

### INTRODUCTION

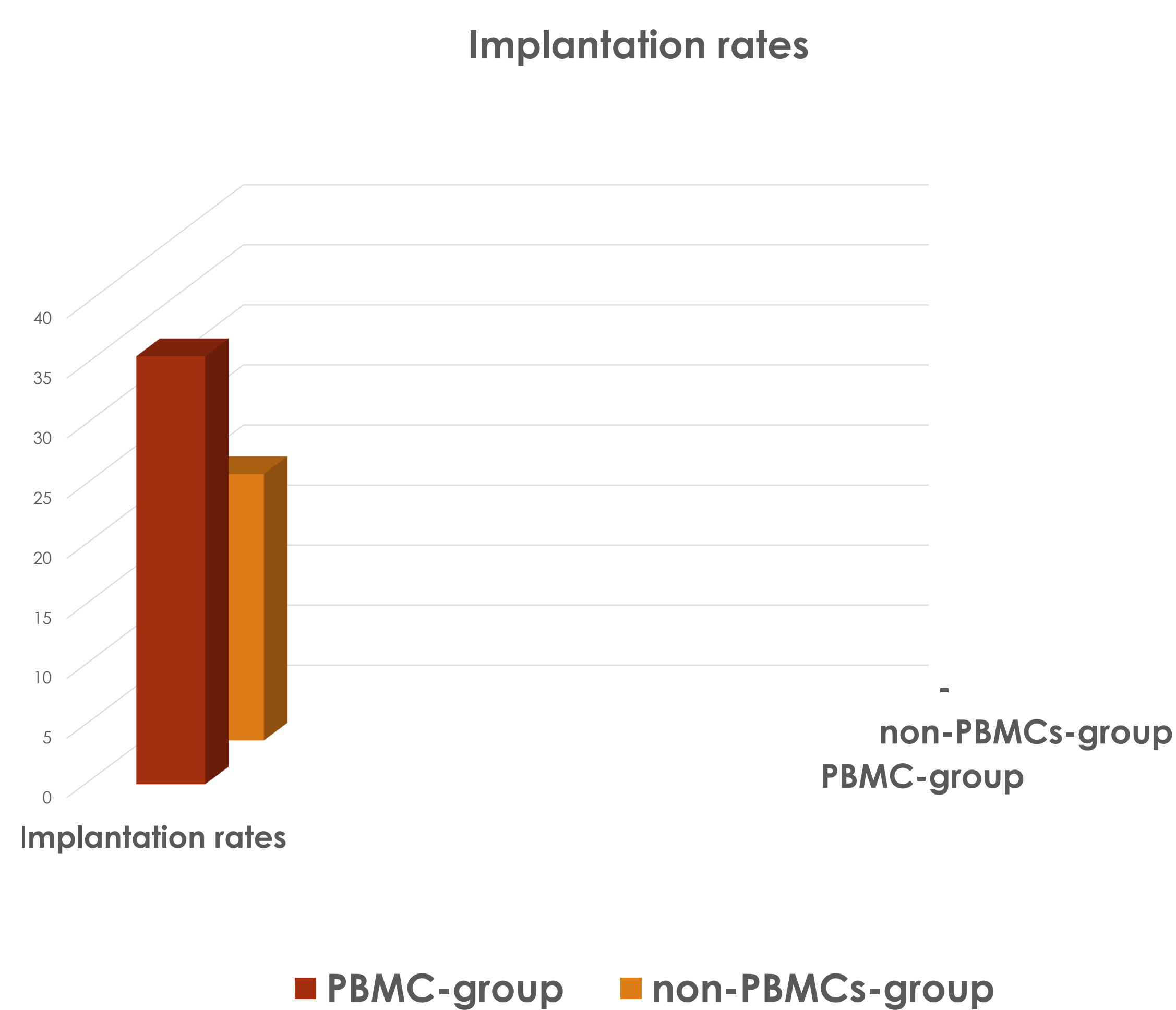
**Study question:** Does the intrauterine administration of peripheral blood mononuclear cells (PBMCs) effect the outcome of embryo transfer in patients with repeated implantation failure (RIF) when the euploid embryos after PGT-A are transferred?

**What is known already:** Aneuploidy is a very common abnormality in human embryos. The aneuploidy rates of blastocysts in IVF is in range 45-70% depending on different factors. Besides that the endometrium plays an important role in achieving optimal outcomes of assisted reproductive technologies. It has been proposed that intrauterine administration of peripheral blood mononuclear cells modulates maternal immune response to favor implantation.

### RESULTS

**Materials and methods:** The effect of the intrauterine application of PBMCs to improve the implantation rates in RIF patients was studied. The ploidy status of 369 blastocysts from 105 RIF patients was analyzed by the method of next generation sequencing (NGS). After that PBMCs were applied for 42 women with the mean age  $36.2 \pm 3.2$  y.o. before single euploid embryo transfer (Group 1). And for 63 RIF patients with the mean age  $37.2 \pm 4.1$  y.o. single euploid embryo transfers were performed without PBMCs administration (Group 2). Chi-squared test was used for data analysis.  $P < 0.05$  was considered statistically significant. The study's protocol was approved by the Center's IRB.

**Results:** Totally the rate of euploid embryos was 57.7% (213 blastocysts). In the mentioned study 30.1% of examined blastocysts were aneuploid (111 embryos) and 9.5% of blastocysts were detected as mosaic (35 embryos). Single euploid embryo was transferred in each case in the patients of both experimental groups. The implantation rate was significantly higher in Group 1 with PBMCs application comparing with non-PBMCs experimental Group 2 (35.7% (15 pregnancies) vs. 22.2% (14 pregnancies),  $df = 1$ ,  $\chi^2 = 4.430$ ,  $\chi^2_{critical} = 3.841$ ,  $P = 0.036$ ).



### CONCLUSION

The implantation rates were significantly higher when the intrauterine application of PBMCs in RIF patients before the transfer of the euploid embryo ( $P = 0.036$ ). The randomized studies to improve our knowledge in immunogenic therapy in reproductive medicine should be performed.

### References:

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