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PERINATAL CONSEQUENCES OF CHILDBIRTH IN PREGNANT WOMEN WITH A HISTORY OF REPRODUCTIVE LOSSES

Abstract. The problem of reproductive losses does not lose its relevance over the years. As a system indicator of the maternity and childhood care service, it is constantly in the center of attention of scientists not only in our country, but also in the whole world, because reproductive losses are one of the key factors affecting demographic indicators.

The aim of this study was to assess the frequency and structure of perinatal consequences of childbirth in pregnant women with a history of reproductive loss.

A retrospective analysis of exchange cards of pregnant women, histories of pregnancy and childbirth, newborn cards of 130 women who were registered in women's consultations in the city of Zaporizhzhia and gave birth in the maternity hospital № 9 in the period 2017-2020. Women were divided into 2 groups depending on obstetric history. The main group consisted of 85 women with one reproductive loss in the anamnesis, the control group - 45 women without a reproductive loss in the anamnesis. Childbirth was the first in 40 women (47,1%) of the main group and in 26 women (57,8%) from the control group. The research meets the modern requirements of moral and ethical norms regarding the rules of ICH / GCP, the Declaration of Helsinki (1964), the Conference of the Council of Europe on Human Rights and Biomedicine, as well as the current provisions of the legislative acts of Ukraine. The chosen direction of research is closely related to the plan of research work of the Department of Obstetrics and Gynecology of the Zaporizhzhya State Medical and Pharmaceutical University. Variational and statistical processing of the results was carried out using the "STATISTICA 13" program.

During the retrospective analysis of the condition of newborn children of women with a history of reproductive loss, gestational age at the time of birth, anthropometric data, Apgar scores at the 1st and 5th minutes after birth, frequency and nature of pathological conditions in the early neonatal period were taken into

account. It was found that the indicators of anthropometric data of children born to women without experience of reproductive loss were significantly higher compared to the same data of children born to women who had a history of reproductive loss. During the analysis of the course of the early neonatal period, the incidence of newborns in the main group was twice as high as compared to the control group.

Keywords: pregnancy, reproductive loss in history, childbirth, perinatal complications, pathological condition, early neonatal period.

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ПЕРИНАТАЛЬНІ НАСЛІДКИ РОЗРОДЖЕННЯ ВАГІТНИХ ЖІНОК З РЕПРОДУКТИВНОЮ ВТРАТОЮ В АНАМНЕЗІ

Анотація. Проблема репродуктивних втрат з роками не втрачає своєї актуальності. Як системний показник служби охорони материнства та дитинства вона безперервно знаходиться в центрі уваги науковців не лише нашої країни, а й всього світу, адже репродуктивні втрати є одними з ключових факторів, що впливають на демографічні показники.

Метою даного дослідження було оцінити частоту та структуру перинатальних наслідків розродження у вагітних жінок з репродуктивною втратою в анамнезі.

Було проведено ретроспективний аналіз обмінних карт вагітних, історій вагітності та пологів 130 жінок, які перебували на обліку в жіночих консультаціях м. Запоріжжя та народжували в КНП «Пологовий будинок №9» ЗМР та 130 карт новонароджених в період 2017-2020 рр. Жінки були поділені на 2 групи залежно від акушерського анамнезу. Основну групу склали 85 жінок з однією репродуктивною втратою в анамнезі, контрольну – 45 жінок без репродуктивної втрати в анамнезі. Пологи були першими у 40 жінок (47,1%) основної групи та у 26 жінок (57,8 %) з групи контролю. Дослідження відповідає сучасним вимогам морально-етичних норм щодо правил ICH / GCP, Гельсінкській декларації (1964 року), Конференції Ради Європи про права людини і біомедицини, а також діючим положенням законодавчих актів України. Обраний напрямок дослідження тісно пов'язаний з планом науково-дослідної роботи кафедри акушерства і гінекології Запорізького державного медико-фармацевтичного університету. Варіаційно-статистична обробка результатів здійснювалась з використанням програми «STATISTICA 13».

При ретроспективному аналізі стану новонароджених дітей жінок з репродуктивною втратою в анамнезі враховувався термін гестації на момент народження, антропометричні дані, оцінки за шкалою Апгар на 1-й та 5-й хвилині після народження, частота та характер патологічних станів у ранньому неонатальному періоді. Виявлено, що показники антропометричних даних дітей, народжених жінками без досвіду репродуктивної втрати були достовірно вищими порівняно з такими ж даними дітей, народжених жінками, які мали репродуктивну втрату в анамнезі. При аналізі перебігу раннього неонатального періоду встановлено вдвічі більшу частоту захворюваності новонароджених в основній групі, порівняно з контрольною групою.

Ключові слова: вагітність, репродуктивна втрата в анамнезі, пологи, перинатальні ускладнення, патологічний стан, ранній неонатальний період.

Statement of the problem. The complexity of the problem of reproductive losses does not lose its relevance over the years. As a system indicator of the maternity and childhood care service, it is constantly in the center of attention of scientists not only in our country, but also in the whole world, because reproductive losses are one of the key factors affecting demographic indicators [1]. The situation with the state and dynamics of the main components of reproductive losses in Ukraine in the 21st century. determines the expediency of the further development of the family planning service, the formation of a comprehensive medical and social program for the correction of reproductive behavior and the improvement of women's reproductive health [2].

Analysis of recent research and publications. According to scientific studies, 23 million pregnancy losses occur worldwide every year, which means 44 losses every minute [3]. The majority of reproductive losses occur before 12 weeks of pregnancy [3]. Sporadic miscarriages lasting more than 12 weeks complicate the course of 1-2% of pregnancies [4]. In 2019, there were approximately 42,39 million pregnancy losses worldwide [5].

Many causes of reproductive loss have been described in the literature, including genetic abnormalities, anatomical abnormalities of the reproductive tract, immune diseases, endocrine diseases, antiphospholipid syndrome, thrombotic disorders, and infections, but about 40-50% of etiologies remain unclear, the molecular mechanisms have not been fully understood, and they are defined as unspecified pregnancy loss [6,7,8]. Genetic susceptibility, smoking, health status, and sedentary behavior can be powerful predictors of increased risk of pregnancy loss [9].

There are many studies investigating the relationship between reproductive loss and adverse effects on women's health [10]. More than half of women who have experienced reproductive losses have special psychological needs during the next pregnancy. For this reason, subsequent pregnancies may be complicated [11].

The frequency of anxiety and depression in women with the experience of reproductive loss can be up to 47,7% and 51,7% [12]. Optimizing the tactics of

pregnancy management in women who have experienced reproductive loss should be, starting from the pre-pregnancy stage with an emphasis on the prevention of possible problems in the mental health of the woman, obstetric and perinatal complications of pregnancy, including premature birth, fetal growth retardation, stillbirth [7, 13].

Aim. To assess the frequency and structure of perinatal consequences of childbirth in pregnant women with a history of reproductive loss.

Presentation of the main material. A retrospective analysis of exchange cards of pregnant women (form № 113/o), histories of pregnancy and childbirth (form № 096/o) of 130 women who were registered in women's consultations in the city of Zaporizhzhia and gave birth in maternity hospital №9 and 130 cards of newborns (№ 097/o) for the period 2017-2020.

Management of pregnancy, childbirth, and the postpartum period in the women of the research groups was carried out in accordance with the current Orders of the Ministry of Health of Ukraine. Women were divided into 2 groups depending on obstetric history. The main group consisted of 85 women with one reproductive loss in the anamnesis, the control group - 45 women who had no reproductive losses in the anamnesis. The average age of women in the main group was $31,21 \pm 5,09$ years, in the control group - $28,37 \pm 5,55$ years.

The conducted research meets the modern requirements of moral and ethical norms regarding the rules of ICH / GCP, the Declaration of Helsinki (1964), the Conference of the Council of Europe on Human Rights and Biomedicine, as well as the current provisions of the legislative acts of Ukraine. The chosen direction of research is closely related to the plan of research work of the Department of Obstetrics and Gynecology of the Zaporizhzhya State Medical and Pharmaceutical University. Variational and statistical processing of the results was carried out using the "STATISTICA 13" program.

Childbirth was the first in 40 women (47,1%) of the main group and in 26 women (57,8%) from the control group. In the structure of reproductive losses of women in the main group, 71,8% of women had spontaneous abortions, 24,7% had a miscarriage, and 3,5% had an ectopic pregnancy. In both groups, all women were enrolled before 12 weeks of pregnancy. Thus, in the main group, the average pregnancy period was $9,4 + 2,3$ weeks, and in the control group - $9,07 + 1,76$ weeks, respectively.

In the structure of childbirth complications in women with a history of reproductive loss, the leading position was small miscarriage. Most often, women were hospitalized for this reason within 12 weeks of pregnancy (27,1% in the main group versus 17,8% in the control group). Prevention of respiratory disorders in the fetus was carried out by 5,9% of women of the main group according to the current Orders of the Ministry of Health of Ukraine. It is worth noting the high frequency of acute respiratory diseases (37,6%) in the main group, namely acute rhinitis, acute pharyngitis, acute bronchitis, which had a mild course. Every third woman is diagnosed with anemia during pregnancy (30,6%).

Preparation for childbirth and parenthood in the women's consultation was attended by 62,4% of women in the main study group and 60% of women in the control group. In the group of women with a history of reproductive loss, 17,8% of women took a childbirth preparation course together with their partner and 17,6% of women without experience of loss.

Childbirth in 81 women of the main group was urgent, the average indicator of the term of delivery was 38,7+1.4 weeks. 4,7% of women gave birth prematurely (1 birth at 34 weeks, 1 at 35 weeks, 2 at 36 weeks). In the control group, the average term of delivery was 39,6 + 1,03 weeks. All births in women of the control group were urgent.

The difference in the frequency of completion of childbirth by caesarean section among pregnant women of both groups is 7,14% in the main group versus 2,2% in the control group. 2 cases of surgical intervention in the main group were performed in a planned manner due to the presence of a scar on the uterus after a previous caesarean section operation, 1 - due to the occurrence of fetal distress in the first period of childbirth. 1 case of operative delivery in the control group was performed urgently due to the occurrence of: fetal distress in the first period of labor. In addition, childbirth ended with vacuum extraction of the fetus in 2 (2,4%) women of the main group. In all 100% of cases, the indication for vacuum extraction of the fetus was fetal distress in the second period of labor. This intervention did not take place in the control group.

The analysis of the condition of newborn children of women with a history of reproductive loss was carried out taking into account the gestational age at the time of birth, anthropometric data, Apgar score at 1 and 5 minutes after birth, frequency and nature of pathological conditions of children in the early neonatal period. 47 boys (55,3%) and 38 girls (44,7%) were born in the main group, and 24 boys (53,3%) and 21 girls (46,7%) were born in the control group. Fetal umbilical cord entanglement occurred in 23.5% of cases (20 births) in the main group, and in 20% in the control group (9 births). Most often, in both groups, a single wrapping of the umbilical cord around the neck of the fetus was observed (17,6% in the primary versus 15,6% in the control groups).

Indicators of anthropometric data of children in the main and control groups did not have a significant difference (table 1). The birth of children with macrosomia (more than 4000 g) occurred in 9,4% (8 women) of cases in the main group and in 6,7% (3 women) in the control group. There were no newborns with low body weight (less than 2500 g) in both studied groups.

Table 1

Anthropometric data of newborns of the studied groups.

| Indicator | Main group n = 85 | Control group n = 45 |
|---------------------|----------------------|-------------------------|
| | M ± | M ± |
| Body weight | 3386,94 + 465,12 г | 3407,33 + 372,8 г |
| Height | 52,7 + 2,68 см | 53,3 + 2,4 см |
| Head circumference | 34,32 + 1,37 см | 34,1 + 1,4 см |
| Chest circumference | 33,38 + 1,38 см | 33,1 + 1,31 см |

The average score on the Apgar scale at 1 and 5 minutes of the life of newborns in the groups is shown in Table 2. Only the main group was marked with the birth of 2 children with a score of 6 points at the 1st minute.

Table 2

Indicators of assessment of newborns according to the Apgar scale

| Indicator | Main group n = 85 | Control group n = 45 |
|--------------|----------------------|-------------------------|
| 1 minute | | |
| Total points | 7,9 ± 0,62 | 8,0 ± 0,43 |
| 5 minute | | |
| Total points | 8,5 + 0,57 | 8,6 + 0,62 |

in study groups (points)

The average scores for each indicator on the Apgar scale are presented in Table 3.

Table 3.

**Indicators of assessment of newborns according to the Apgar scale
in study groups (indicators, scores)**

| | Palpitation | Breath | Muscle tone | Skin color | Reflexes |
|---------------|-------------|-------------|-------------|-------------|-------------|
| 1 minute | | | | | |
| Main group | 1,98 ± 0,15 | 1,99 ± 0,1 | 1,59 ± 0,5 | 1,06 ± 0,24 | 1,27 ± 0,45 |
| Control group | 2 | 2 | 1,13 ± 0,34 | 1,76 ± 0,43 | 1,18 ± 0,39 |
| 5 minute | | | | | |
| Main group | 1,99 ± 0,1 | 1,99 ± 0,1 | 1,32 ± 0,47 | 1,47 ± 0,5 | 1,74 ± 0,44 |
| Control group | 2 | 1,98 ± 0,15 | 1,38 ± 0,49 | 1,4 ± 0,5 | 1,82 ± 0,39 |

When analyzing the course of the early neonatal period, it was found that the incidence of newborns in the main group was almost 2 times higher than in the control group (table 4). Complicated course of the early neonatal period was experienced by 14 children (16,5%) in the main group compared to 4 children in the control group (8,9%).

Table 4

The structure of perinatal morbidity of newborn children

| Indicator | Main group n = 85 | Control group n = 45 |
|---|----------------------|-------------------------|
| Respiratory disorders I type | 2,4 | - |
| Hydronephrosis | 1, 2 | - |
| Neonatal jaundice | 9,4 | 4,4 |
| Plexit | 4,7 | 2,2 |
| Erba's paresis | 2,4 | - |
| Hypoxic-ischemic encephalopathy, depression syndrome | 1,2 | - |

in research groups, %

Thus, the syndrome of respiratory disorders caused by the immaturity of lung tissue in a premature child was present in two case (2,4 %) in the main group. Neonatal encephalopathy was also diagnosed in one case (1,2 %) in the main group. There were no such complications in the control group. Neonatal jaundice complicated the course of the early neonatal period in 9,4% of newborns in the main group and in 4,4% of newborns in the control group.

There were no cases of neonatal mortality in both groups.

Conclusions

1. Based on the results of a retrospective analysis, it was established that the frequency of complications during pregnancy and childbirth in women with a history of reproductive loss is higher compared to women without reproductive loss.

2. The conducted analysis confirms the fact that in women with a history of reproductive loss, the course of pregnancy is characterized by an increase in the frequency of obstetric and perinatal complications.

3. In women with a history of reproductive loss, the incidence of newborns in the early neonatal period was almost 2 times higher compared to women without reproductive loss (16,5% and 8,9%, respectively).

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