

Aneuploidies of Chromosomes and Interchromosomal Effect in Embryos from Reciprocal and Robertsonia Translocations

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Preimplantation genetic diagnosis (PGD) allows assessment of aneuploidy of chromosomes in biopsied blastomeres of embryos from translocations carriers. Interchromosomal effect is defined as a structural chromosomal abnormality that affect the meiotic or mitotic segregation of other chromosomes unrelated to the rearrangement. This study was performed to evaluate the aneuploidies of chromosomes and interchromosomal effect in embryos from translocation carriers. Forty cycles of PGD for translocations, reciprocal translocations (n=32) and Robertsonian translocations (n=8), were carried out at our center last year and laboratory data were analyzed retrospectively. Specific probes for chromosomes of unrelated and related translocations used to screen the abnormality of 502 embryos. The proportion of normal or balanced embryos was 15.9% and 20.0% in reciprocal and Robertsonian translocations, respectively. Normality of chromosome 18, the chromosome of unrelated translocation, were similar in reciprocal (79.6%) and Robertsonian (79.0%) translocations. Incidence of normal or balanced embryos from female carriers was significantly lower than that of male carriers (14.9% vs 23.0%, $P < 0.05$). It may be related to the difference of gametogenesis. Maternal age and embryo quality were closely correlated with the aneuploidy of the chromosome of unrelated translocation in translocation carriers. We suggest that the analysis of both the chromosomes of related and unrelated translocations, such as comparative genomic hybridization and DNA microarray, might be important and valuable for the successful pregnancy with normal karyotype in PGD of translocation carriers.