 patients, 7 men and 5 women (mean age 58±6.3), with clinical manifestations of metabolic syndrome. All patients presented stage I-II hypertension, carbohydrate metabolism disturbances: impaired glucose tolerance (IGT) 8 and mild type II diabetes mellitus (DM) (morning fasting hyperglycemia, aglicosuria) 3, with hyperinsulinemia and elevated C-Peptide (4.7±1.6 ng/ml). Lipid metabolism disturbances were reported in all the patients: elevated cholesterol, triglycerides, increased concentration of low density lipoproteids (LDL), very low density lipoproteids (VLDL), decreased concentration of high density lipoproteids (HDL), and abdominal obesity (BMI 30.8±1.6 kg/m2, waist relatively W-94.8±2.3, M-105.7±2.9 cm). Transplanted were embryonic hematopoietic and non-hematopoietic mesenchymal and endodermal stem cells obtained from germ layers of 4-8 weeks old cadaverous embryos’ internal organs and sorted thereafter. 1-3 ml of cell suspensions were administered intravenously, cell concentration 0.1-100x105/ml.

Patients were observed for 1-5 years. In 1-2 months, 83% of patients reported gradual BP decrease with subsequent stabilization in the course of the next 2-3 months 135-140/80-90 mm Hg, with parallel 1.5-2-fold decrease of hypertension medications. In 7-9 months, glucose tolerance test (glycemia level 2 hours after glucose load was 7.2±0.3 mmol/l) revealed the improvement of carbohydrate metabolism in IGT patients. Decrease of morning hyperglycemia in type II DM patients usually started in 2-3 month, normalization was observed in 5-7 months. C-Peptide concentration gradually decreased, beginning from after 2-3 months, and normalized within 6-9 months. Normalization of blood lipids was reported in 75% of patient after 9-12 months, with parallel decrease of triglycerides, cholesterol, LDL, VLDL, and HDL increase.