Chromosomal integrity of human preimplantation embryos at cleavage and blastocyst stage in recurrent pregnancy loss patients.

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The high incidence of chromosomal abnormalities in human preimplantation embryos and gametes could explain the low success rates of IVF treatments. The development of techniques for Complete Chromosome Screening (CCS) has provided important information about the chromosomes of the embryos. This new technology applied as a method of embryo selection, improves the success rates of assisted reproduction techniques, as only chromosomally normal embryos are transferred to the womb allowing an improvement of "newborn baby at home" rates and reduce the rates of miscarriages, as well as reducing twin pregnancies by transferring a single embryo.

In this research we have studied the dynamics of chromosomal abnormalities at different stages of embryonic development, in embryos of patients with repeat miscarriages (RPL). To do this, we have analyzed the CCS results of 198 embryos from 45 patients: 133 on day 3 of development and 55 on day 5, on blastocyst stage.

As the main result, we have observed that the differences in the percentage of aneuploidy were higher (62.6%) in the group of embryos at day 3 of development versus 25.5% in the group of embryos on day 5. Besides multiple chromosomal abnormalities were also higher (39.5%) in the group of embryos from day 3 compared to the blastocyst stage embryos (14.3%).

This research shows that in a population of patients with repeated miscarriages, different chromosomal alterations occur in different stages of embryonic development. This dynamism in such early stages of development and the natural selection produced by the embryo culture to the blastocyst stage, suggest that the CCS in that stage could be the most appropriate option.

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