Research article

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ANEUPLOIDY IN SPERMATOZOA IN INFERTILE MEN

The study was performed as a part of research work "Investigation of factors for male and female infertility in the remote period after the accident at the Chernobyl nuclear power station" (state registration number 0111U000755).

ABSTRACT. Background. An important problem is to investigate the frequency of aneuploidy in sperms of infertile men according to their changes in karyotype, that would allow to understand the contribution of paternal factor in the formation of chromosomal aberrations of embryos. **Objective**. To study the frequency of aneuploidy in spermatozoa from infertile men with normal karyotype and chromosomal changes. **Methods.** Fluorescence in situ hybridization (FISH) of spermatozoa (chromosomes 13, 16, 18, 21, 22, X and Y) was performed in 79 infertile men with normal karyotype, in 16 with chromosomal abnormalities, in 18 with chromosomal polymorphism and in 29 healthy men. In total 23,867 of sperm cores were analyzed. **Results.** In men with infertility an aneuploid sperms were in 5.7 times more often than in fertile patients ($P<0,01$). An aneuploidy of sperms in infertile men with a chromosomal abnormality were in 2.1 times, with a chromosomal polymorphism in 1.4 times more often than in infertile patients with a normal karyotype ($P<0,05$). In all patients the most common aneuploidies were in chromosomes XY, 21 and 22. The study of aneuploidy frequency in spermatozoa at different variants of chromosomal pathology showed that in men with paracentric inversions rate was 5.75 - 7.65%, whereas in patients with quantitative and other structural chromosomal abnormalities it was above 11.73 - 17.82%. **Conclusion**. The frequency of chromosomal aberrations in spermatozoa is highest in men with genomic and chromosomal mutations. In infertile patients with changes in the karyotype the gametes with mutations de novo can be produced.

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