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ACHIEVEMENTS AND
PROBLEMS

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actual events, achievements
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SECTION 23.

MEDICAL SCIENCES AND PUBLIC HEALTH

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CONGENITAL HEART DEFECTS AND CLINICAL AND ANAMNESTIC DETERMINANTS OF GESTATION COMPLICATIONS

***Abstract.** Pregnant women with low- and moderate-risk congenital heart defects have a statistically significantly higher number of comorbid somatic pathologies (urinary tract diseases, thyroid diseases and disorders of the autonomic nervous system), and are also more likely to report tobacco smoking both before pregnancy and during gestation. Patients with low- and moderate-risk congenital heart defects are statistically significantly more likely than pregnant women in the control group and women with high maternal risk congenital heart defects to terminate a previous pregnancy by induced surgical abortion and have a higher rate of delivery by cesarean section in the past.*

Diseases of the cardiovascular system in pregnant women complicate the gestational period in 0.2–10% of women and still remain one of the main causes of complications of pregnancy, delivery, intrauterine damage to the fetus and high rates of maternal and perinatal mortality [1, 2]. Congenital heart defects occupy the first place in the structure of cardiovascular diseases in pregnant women and range from 5.0 to 25.5% [3].

However, the clinical and anamnestic determinants of the development of gestational complications in pregnant women with heart defects of varying maternal risk remain unstudied. [4].

The purpose of the study is to identify clinical and anamnestic determinants of complicated pregnancy in women with congenital heart defects of varying maternal risk.

To achieve this goal, a prospective cohort clinical and laboratory examination of 138 pregnant women with congenital heart defects and delivery was carried out.

All patients were divided into 3 groups according to a modified classification to assess the risk of cardiovascular complications for the mother and offspring in pregnant women with cardiovascular diseases [4]: group 1 consisted of 79 women with heart defects and a low risk of complications; group 2 – 39 pregnant women with risk II; the remaining patients (20), who had a

high risk of complications, were included in group 3 (risk III). The control group (group 4) consisted of 66 pregnant women without somatic and gynecological pathologies.

All women underwent a clinical and laboratory examination, which included electrocardiography, echocardiography, examination by a therapist and a cardiac surgeon [5].

For statistical processing, the following statistical software packages were used: SPSS 22 and Statistica for Windows 6. Values with $p < 0.05$ were considered statistically significant.

All patients were of reproductive age. In group 1, the average age of pregnant women was 27.0 ± 3.37 years, in group 2 – 27.08 ± 2.98 years, in group 3 – 27.65 ± 3.14 years, in group 4 – 26.93 ± 3.52 years. In the groups of women with low and high risk of complications, pregnant women aged 23–34 years were more common, while in the group of pregnant women with moderate risk and in the control group, they were 18–34 years old ($p < 0.001$).

All patients were comparable in terms of education level. Most pregnant women had higher education, but it was more common in pregnant women from group 4 – 57.6 versus 44.9% in patients with congenital heart defects ($p > 0.05$).

By social status, the majority of patients were engaged in mental work, while the frequency of women with a working profession was the smallest (19.47%) in group 4 ($p < 0.05$), and the highest (40%) in group 3 ($p < 0.05$).

Single episodes of drinking low-alcohol drinks during pregnancy were noted by 6.3% of women in the low-risk group, 7.7% in the moderate-risk group, and 5% in the high-risk group. Among pregnant women from the control group, only 3% consumed such drinks during pregnancy, $p > 0.05$. Tobacco smoking before pregnancy is statistically significantly higher among women with heart defects - 28.3 versus 4.5% in the control group ($p < 0.001$), while women from group 2 smoked more often before pregnancy - 46.1% versus 22.7% and 15% in groups 1 and 3, respectively ($p = 0.022$; $p = 0.011$). The incidence of secondhand smoke was about 40% in all groups.

Pre-pregnancy weight (57.84 ± 2.19 kg) and body mass index (21.15 ± 0.72 kg/m²) were significantly lower in group 4 compared to patients with cardiac pathology - 61.98 ± 2.06 and 22.85 ± 0.69 kg/m², respectively, while among the studied groups the lowest values were in group 2 ($p < 0.05$). Weight before birth was also lower in the control group (71.4 ± 3.66 kg) and in the WHO II risk group (70.66 ± 3.37 kg), but the differences were not significant.

In patients with congenital heart defects, comorbid somatic pathology was statistically significantly more common than in women from group 4: 15.2% – pathology of the urinary tract ($p = 0.034$), 8.7% – varicose veins of the lower extremities ($p = 0.020$) and 15.2% – thyroid disease ($p = 0.002$). In the study groups, among patients with WHO risk I, 83.5% had chronic diseases of the upper and lower respiratory tract, 13.9% had thyroid diseases ($p = 0.012$), 8.9% had disorders of the autonomic nervous system ($p = 0.016$). In patients with a moderate risk of complications, childhood infections were most often observed (76.9%), urinary tract pathology in 23.1% ($p = 0.005$), thyroid diseases in 20.5% ($p = 0.001$), gastrointestinal diseases - intestinal tract (23.1%), myopia (20.5%). Patients with WHO III risk were more likely than other groups to have a history of myopia (20%) and varicose veins of the lower extremities (10%). In more than 70% of cases, patients were in a registered marriage; unregistered marriage was more common in the group with a high risk of complications - 15% ($p > 0.05$). Moreover, in group 3 there was the largest number (15%) of patients under the age of 18 and over 30 years old living in an unregistered marriage. In group 4, the number of single pregnant women was the smallest - 1.5% ($p = 0.006$).

Complications during pregnancy occur significantly more often in patients with congenital heart disease ($p < 0.001$). Acute respiratory infections complicated pregnancy in every fifth patient from groups 1 and 4, and in every third patient from groups 2 and 4 ($p > 0.05$). Every tenth woman in all groups registered vomiting of pregnancy, while its frequency in patients with heart defects is higher compared to the control group. Symptoms of threatened abortion occurred significantly more often in women with heart pathology compared to group 4, $p < 0.001$. At the same time,

pregnant women from group 3 more often (15%) had a permanent threat of miscarriage ($p>0.05$). Urinary tract infections during pregnancy were recorded more often in patients with congenital heart disease ($p>0.05$) compared to healthy women, and especially often in the low maternal risk group (16.4%). Cases of gestational diabetes mellitus were observed mainly in patients with congenital heart disease. Moreover, the highest frequency was in the group with moderate risk (25.6%), $p<0.001$. Pregnancy-induced hypertension without significant proteinuria was more often recorded in patients with cardiac pathology ($p>0.05$). Moderate preeclampsia was detected in 6.3% of women with low-risk heart defects and in 5% of high-risk patients ($p>0.05$). There were no cases of severe preeclampsia. Anemia, predominantly mild, significantly more often complicated the course of the gestational period in patients with congenital heart disease, most often in patients from the high-risk group ($p = 0.009$). Pregnancy-induced edema occurred significantly more often after 32 weeks of pregnancy in patients with congenital heart disease, most often in groups 1 – 37.9% and 3 – 35% ($p<0.001$).

Based on the totality of clinical and instrumental data, placental disorders were also significantly more often detected in women with congenital heart defects ($p<0.001$).

Thus, pregnant women with low- and moderate-risk congenital heart disease have a statistically significantly higher number of comorbid somatic pathologies (urinary tract diseases, thyroid diseases and disorders of the autonomic nervous system), and are also more likely to report tobacco smoking both before pregnancy and during gestation. Patients with congenital heart disease of low and moderate risk are statistically significantly more likely to terminate their previous pregnancy by induced surgical abortion compared to pregnant women from the control group and women with congenital heart disease of high maternal risk

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