An association between embryo morphology and high concentrations of plasma anticardiolipin antibodies

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Introduction: Recently it has been suggested that non-organ-specific autoantibodies, such as anticardiolipin antibodies (ACA), may serve as possible markers for reproductive failure in IVF programmes. This prospective double-blind study was conducted to investigate the association between ACA and embryo morphology in patients undergoing IVF.

Materials and methods: The study comprised 75 patients with either tubal factor infertility or unexplained infertility. Embryo morphology was scored from I–IV according to the shape of the blastomeres and the amount of detached anuclear fragments. Anticardiolipin antibodies (IgG and IgM) were detected by enzyme-linked immunosorbent assay.

Results: Anticardiolipin antibodies were found in 54.5% (12/22) of the patients with abnormal embryo morphology, compared to 16.9% (9/53) of the patients with normal morphology (P = 0.04). No significant difference was found in the prevalence of ACA between the tubal factor infertility and the unexplained infertility groups, in relation to embryo morphology.

Conclusion: Our study shows an association between embryo morphology and the presence of ACA. This association may explain the low implantation rate and early pregnancy loss in patients with ACA.

Fertilization

The early events following fertilization: what happens downstream to calcium?

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Introduction: Resumption of meiosis at fertilization is mediated by increased concentrations of calcium that activate several calcium-dependent enzymes. Calpain, a neutral calcium-activated thiol protease, is present in the cytoplasm
of many cells. Its activation is associated with limited autolysis and relocalization in the cell. Calpain is thought to participate in the regulation of mitosis and resumption of meiosis in *Xenopus* oocytes.

**Objective and methods:** In this study, using a polyclonal antibody raised against chicken muscle calpain, we aimed to follow the activation of calpain during fertilization and the parthenogenetic activation of rat eggs.

**Results:** A band of 80 kDa was detected in unfertilized metaphase II eggs. At the early stages of fertilization, we observed a transient decrease in the concentration of calpain that was restored at the pronuclear stage. Adding Ca$^{2+}$ to a lysate of metaphase II eggs resulted in an additional band, representing the degraded fragment of the activated protein. In eggs activated by ionomycin, the calpain concentration decreased and was followed by an increase that had dynamics similar to that observed in fertilized eggs.

**Conclusions:** In the current study we have demonstrated the presence of calpain in the rat egg. During egg activation, in response to intracellular Ca$^{2+}$ changes, calpain undergoes autolysis and fluctuations in concentration. We therefore suggest there is a correlation between calpain activation and fertilization.

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**ICSI**

**Genetic abnormalities: a study on the safety of ICSI with spermatids**

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**Introduction:** Intracytoplasmic injection of spermatids is now a common treatment for men with severe infertility. It is of paramount importance to ascertain whether this treatment is safe and what risks, if any, accompany it. Previous studies have shown that between 10 and 13% of infertile male patients have some microdeletions from the AZF gene on the Y chromosome. The AZF gene is crucial to spermatogenesis. It is conceivable that these microdeletions could be passed on via ICSI to subsequent offspring. The purpose of the current study was to evaluate the safety of using spermatids for intracytoplasmic injection. Unfortunately, round spermatids could not be included in this study due to the proscriptions of the Japan Society of Fertility and Sterility.

**Materials and methods:** A total of 64 infertile men took part in this study. Pathological analysis of their testicular tissue showed that 62.3% suffered from maturation arrest, 29.4% had Sertoli cell only, 4.8% had atrophic testes and 3.5% were found to have oligozoospermato genesis. DNA analysis was performed to determine to what extent these patients exhibited Y chromosome microdeletions.

**Results:** Out of the 64 intracytoplasmic injection cycles with spermatids, 14