MORPHOLOGICAL RESEARCH OF PLACENTA IN WOMEN WITH PRETERM LABOR

Summary. Preterm labor is one of the most current problems of modern medicine. Preterm labor is defined as the birth of a child in the gestation period less than 37 full weeks of gestation and is the second most common cause (after congenital anomalies) of neonatal mortality [3]. The highest percentage of morbidity and mortality occurs in children born to gestational age less than 32 weeks, although the proportion of these newborns is 16% of all preterm infants [4]. Preterm labor is a polyetiology problem that depends on many factors. One of the major problems is the formation of placental dysfunction, which manifests itself by morphofunctional changes in the placenta associated with violation of uterine-placental circulation.

The aim of the study – to obtain the peculiarities of placentas’ histological condition in women with burden anamnesis and preterm labor with different Apgar point scale of newborn.

Materials and Methods. A total of 19 placentas of women with preterm labor were observed in Maternal Hospital No. 5 of Odesa, Ukraine. We studied their residence areas, obstetrical and gynecology anamnesis, current pregnancy and labor anamnesis. We examined the ultrasound datas of the newborns, studied their anthropometric. Apgar scale and histology of placentas’ datas. All interviewed women were devided into two groups: less than 35 years old – 12 women of the group 1 and more than 35 years old – 7 women, it was the group 2. The average age of the examined groups was 31.3 years old. Statistical datas processing was carried out by using the Fisher angular transformation. The degree of probability (P) between two comparative values was considered to be statistically valid when P<0.05.

The research results showed that all elder women were married, lived in ecoregions of the city, had more often revolved to artificial reproductive technologies, had singleton gestation compared to younger group of patients. Newborns of women after 35 had better points of Apgar scale and no one had IUGR compared to newborns of the younger women. Signs of placenta dysfunction were detected in placentas of both groups of women.

Conclusions. In our investigation the women of different age groups with preterm labor had signs of placenta dysfunction but women after 35 had better datas of newborn babies according to Apgar scale and absence of IUGR. Probably, it is connected with residency, official marriage and better preconceptional preparation in this group.

Key words: preterm placenta; labor dysfunction; newborns.

INTRODUCTION Preterm labor is one of the most current problems of modern medicine. Preterm labor is defined as the birth of a child in the gestation period less than 37 full weeks of gestation and is the second most common cause (after congenital anomalies) of neonatal mortality [3]. The highest percentage of morbidity and mortality occurs in babies born to gestational age less than 32 weeks, although the proportion of these newborns is 16% of all preterm infants [4]. Preterm labor is a polyetiology problem that depends on many factors. One of the major problems is the formation of placental dysfunction, which manifests itself by morphofunctional changes in the placenta associated with violation of uterine-placental circulation. Placental dysfunction and fetopelvic malnutrition as the main one with its manifestations, which completely influences intrauterine development and fetal formation, is manifested by changes in all structural units and is the result of the immaturity of the villous tree. The result is a violation of the growth and development of the fetus in different trimesters of pregnancy and its premature termination [3]. An important role in the structural stability of the villous tree is played by the complex system of ties, which includes anchor villi, secondary fibrinoid compounds of the branches with basal plate, membranes and a choroid plate, as well as with each other and the villi of the neighboring cotylone [1,2].

The aim of the study – to obtain the peculiarities of placentas’ histological condition in women with burden anamnesis and preterm labor with different Apgar point scale of newborn.

MATERIALS AND METHODS Under observation in connection with preterm labor, there were 19 women in the Maternity Hospital No. 5 in Odesa in the period from September to December 2018. The features of their place of residence, obstetrical and gynecological and family history, features of the pregnancy and childbirth were studied. The results of ultrasound examinations of children were studied and the anthropometric data of newborns were obtained, their assessment on the Apgar scale was given and a histological analysis of the placentas of newborns was performed. Women in group I gave birth from 25 to 36 weeks of gestation, from 25 to 32 weeks accounted 49%. In women of the group 2, childbirth was observed from 29 to 36 weeks, and in 57% of cases childbirth was in the period from 29 to 31 weeks of gestation.

RESULTS AND DISCUSSION An average from 8 to 10 years of females in groups 1 and 2 suffered from infertility, 42% were residents of the central regions of Odesa, 33% lived in residential areas of the city and 25% lived in the ecoregions of Odesa city, 67% of them were officially married. Among women of group 2, 14% lived in the central regions of the city, 28% – in the bedroom suburb and 58% were residents of Odesa regions, 100% of the interviewed of older age group were officially married. Pregnancy as a result of ART was reported in 25% of women in group 1, 29% of women in group 2 used ART, that is because of burden obstetrical and gynecology anamnesis. In this case, in elderly women, in all cases, singleton gestation were obtained, and in women under the age of 35, in all cases, used ART multiple pregnancies were observed. Vaginal delivery occurred in 67% of young women and 71% of older women. The average duration of delivery of women in the group 1 amounted to 8 hours 03 minutes, and women in the group 2 – 6 hours 28 minutes, because of the parity, 58% of the group 1 and 57% of the group 2 gave birth as nulliparas. The pathological quantity of amniotic fluid (oligo- or poly) was noted in 75% of women in the group 1 and 71% of women in babies in women younger than the age group and in 14% of babies of women older than age. Female babies were...
more often born in women of the group 2 – 57 %, and in women of the group I of our study, male were born in 87 % of cases. The average weight of infants at birth in younger women was 2107 g, the average height of children was 45 cm, and in women of the older age group the average weight of children was 2039 g, the average height was also 45 cm. The average score of the newborns of women in the group 1 on the Apgar scale on the first minute was 7 points, on the fifth – 7 points. For women of the group 2, the average score on the first minute of life was 7 points, on the fifth minute – 8 points that can indicate on better intrauterine and intrapartum conditions of these babies compared with newborns of the first women’s group. Intrauterine growth restriction (IUGR) in women of the group 1 was observed in 33 % of cases, in women of the group 2, was not found, placenta dysfunction, which was confirmed histologically suspected in 26 % of women in the group 1 and 32 % in women of the group 2, that means that placental compensation opportunities in these cases were better. The taking of material for morphological research was carried out in accordance with generally accepted recommendations [5]. The fragment of the placenta was fixed in 10 % formalin solution. Paraffin sections on which the histological study was performed, painted using the following methods: a) coloration with hematoxylin-eosin – this technique gives a general idea of the structure of the body, well revealing all cellular elements and some non-cellular structures. On the glass, pour a filtered solution of Bemer's hematoxylin, leave for 5-10 minutes. Pour the hematoxylin back into the flask, immerse the cuts in water for 1–10 minutes. Introduce 1 % with hydrochloric acid and again immerse in clean tap water until the slicing is done (30 min.). Colors 1 % of eosin for 1–2 min. And they are immersed in water, and then at 70 ° and 96 ° in the alcohols. Dip it with filter paper and immerse it in xylene to illuminate the sections, and then enclose the balm. The nuclei acquire a reddish-purple color with a distinct nucleolus and chromatin, and the cytoplasm is moderately pinkish-yellowish (E. Pearce, 1962); b) staining with Pikrofusin for Van Gison – this technique can detect fibrin among the masses of fibrinoid. On the glass, pour one part of the official solution of iron and two parts of hydrochloric acid and then again immerse in clean tap water until the slicing is done (70 °, 96 °). In further research, we aim to continue our study of the preterm labor, recurrent pregnancy losses problems with in-depth study of its genetically acquired and immune factors acquired throughout life.
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Висновки. Кращі показники життєдіяльності за шкалою Апгар і відсутність ознак внутрішньоутробної затримки розвитку плода були виявлені у дітей від жінок старшої вікової групи. Це може бути пов'язано з кращими умовами проживання, більш стабільним соціальним статусом і кращою преконцептуальною підготовкою даної вікової групи.

Ключові слова: дисфункція плаценти; передчасні пологи; новонароджені.

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МОРФОЛОГІЧЕСКОЕ ИССЛЕДОВАНИЕ ПОСЛЕДА У ЖЕНЩИН С ПРЕЖДЕВРЕМЕННЫМИ РОДАМИ

Резюме. Невынашивание беременности относится к числу наиболее актуальных проблем современной медицины. Этим термином определяется как рождение ребенка в сроке гестации менее чем 37 полных недель, что является второй по распространённости причиной (после врожденных аномалий) неонатальной смертности. Самый высокий процент заболеваемости и смертности приходится на детей, родившихся в сроке гестации менее 32 недель, хотя доля этих новорожденных составляет 16 % всех недоношенных новорожденных. Преждевременные роды – полиэтиологическая проблема, что зависит от многих факторов. Одной из ведущих проблем является формирование плацентарной дисфункции, которая проявляется морфофункциональными изменениями в плаценте, связанными с нарушением маточно-пуповинного кровообращения.

Цель исследования – изучить особенности гистологического состояния плаценты у женщин с отягощенным акушерско-гинекологическим анамнезом и родами до срока, дети которых при рождении имели разную оценку по шкале Апгар.

Материалы и методы. Под наблюдением находилось 19 женщин, у которых произошли преждевременные роды в КУ “Родильный дом № 5” с сентября по декабрь 2018 г. Изучали особенности их места жительства, акушерско-гинекологический и семейный анамнезы течения данной беременности и родов. Проанализированы результаты ультразвуковых обследований детей, а также получены антропометрические данные новорожденных, дано оценку их по шкале Апгар, проведен гистологический анализ последа. Для клинической оценки полученных результатов все женщины в данном исследовании были разделены на две группы: до 35 лет – 12 женщин, это первая группа и после 35 лет – 7 женщин (вторая группа). Средний возраст обследуемых женщин составил 31,3 года. Статистическую обработку данных проведено с использованием углового критерия Фишера. Показатель степени достоверности (р) между двумя сравниваемыми величинами считался достоверным при значениях р<0,05.

Результаты исследований и их обсуждение. Старшие по возрасту женщины, проживавшие в экологически благоприятных районах Одесской области, находившиеся в законном браке и прибегавшие к вспомогательным репродуктивным технологиям (ВРТ), беременели одноплодной беременностью, по сравнению с женщинами первой группы, которые жили в центральной части города с худшими экологическими условиями и в незаконном браке и при этом чаще имели многоплодные беременности при помощи ВРТ, у них были худшие перинатальные показатели. Беременности, индуцированные с помощью ВРТ, наблюдались чаще у женщин первой группы. При этом новорожденные дети от женщин второй группы имели лучшие показатели по шкале Апгар и не имели синдрома внутриутробной задержки развития по сравнению с новорожденными у женщин первой группы. Признаки дисфункции плаценты при этом наблюдались как у женщин первой, так и второй групп.

Выводы. Лучшие показатели жизнедеятельности по шкале Апгар и отсутствие признаков внутриутробной задержки развития плода были обнаружены у детей от женщин старшей возрастной группы. Это может быть связано с лучшими условиями проживания, более стабильным социальным статусом и лучшей преконцептуальной подготовкой данной возрастной группы.

Ключевые слова: дисфункция плаценты; передчасні пологи; новонароджені.

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