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Effects of autologous peripheral blood mononuclear cells on implantation and pregnancy rate in patients with repeated implantation failure

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Abstract

Introduction: Repeated implantation failure (RIF) is a major concern in reproductive medicine, despite several methods that have been described for management. Dysfunction of embryo-maternal immuno-tolerance pathways can be one of the reasons of RIF. It has been suggested that uterine natural killer cells are involved in establishment and maintenance of pregnancy and fetus through producing a range of cytokines. To reach this goal, we used endometrium Immuno-modulation prior to frozen embryo transfer for patients with repeated implantation failures.

Material and methods: peripheral blood mononuclear cells (PBMC) were isolated from RIF patients, cultured for 3 days and transferred into their uterus about two days before embryo transfer (ET). This method was performed on 68 patients and compared with 83 patients as control group.

Results: pregnancy rate was significantly increased in experimental group versus the control group (58.8% vs 41.2%, P= 0.04). Implantation rate in PBMC group was higher than the control group, but this increase was not statistically significant. Perhaps this could be achieved by increasing cases.

Conclusion: Our study demonstrates that intrauterine insemination of PBMC increases pregnancy rates and can be used in RIF patients.

Keywords: in vitro fertilization, peripheral blood mononuclear cells, uterine natural killer cells, repeated implantation failure, embryo implantation