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ABSTRACT BOOK

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The influence of the implant of cryopreserved placenta tissue on its morphofunctional state

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The use of a cryopreserved placental tissue implant (CPTI) has proven that during long-term storage, it does not change its phenotypic characteristics of mesenchymal stem cells capable of differentiation and migration of the damaged organ.

The purpose of the study was to study the morphological changes of the placenta of rats against the background of implantation of CPTI.

The research was carried out on 30 pregnant female Wistar white rats, which were implanted with a piece of CPTI (1/4 part of the disc) under the skin of the back in the period of 1 week of gestation. The placenta was obtained under aseptic conditions from the uterus of a healthy rat on the eve of delivery, perused, fragmented and frozen according to a special program. After implantation of CPTI on the 7th and 14th day, the animals were removed from the experiment and the implant was removed. A microscopic study was performed comparing CPTI recipients at the end of pregnancy and healthy Wistar rats that did not receive CPTI. Microscopic preparations after paraffin embedding and hematoxylin-eosin staining were studied.

Seven days after implantation, segmental nuclear infiltration, which is a manifestation of karyorrhexis, is microscopically detected in a piece of CPTI. 14 days after CPTI, the placental implant is completely lysed. In the spongy part, layers of deciduas and trophoblast cells of the syncytiotrophoblast were preserved, which looked not dead, despite the presence of segmental leukocyte infiltration in the stroma.

When comparing the microscopic picture of the fetal and maternal parts of the placenta in animals with CPTI implantation, an increase in the number of trophoblastic cells with a large dark nucleus is observed. This fact can be interpreted as slowing down the aging of the placental tissue and preserving its hormonal and other functions. In addition, the implantation of CPTI is accompanied by a sharp decrease in the number of fibrinoid foci and their volume. It is reasonable to assume that the implanted piece of CPTI is included in the general chain of hormonal regulation in the mother-placenta-fetus system. After a certain increase in the amount of steroid hormones in the body, there is a gradual decrease in their production in the implant and a decrease in their content in the blood, which can stimulate the effect on the hypothalamus-pituitary-ovary system of the female according to the principle of feedback.

Implantation of cryopreserved placental tissue has a positive effect on the morphofunctional state of the placenta of the female rat recipient in the form of an improvement in the quality of the morphological structure of the placental tissue with a slowdown in its aging at the end of the gestation period.

