Correlation between in vitro fertilization with the level of antisperm antibody in seminal plasma measured by flow cytometry

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Abstract

Introduction: Antisperm antibodies (ASA) are present in %8-21 of infertile men. In vitro Fertilization (IVF) has been recommended as an effective procedure in couples with immunological male factor. Although this procedure has been found to bypass the inhibitory effect of antisperm antibodies on fertilizing ability of spermatozoa but the fertilization rate is reduced about %40 for ASA positive samples. The goal of present study was to investigate the correlation between anti-sperm antibodies measured by indirect flow cytometry and fertilization rate in infertile couples undergoing In vitro Fertilization (IVF).

Materials and Methods: Semen samples were collected from 80 infertile men undergoing IVF cycle in Isfahan fertility and infertility center. Couples were classified based on fertilization rate into high and low groups. 52 couples had high (>50%) and 28 couples had low fertilization rate (≤50%). Seminal plasma samples were incubated with normal motile spermatozoa from donor. Sperm bounded antibody was detected with FITC- labeled immunoglubin against human IgA and IgG by flow cytometer. The statistical analysis performed using χ^2, t-test, and Pearson's correlation.

Results: There was significant difference between the mean levels of antisperm antibodies in high and low fertilization rate groups ($p<0.001$). However there was a significant inverse relationship between IgA antisperm antibody level and fertilization rate ($r=-0.47$ and $p<0.001$). Inverse relationship between IgG antisperm antibody level and fertilization rate was not significant ($r=-0.2$ and $p= 0.08$).

Conclusion: The results of this study clearly show that high level of IgA antisperm antibody decreases the fertilization rate. Therefore, it can be suggested that patients with high level of IgA antisperm antibody should become candidate for intracytoplasmic sperm injection (ICSI).

Key Words: Infertility, Sperm, Seminal fluid, Antisperm antibody, In vitro fertilization, and Flow cytometry.

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