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TITLE

RELATIONSHIP BETWEEN SPERM NUCLEAR CHROMATIN PACKAGING AND MORPHOLOGY OF THE SPERMATOZOA IN INFERTILE MEN

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ABSTRACT

Context : In ICSI cycles, sperm morphology is not predictive of fertilization and clinical pregnancy rates. However, some studies have shown that severe teratozoospermia can be associated with various nuclear alterations such as abnormal chromatin structure, DNA fragmentation and aneuploidy.

Objective : To evaluate the relationship among chromatin maturity assessed by Aniline Blue staining (AB) and the sperm morphology in infertile men.

Methods : Prospective study.

Patients : Our study included 51 ejaculates of patients explored for male infertility.

Main Outcome Measures : The semen analysis was carried out according to the WHO standardized method (WHO 2010). For each semen sample, we evaluated the sperm nuclei chromatin condensation using Aniline blue staining (AB) to distinguish between unstained mature sperm and blue stained immature sperm.

Results: Ejaculates were divided into two groups: G1 (n=31): immature sperm (AB stained) <20% and G2 (n=20): immature sperm (AB stained) ≥20%. The rates of some morphology abnormalities were significantly higher in G2: sperm head abnormalities (p = 0.01) and microcephalic SPZ (p = 0.02). The rates of SPZ with immature nuclei (blue stained) were negatively correlated with those of normal morphology SPZ (r= -0.266, p=0.05). We also found significant and positive correlations between chromatin maturity and acrosome abnormalities (r= +0.292, p=0.03).

Conclusion:

Alterations in the process of spermiogenesis may promote multiple defects in remodeling and compaction of the sperm chromatin. The failure of the chromatin condensation during spermatogenesis leads to impairment of acrosome attachment to the nucleus involvement or to dehiscence of acrosome from the nucleus.

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