



Ginemed

The pregnancy and abortion rates of couples with high levels of sperm DNA damage is markedly improved following MACs treatment

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Study question

This study was conducted to assess the impact of reducing sperm DNA fragmentation (SDF) using a commercial Magnetic Cell Sorting system (MACs) on corresponding pregnancy and abortion rates

Introduction

High sperm DNA quality and homeostasis are essential for effective transmission of genetic information to the offspring. Evidence based medicine has now shown that abnormal sperm chromatin or damaged DNA can adversely affect fertility and contribute to abortion. A certain proportion of spermatozoa in the ejaculate of most species contain abnormal sperm because of DNA or protein damage. Recently, MACs has been used to remove a portion of the damaged DNA contained in the ejaculate (Figure 1).

Material and Methods

IVF clinics and Universities. Female averaged age: S-ICSI:32.3; O-ICSI:43.7. Distribution of patients within each subgroup: S-ICSI: SDF ranging from 30-50% (Control n=144 and MACs n=42). SDF ≥ 50% (Control n=23 and MACs n=7). O-ICSI: SDF ranging from 30-50% (Control n=40 and MACs n=29). SDF ≥ 50% (Control n=11 and 9 MACs n=9). Pregnancy and abortion rates were assessed within each subgroup. Sperm DNA fragmentation assessed using Halosperm (Halotech DNA, Madrid, Spain).

Results and Discussion

The overall pregnancy rate of the S-ICSI group was lower than the O-ICSI group (P=0.005X). When S-ICSI and O-ICSI cohorts were compared, the pregnancy rate was higher (P=0.005X) for subgroups where the SDF was less than 50%. Abortion was not detected in those females receiving MACs treated sperm. Pregnancy and abortion rate for all groups are reported in Figure 2.



Figure 1 . Device for sperm isolation using MACs

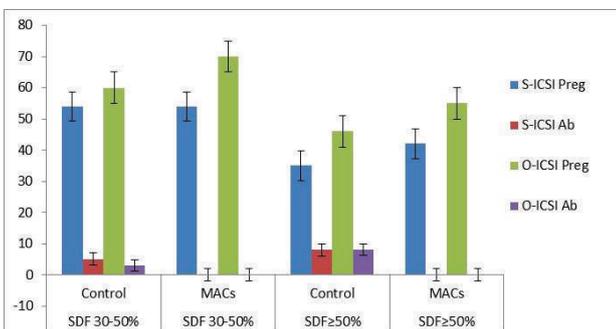


Figure 2. Distribution of SDF(sperm DNA fragmentation) in the different groups established in the present study

Main Conclusion

While our results clearly revealed treatment of sperm with MACs procedure prior to ICSI, results in a marked improvement in pregnancy rate and cessation of the abortion rate in couples whose ejaculates initially had high levels of SDF, further observations are required to confirm the statistical robustness of our preliminary findings.

