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Could Sperm Aneuploidy Rate Determination Be Used as a Predictive Test Before Intracytoplasmic Sperm Injection?

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Chromosome abnormalities in embryos are a major cause of implantation and development failures. Some couples with normal karyotypes have repeated implantation failures after intracytoplasmic sperm injection (ICSI). In order to value patients at risk for genetic ICSI failures and the validity of sperm aneuploidy analysis, we have studied cytogenetic abnormalities in sperm from ICSI patients. Twentynine patients with normal karyotypes were included. Ten patients had at least 4 ICSI treatments without pregnancy (group A). Nine patients had a pregnancy after 1 to 3 ICSI treatments (group B). Ten fertile men with normal semen parameters were studied as controls (group C). Fluorescent in situ hybridization (FISH) was used for sperm nucleus cytogenetic analysis using chromosomes 8, 9, 13, 18, 21, X, and Y specific probes. Aneuploidy for each chromosome and diploidy rates were significantly higher in group A than in group B and in group B than in group C ($P < .05$). Considering each patient in groups A and B, aneuploidy rate for each chromosome was too variable to be considered as a significant test. We proposed analysis of the total sperm aneuploidy. Chromosomal sperm nuclei profile could be used as a predictive biological test before ICSI in order to improve genetic counseling for oligoasthenoteratozoospermia patients.

Key words: Chromosomal profile, fluorescent in situ hybridization, spermatozoa

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