**Morphological features of local immune reactions in placentas in women who had COVID-19 disease in early gestation**

***Myroshnychenko Mykhailo1****,**Gaponova Ludmila2, Kapustnyk Nataliia3, Gaponova Elina1, Borzenkova Iryna4, Pavlova Olena1, Myroshnychenko Serhii5*

*1 Kharkiv National Medical University, Kharkiv, Ukraine*

*2 Kharkiv Regional State Administration, Kharkiv, Ukraine*

*3 Public Nonprofit Organization of the Kharkiv District Council «Regional Clinical Perinatal Centre», Kharkiv, Ukraine*

*4 Public Nonprofit Organization of the Kharkiv District Council «Regional Clinical Hospital», Kharkiv, Ukraine*

*5 Public Nonprofit Organization of the Izium City Council «Central City Hospital of Sandy Mother of God», Izium, Ukraine*

**Background.** Placenta is a potential target organ for the SARS-CoV-2 virus, which leads to the development of COVID-19 disease. The study of the placental damage mechanisms in this category of women is an urgent issue of modern medicine.

**Aim.** To reveal the morphological features of local immune reactions in placentas in women who had COVID-19 disease in early gestation.

**Material and methods.** The study material was the placentas of women who had a physiological course of pregnancy in group 1 (n=15), and COVID-19 in early gestation (n=44) in group 2. Diagnosis of COVID-19 was carried out according to molecular-genetic examination (polymerase chain reaction). In all groups, childbirth was at 37-40 weeks of gestation. The microscope slides were stained with hematoxylin and eosin. An immunohistochemical study was carried out with monoclonal antibodies to CD3, CD20, CD68. In the field of view of the microscope × 400, the absolute number of neutrophilic and eosinophilic leukocytes, CD3-, CD20-, CD68-cells was counted. The obtained digital data were processed, using the program Statistica 10.0. The indicators in groups were compared, using the nonparametric Mann-Whitney U test. Differences were considered significant at p<0.05.

**Results.** In group 1, in the decidua, villi, chorionic and amniotic membranes, focally localized CD20-, CD68-, CD3-cells were detected, the absolute numbers of which were respectively (0.2±0.1), (28.4±1.7), (30.9±1.5). In group 2, in comparison with group 1, in the decidua, villi and intervillous space, chorionic and amniotic membranes it was identified expressed focal or diffuse cell infiltration which was characterized by the presence of eosinophilic (0.5±0.2) and neutrophilic (15.5±2.1) leukocytes, and increased (p<0.05) content of CD20-, CD3- and CD68-cells. The absolute numbers of the latter were (5.3±0.5), (94.1±5.5) and (117.8±4.2), respectively.

**Conclusions.** In placentas of women who had COVID-19 in early gestation and gave birth at a gestational age of 37-40 weeks, a change of local immune reactions is determined. The latter is characterized by the appearance of neutrophilic and eosinophilic leukocytes, an increase the number of T-lymphocytes, B-lymphocytes and macrophages. The violations of local immune reactions in placentas can cause the development of pregnancy and delivery complications, disorders of the mother, fetus and newborn health.

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