TESTOSTERONE LEVELS IN MEN WITH TYPE 1 AND TYPE 2 DIABETES MELLITUS AFTER TRANSPLANTATION OF AUTOLOGOUS MESENCHYMAL STEM CELLS

https://doi.org/10.15605/jafes.037.AFES.113

Olga Ulyanova, Abay Baigenzhin, Manarbek Askarov, Temirlan Karibekov, Larissa Kozina, Dina Serebrennikova, Anastasia Smelova
National Scientific Medical Research Center, Nur-Sultan, Kazakhstan

OBJECTIVES
To study the effect of autologous mesenchymal stem cells transplantation (AMSCT) on testosterone levels in men with Diabetes Mellitus Type 1 (T1DM) and Type 2 (T2DM).

METHODOLOGY
5 male DMT1and DMT2 patients (39-50 years old) who received AMSCT intravenously were compared to 5 male DMT1and DMT2 patients (32-56 years old) as the control group. Mesenchymal stem cells were obtained from the iliac crest of DMT1 and DMT2 patients, the cells were cultured for 3-4 weeks and infused (95-97 × 106). Glycated hemoglobin (HbA1C,%) and testosterone (ng/ml) levels in both groups were analyzed before and 3 months later after the AMSCT.

RESULTS
The baseline mean testosterone and HbA1C levels in men with DMT1 and DMT2 with AMSCT were -5.31 + 2.12 ng/ml and 9.45 + 1.24 % respectively. Three months after the AMSCT, the mean testosterone and HBA1c became -6.33 + 2.12 ng/ml (p=0.82) and 8.53 + 1.08% (p=0.25). The baseline mean testosterone and HbA1C levels in DMT1 and DMT2 men in the control group were 5.27 + 1.8 ng/ml and 8.84 + 2.2% respectively. Three months after, the testosterone was -3.69 + 1.18 ng/ml (p=0,179) and the HBA1c was 8.64 + 1.41% (p=0.19). After 3 months, the average testosterone level in men with DMT1 and DMT2 who underwent AMSCT significantly increased compared to the mean testosterone level in men of the control group: 6.33 + 2.12 ng/ml versus 3.69 + 1.18 ng/ml (p=0.015).

CONCLUSION
An increase in testosterone levels in men with DMT1 and DMT2 after 3 months of the AMSCT compared with the control group of men with DMT1 and DMT2 can serve as a confirmation of the effectiveness of AMSCT for the prevention of diabetic erectile dysfunction and hypogonadism in men with diabetes mellitus.