7. Antisperm Antibodies and In-Vitro Fertilization

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Summary. Using an ELISA-based procedure, the presence of antisperm antibodies was tested in the serum of 207 patients attending an infertility clinic. Hypofertile women, men and couples were positive for these antibodies in 25.3%, 10.6% and 8.1% of the cases respectively. In patients undergoing ovum pick-up for IVFET, the antibodies were detected in 38% of cases. Cumulus-corona oocyte complex coagulation was observed 16 h after insemination if the patient had sperm antibodies. The transfer rate dropped to 28.6%, and no viable pregnancy resulted. Submitting the oocytes from sperm-antibody-positive patients to repeated washes by phosphate-buffered saline increased the transfer rate to 58.3% and the frequency of viable pregnancies to 14.3% per transfer.

Introduction

Immune factors can be responsible for decreased fertility. Sperm antibodies were observed in 76.3% of infertile patients by Mathur et al. (1985). More recently, antibodies against the zona pellucida were found in 71.4% of infertile women, when compared to 40.0% of the fertile cohort (Buckshee et al. 1985). During in vitro fertilization, sperm antibodies can inhibit the sperm attachment to zona pellucida (Bronson et al. 1982), sperm penetration of zona-free hamster eggs (Haas et al. 1980), or induce the coagulation of the cumulus-corona-oocyte complex (Pexieder et al. 1985). The purpose of this paper was to evaluate the incidence of this phenomenon in our patient series and to investigate the effect of supplementary oocyte rinses on fertilization, transfer, and pregnancy rates.

Patients and Methods

The cohort studied was made up of 207 patients attending the Infertility Unit of the Clinique Montchoisi, 100 of whom (Janecek et al. 1986) had undergone
laparoscopic ovum pick-up for IVFET. Sperm antibodies in patient serum were
detected using an ELISA kit (Zer Science Based Industries Ltd, Jerusalem,
Israel). Other details on gonadotropin-based in vitro fertilization and embryo
transfer protocols used can be found in Pexieder et al. (1985) and/or Janecek
et al. (1986). If the patients were positive for sperm antibodies, their oocytes
were rinsed in four successive dishes filled with Dulbecco’s phosphate-buffered
saline before the transfer in culture medium for maturation.

Results

Positive reaction for sperm antibodies was found in the serum of 25.3% of 158
hypofertile women. Among 132 hypofertile men, 10.6% had these antibodies.
Their presence in both the male and female partner was observed in 8.1% of 99
couples. This incidence was even higher (38/100) in patients undergoing laparo-
scopy for ovum pick-up after successful gonadotropin stimulation.

In the absence of antibodies, most of the cumulus and corona radiata cells
are dispersed at 16 h after insemination, and the pronuclei can be seen (Fig. 1).
In the presence of antisperm antibodies, and if the oocyte was not rinsed, the
cumulus and the corona coagulate (Fig. 2). The comparison of IVFET cycles of
sperm-antibody-positive women, with and without rinsing (Table 1), showed
that we could transfer about three embryos twice as frequently (58.3 vs 28.6%).
There were no viable pregnancies if the oocyte were not rinsed, and the rate was
14.3% if they were rinsed.

Between December 1985 and June 1986, 14 patients without and 14 patients
with antisperm antibodies (Table 2) entered our IVFET program. All of the

![Fig. 1.](image-url)