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JOURNAL ARTICLE

Comparative study of cytochemical tests for sperm chromatin integrity

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Tests were carried out on sperm from 40 fertile and infertile men to evaluate 2 DNA in situ denaturation methods using acridine orange (AO; the modified Rigler-Roschlau method and the Tejada method), alongside routine aniline blue (AB) and toluidine blue (TB) tests in our modification, and in order to estimate and compare the practical value of different in situ cytochemical tests for sperm chromatin structure. In addition, the methods were applied to rat and boar spermiogenesis models. The sperm heads with abnormal versus normal chromatin structure were specified as orange-red versus green by the AO method, blue versus uncolored by the AB method, and purple-violet versus light blue by the TB method. A good correlation for the proportion of sperm heads with abnormal chromatin structure was found among all the methods ($r = .63-.70$; $P < .01$), which characterized all 4 techniques as sensitive enough to estimate in situ sperm DNA integrity. In our study, the average value of abnormal cells was 17% +/- 3.8% and 30.2% +/- 6.8% for the fertile and infertile groups of men, respectively, setting a threshold of 95% probability at 23% as judged by the Rigler-Roschlau method. This compared with 23.9% +/- 7.5% and 52.1% +/- 20.8% ($P < \text{or} = .05$) for the fertile and infertile groups, respectively, setting a threshold at 31%, as judged by the Tejada method. The technical advantages and disadvantages of each method are briefly reported. Key words: Fertility, DNA normality, sperm maturation.

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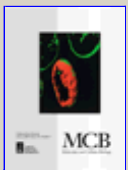
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