MITOTIC SEGREGATION ERRORS IN OOGENESIS AS A SOURCE OF HUMAN ANEUPLOIDY

In humans, aneuploidy in offspring is mainly associated with chromosome segregation errors during the first meiotic division of the oogenesis. Nevertheless, other mechanisms have been also described. One of them is the occurrence of errors during the mitotic division of oogonia (premeiotic germ cells). This phenomenon gives rise to germinal mosaicism, that is, the coexistence of euploid and aneuploid germ cells in the ovary.

Although the contribution of this phenomenon to human aneuploidy is well recognized, their characteristics and incidence have been poorly explored. In this review authors show several pieces of evidence that allow them to conclude that premeiotic aneuploidy is one of the age-independent mechanisms that predispose women to produce aneuploid oocytes. The authors estimate that this phenomenon could explain up to 40% of oocyte aneuploidy.