Diabetes and Cardiovascular Disease

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Direct Pancreas Implant by Super Selective Catheterization of Spleen Artery of Autologous Bone Marrow Cells to Perform Type 2 Diabetes Patients

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Background: Adult Stem cells, CD34(+)CD38(-) have capacity to differentiate in functional cells in endocrine pancreas.Smikodub infused embryonic human cells in diabetes type 2, and revealed goods results for this cellular therapy.In January 2005 we reported the first implant of stems cells by arterial injection into the pancreas in a diabetic type 2 patient, with successfully result.We design a clinical protocol for the treatment of diabetes type 2, to evaluate this therapy using autologous stems cells.

Methods: 16 diabetic type 2 patients were included, among 48-65 years, (15man/1woman), with basal blood glucose 2,08 g/l(±0,78); basal blood insulin of 13.31µUI/ml(± 12.09); basal levels Cpeptide 1,35nmol/ml(±0,73); blood HbA1c 9,21%(±2,18). Five patients(31,25%) had insulin treatment; 1 patient(6,25%) received insulin+tiazolidindionas;1 patient (6,25%) received insulin+sulfonylurea; the rest of patients receive oral drugs. None of them completed the diagnostic approaches for Plurimetabólic Syndrome, as well as they didn't present index from more HOMA to 5. The autologous bone marrow mononuclear cells CD34(+)CD38(-), was implanted trough the spleen artery with occlusion of the distal lumen to derivate the cells to the pancreas´ tail. The mononuclears cells injected was of $752x10^6$(±445), CD34(+)$7.8x10^6$ (±5.45) and CD34(+)CD38(-)=$1.02x10^6$(±0.82).The patients were subjected to clinical and blood samples controls during 90 days after the implant.

Results: After 90 days of implant basal blood glucose was 1,56 g/l (±0,51), it was observed a descent of 26,92%, (p=0,015); an increase of 25,68% of the C Peptide 1,83ng/ml(±0,74)(p=0,014); a descent of 18,73% of the HbA1c 7,47% (±1,53)(p=0,0001); and increment of 19,2% of the blood insulin 16.56 µUI/ml (±13,60)(p=0,219). Decrease of morning hyperglycemia began after first months. After 90 days 84% of patients are free of ant diabetics' drugs or insulin.

Conclusions: adult stems cells improve diabetics' patients in safety form.