# ENDOMETRIAL REGENERATIVE THERAPY WITH eMSCS IN REPETITIVE IMPLANTATION FAILURE INCREASES CLINICAL PREGNANCY RATE IN *VITRO* FERTILIZATION

Alberto E. Tersoglio[1,2]; Dante R. Salatino[1,3], A. Laura Martinez[1,4]; Vanesa H. Beretta [1,4], Adriana Gonzalez [5]; Carolina Marín[6];Matías Castro[1,7]

[1]Private setting, International Center for Assisted Reproduction, Mendoza, Argentina.

[2]Medical Director

[3]Scientific Chief department

[4]Department of Molecular Biology and Tissue Culture

[5] Chief Immunology Laboratory, Central Hospital, Mendoza, Argentina

[6] Immunology Laboratory, Central Hospital, Mendoza Argentina

[7]Department of Biostatistics

Contact and correspondence: tersoglioa@institutotersoglio.com.ar. . Tel/fax +54261 4274530.

Autologous stem cell treatment is a promising cellular therapy in reproductive medicine. Considering that the MSCs have properties of angiogenesis and can promote wound healing, our objective was to test endometrial parameters using endometrial mesenchymal stem cells (eMSCs) therapy in patients with Repetitive Implantation Failure (RIF). We selected 30 patients with RIF resistant to estrogen and evaluate their progress before and after the eMSCs treatment. Endometrial parameters were evaluated by flow cytometry (LB, NK, CD4+ and CD8+), pathological anatomic analysis and endometrial thickness (ET). Data were statistically analyzed using the Paired Dichotomic Data Chi-Square McNemar Test and Wilcoxon Test. From each patient we isolated and cultured *in vitro* MSCs cells obtained by biopsy. At confluent stage, the cells were characterized using flow cytometry (CD34, CD45, CD73, CD90, CD105, CD19, and HLA-DR). When the cell population reached passage 4 and when cytometric results showed less than 0.3% for CD34, CD45, CD19 and HLA DR and more than 99.9% for CD73, CD90, and CD105 markers, they were transferred using a transvaginal-transmyometrial technique under ultrasound guidance using Towako transfer set. Results obtained show that there were significant differences in all endometrial parameters studied before and after eMSCs treatment. Flow Cytometry data for LB, NK, CD4+ and CD8+ cells shows p values of 0.0021, 0.0039, 0.0022 and 0.004 respectively. Regarding endometrial thickness values of 5.64 vs. 7.49 mm, p=0.000156 and 7.25 vs. 10.48 mm, p=0.000003 were obtained both in unstimulated and overstimulated patients. Finally, we observed clinical pregnancy in 66% (20/30) of studied cases and a live birth rate of 46 % (14/30). Beyond these promising results, more studies are necessary to evaluate the role and effects of eMSCs-treatment in RIF patients.