

**Magnetic activated sorting selection (MACS) of non-apoptotic sperm (NAS) improves ongoing pregnancy rates in homologous intrauterine insemination (IUI).
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OBJECTIVE

Adequate selection of sperm could improve clinical outcomes in assisted reproduction. Apoptosis is more frequent in infertile men's sperm and externalization of the phosphatidylserine (PS) is a symptom, which can be used to remove apoptotic sperm (AS) by MACS based on Annexin V (AV) affinity to PS. The aim of this study was to determine the relevance of MACS removal of AS in the results of IUI.

DESIGN

Prospective randomized double-blind study

MATERIAL AND METHODS

Semen specimens (SS)(n=116) from couples undergoing IUI were prepared by *swim up* (SU) in the control group (CG). In the study group (SG) (n=123) SU was followed by incubation with AV-conjugated MicroBeads to retrieve annexin-negative to be employed, while AS remain retained under a magnetic field. Inclusion criteria were: baseline FSH<10 mIU/mL, E₂<75 pg/mL, ovulatory menstrual cycles, age<38, no uterine abnormalities and >3 millions of sperm with progressive motility (TPM) after SU. TPM before and after SU, in AS and NAS, pregnancy rates (PR) and ongoing pregnancy rates (OPR) were compared by Ttests, and X² tests where appropriate. Data are expressed in means and percentages.

RESULTS

TPM in raw SS (91.7(95%CI76.6.-106.8)vs.70.9(95%CI(58.5-83.2)), and after SU (6.8 (95%CI5.8-7.7)vs.7.9(95%CI6.4-7.7)), in CG in SG respectively were comparable. In SG, TPM in NAS was 5.8(95%CI5.4-6.1) and AS was 1.2(95%CI1.2-1.9). We compared TPM inseminated in CG (after SU), with NAS in SG. PR are better in SG 11.7%(95%CI5.8-17.5)vs.19.0%(95%CI12.1-25.9) and also OPR 5.4%(95%CI1.3-9.5) vs. 15.9%(95%CI9.4-22.3), however there were no statistically significant differences between groups.

CONCLUSIONS

The present study demonstrates that the use of MACS technology is highly successful prior IUI improving OPR and decreasing miscarriage rate compared to control group when women were effectively randomized. Additionally, although sperm quality were effectively randomized in both groups, a noticeable decrease in TPM inseminated is eminent.