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Absolute Polymorphic Teratozoospermia in Patients With Oligo-Asthenozoospermia Is Associated With an Elevated Sperm Aneuploidy Rate

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Infertile patients with abnormal sperm parameters have an increased sperm aneuploidy rate, despite a normal blood karyotype. The evaluation of sperm chromosome aberrations in patients with teratozoospermia only has shown a rate similar to that found in patients exhibiting oligo-astheno-teratozoospermia, which suggests that teratozoospermia is the critical parameter associated with aneuploidy. However, it is not known which alteration of the sperm morphology is associated with chromosome aberrations. The few cases reported so far have shown an association with the presence of abnormal head morphology and particularly with enlarged heads. We report the sperm aneuploidy rate of 3 patients with oligo-asthenozoospermia who have absolute teratozoospermia (100% abnormal forms) and a different percentage of sperm head abnormalities. Fourteen healthy men with normozoospermia served as control subjects. Sperm aneuploidy and diploidy rates were calculated by using triple-color fluorescence in situ hybridization (FISH) for chromosomes 12, X, and Y, and double-color FISH was used for chromosomes 8 and 18. Patient K53, who had the highest number of spermatozoa with enlarged heads (54.3%), also had the highest aneuploidy and diploidy rates. The other 2 patients, K56 and K61, had sperm aneuploidy and diploidy rates lower than those of patient K53 but still well above the range found in normal men. Sperm chromosome abnormalities were intermediate in patient K61 and lower in patient K56, who had the lowest rate of spermatozoa with enlarged heads (18.9%). These data add further evidence that patients with teratozoospermia have an increased sperm aneuploidy rate and that this is particularly high in presence of an elevated percentage of spermatozoa with enlarged heads. For this reason, germ cells exhibiting this abnormality should not be used in in vitro fertilization programs.

Key words: Enlarged sperm head, fluorescence in situ hybridization, male infertility

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