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## Correction of disorders in the system “mother-placenta-fetus” in women with varicose disease of the lower extremities

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### Abstract

Recent studies have shown that the rare manifestation of varicose veins in pregnant women is varicose veins of the small pelvis, as well as varicose veins of the lower extremities and external reproductive organs. The presence of varicose veins in the system of internal iliac vein can contribute to the development of bleedings in the third period of childbirth, or can cause thromboembolic complications, secondary infertility.

Comprehensive approach to the study of arterial and venous circulation of the small pelvis during pregnancy, especially in the aspect of the symptom-complex “placental dysfunction” (PD) prevention in women with varicose veins of lower extremities (VVLE) is necessary nowadays.

The aim of the study – is to develop a method for correction of disorders in the system “mother-placenta-fetus” in women with VVLE.

**Keywords:** Childbirth, placental dysfunction, varicose veins of the lower extremities, therapeutic-preventive measures, perinatal pathology

### Introduction

Recent studies have shown that the rare manifestation of varicose veins in pregnant women is varicose veins of the small pelvis, which is defined as occasional findings in the cesarean section, as well as varicose veins of the lower extremities and external reproductive organs [1-3].

A number of authors [4-5] indicates a high frequency of detection of ectasia of venous vessels of the pelvis in the puerperae, which, in their opinion, explains the increase of inflammatory complications after childbirth in women suffering from vascular insufficiency of the veins of the lower extremities. The presence of varicose veins in the system of internal iliac vein can contribute to the development of bleedings in the third period of childbirth, or can cause thromboembolic complications, purulent-septic processes in the postpartum period; chronic inflammatory processes of the uterus and appendages, secondary infertility [6-8].

Nowadays the symptom-complex “placental dysfunction” (PD) occupies the highest proportion in the structure of the pathology of the perinatal period, morbidity and mortality of newborns. The development of new methods for diagnosis and treatment of PD is one of the promising areas of modern obstetrics and perinatology, since placental malfunction is one of the main causes of perinatal morbidity and mortality worldwide [1-8].

Thus, the presence of the symptom-complex “placental dysfunction” and vascular disorders in the pregnant women aggravates the course of the gestational process, adversely affects the fetal development of the fetus, worsening the indices of perinatal morbidity. There is no doubt that the necessary comprehensive approach to the study of arterial and venous circulation of the small pelvis during pregnancy, especially in the aspect of PD prevention in women with varicose veins of lower extremities (VVLE).

The aim of the study – is to develop a method for correction of disorders in the system “mother-placenta-fetus” in women with VVLE.

### Materials and Methods

For the solution of the determined aim, there were examined 90 patients, among them 60 were diagnosed varicose veins of the lower extremities (VVLE), who were divided into the following groups:

- 30 pregnant women with VVLE who received common therapeutic-preventive measures before and during pregnancy – group 1.

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- 30 pregnant women with VVLE who received the improved by us algorithm of therapeutic-preventive measures – group 2.

The control group consisted of 30 pregnant women without obstetric and somatic pathology, who gave birth through the vaginal delivery.

**Criteria of inclusion**

- Presence of uncomplicated forms of VV of the lower extremities;
- Age of women from 20 to 39 years old;
- Presence in the case history of 1 to 2 childbirths;
- Criteria of exclusion:
- Complicated forms of VV;
- Age of women of before 20 and after 40 years old;
- Presence of sub- and decompensated forms of extragenital pathology;
- More than 3 childbirths in anamnesis;
- Presence of scar on the uterus after a caesarean section or conservative myomectomy.

The commonly used tactics of management of pregnant women with VV included elastic compression of the veins of the lower extremities, the use of venotonics, vitamin preparations P, C, and a mixture of bioflavonoids (troxerutin) [9].

Algorithm of the management of pregnant women with VV improved by us, included the following additional points:

- Use of another mixture of bioflavonoids containing diosmin and hesperidin (Normoven);
- Use of arginine hydrochloride (Tivortin) for correction of dysmetabolic disorders;
- Administration of low molecular weight heparin (Clexane) for correction of dyshemostasiological disorders;
- Use of thrombocytes’ aggregation inhibitor (Cardiomagnyl) under the control of magnesium levels in the peripheral blood.

Dosage of all additional medicines was generally accepted, and the terms were selected individually (more often 10-12, 20-22 and 34-36 weeks of gestation) under the control of basic laboratory methods of study. The duration of one course was 10-14 days.

Clinical, functional, laboratory, morphological and statistical methods of research were included into the complex of the performed studies.

**Results and Discussion**

Analyzing the effectiveness of the proposed therapeutic-prophylactic measures, it is necessary, first of all, to note the absence of allergic and adverse reactions to the used drugs, as

well as cases of individual rejection.

In the first half of pregnancy, we have not observed probable differences, depending on the algorithm of used therapeutic-preventive measures, which is explained by their high frequency after 20 weeks of gestation.

In the second half of pregnancy, it was possible to observe a significant reduction of the frequency of major complications of pregnancy relative to group 1 (commonly accepted treatment-prophylactic measures): the threat of preterm labor (from 30.0 to 13.3%;  $p<0.05$ ); anemia in pregnant women (from 36.7 to 20.0%;  $p<0.05$ ); preeclampsia (from 20.0 to 10.0%,  $p<0.05$ ); PD (from 36.7 to 20.0%;  $p<0.05$ ); FGR (Fetal Growth Retardation) (from 23.3 to 13.3%;  $p<0.05$ ) and fetal distress (from 10.0 to 3.3%,  $p<0.05$ ).

The above-mentioned peculiarities of the clinical course of the gestational period contributed to an increase of the level of various complications in the course of the development, and depending on the algorithm of therapeutic-preventive measures. Thus, in women of group 2, we have determined a probable decrease of premature rupture of the fetal membranes (from 56.7% to 30.0%,  $p<0.05$ ); anomalies of labor (from 46.7% to 26.7%,  $p<0.05$ ) and cesarean section (from 16.7% to 10.0%,  $p<0.05$ ).

When analyzing the perinatal effects of childbirth, a possible increase of the level of satisfactory state of the fetus using the improved by us algorithm should be noted (from 53.3 to 83.3%,  $p<0.05$ ) against the background of a possible decrease of asphyxia of slight (from 23.3 to 13.3%,  $p<0.05$ ) and moderate degree (from 10.0 to 3.3%,  $p<0.05$ ) and absence of severe asphyxia and postnatal fetal death in group 2.

In the postnatal period, we have determined a probable decrease of the level of post-hypoxic encephalopathy (from 16.7 to 6.7%,  $p<0.05$ ); the implementation of intrauterine infection (from 10.0 to 3.3%,  $p<0.05$ ) and respiratory distress-syndrome (from 10.0 to 3.3%,  $p<0.05$ ) with the use of the improved algorithm of therapeutic-prophylactic measures. In the analysis of the puerperal period, attention is drawn to the absence of thrombotic complications and endometritis in women of the group 2, as well as the probable decrease of the frequency of lochiometra (from 10.0 to 3.3%,  $p<0.05$ ).

Thus, as the results of the performed clinical studies have shown, the use of improved by us algorithm in women with VVLE allows significantly reduce the incidence of obstetric and perinatal pathology in women at the group of high risk. For the scientific analysis of the obtained results we find it expedient to represent the results of additional research methods.

By evaluating the intrauterine condition of the fetus by means of cardiocography, depending on the algorithm of therapeutic-preventive measures, we have determined the clear differences in the cardiocography indices between the groups 1 and 2, which are represented in Table 1.

**Table 1:** Cardiocography of the fetus at full-term pregnancy

Indices	Control n=30	Groups of women	
		1 n=30	2 n=30
Acceleration amplitude, bpm	23.62±1.10	23.38±1.22	24.13±0.78
Number of accelerations per 1 hour	13.09±0.67	13.23±0.44	12.70±0.53
Duration of accelerations (min.)	9.79±0.51	9.82±0.60	9.27±0.64
Number of decelerations per 1 hour	-	0.05±0.01	-
Basal heart rate (bpm)	143.69±2.89	146.21±3.87	142.83±3.59
Variability of heart rate (bpm)	13.67±0.69*	9.17±0.31	12.97±0.65*

Note: probability \* -  $p<0.05$  – relative to group 1

As can be seen from the represented data, the use of the improved algorithm made it possible to increase the variability of heart rate (from  $9.17 \pm 0.31$  to  $12.97 \pm 0.65$ ,  $p < 0.05$ ), and all other indices were without probable differences ( $p > 0.05$ ).

As it is shown in Table 2, in women of group 2 the thickness of the placenta was probably increased (from  $25.91 \pm 1.24$  to  $36.32 \pm 1.16$  mm;  $p < 0.05$ ) with simultaneous decrease of the amniotic index (from  $277.34 \pm 11.74$  to  $210.09 \pm 6.04$ ;  $p < 0.05$ ), indicating the normalization of the placenta and volume of amniotic fluid in women of the group 2.

**Table 2:** Condition of the placenta and amniotic fluid in the full-term pregnancy

Показники	Groups of women		
	Control n=30	1 n=30	2 n=30
Thickness of the placenta (mm)	$38.61 \pm 0.97^*$	$25.91 \pm 1.24$	$36.32 \pm 1.16^*$
Amniotic index	$190.23 \pm 5.71^*$	$277.34 \pm 11.74$	$210.09 \pm 6.04^*$

Note: probability \* -  $p < 0.05$  – relative to group 1

We considered it reasonable to study the main biometric indices of the fetus in the full-term pregnancy (Table 3). The obtained results indicate that there is no probable change between the control and group 2 ( $p > 0.05$ ), and, against the background of generally accepted treatment-prophylactic measures, all biometric indices have been significantly lowered ( $p < 0.05$ ), which correlates with the high incidence of basal heart rate in women of the group 1.

**Table 3:** Fetal biometry in full-time pregnancy (mm)

Indices	Groups of women		
	Control n=30	1 n=30	2 n=30
BPD	$92.0 \pm 1.06^*$	$88.3 \pm 0.58$	$93.0 \pm 0.61^*$
AC	$348.8 \pm 2.30^*$	$289.5 \pm 7.48$	$352.2 \pm 4.94^*$
FL	$74.2 \pm 0.47^*$	$67.8 \pm 0.52$	$74.6 \pm 0.41^*$
OFC	$118.1 \pm 0.59^*$	$110.0 \pm 0.91$	$119.2 \pm 0.57^*$
DC	$66.0 \pm 0.23^*$	$61.6 \pm 0.57$	$65.6 \pm 0.24^*$
HL	$64.8 \pm 0.31^*$	$60.5 \pm 0.64$	$64.4 \pm 0.31^*$

Note: probability \* -  $p < 0.05$  – relative to group 1

In full-term pregnancy when assessing hemodynamic blood flow indices (Table 4) against the background of improved by us algorithm there is the approximation of the indicators to those of the control group ( $p > 0.05$ ), and in group 1 the violation of the blood flow in the vessels of the fetoplacental complex has a probable character ( $p < 0.05$ ).

**Table 4:** Hemodynamic parameters of blood flow in full-time pregnancy

Indices	Groups of women		
	Control n=30	1 n=30	2 n=30
SDR CBF <sub>R</sub> UA	$3.78 \pm 0.23^*$	$4.85 \pm 0.32$	$3.91 \pm 0.26^*$
IR UA	$0.71 \pm 0.04^*$	$1.23 \pm 0.12$	$0.76 \pm 0.06^*$
SDR CBF <sub>R</sub> MCA	$6.61 \pm 0.50^*$	$5.11 \pm 0.37$	$5.99 \pm 0.07^*$
IR MCA	$0.81 \pm 0.06^*$	$0.52 \pm 0.05$	$0.79 \pm 0.09^*$
SDR CBF <sub>R</sub> UA	$1.71 \pm 0.12^*$	$2.31 \pm 0.14$	$1.73 \pm 0.12^*$
IR UA	$0.43 \pm 0.03^*$	$0.62 \pm 0.06$	$0.44 \pm 0.02^*$

Note: probability \* -  $p < 0.05$  – relative to group 1

The data of the ultrasound examination of the veins of the lower extremities are shown in Table 5.

**Table 5:** Diameter of a trunk of a great saphenous vein in full-time pregnancy

Diameter of VSM (cm)	Control n=30	Groups of women	
		1 n=30	2 n=30
Saphenofemoral junction	$0.57 \pm 0.03$	$0.86 \pm 0.04$	$0.67 \pm 0.04$
Upper middle third of the thigh	$0.39 \pm 0.01$	$0.49 \pm 0.01$	$0.38 \pm 0.02$
P	$< 0.05$	$< 0.05$	$< 0.05$

In the dynamic observation in patients of group 2, against the background of the improved by us algorithm, there is a probable decrease of the lumen of the saphenofemoral junction and veins of the upper and middle third of the thigh ( $p < 0.05$ ) compared with the women of group 1.

In the study of hormonal status in the full-term pregnancy (Table 6), there is a normalization of all the parameters studied in relation to the control group ( $p > 0.05$ ), indicating a positive effect of the improved by us algorithm on the endocrine function of the fetoplacental complex.

**Table 6:** Endocrinological indices in full-time pregnancy

Indices	Groups of women		
	Control n=30	1 n=30	2 n=30
Estriol (nM/l)	$796.77 \pm 53.72^*$	$604.10 \pm 37.21$	$773.91 \pm 30.26^*$
Progesterone (nM/l)	$658.69 \pm 10.28^*$	$572.39 \pm 12.77$	$643.76 \pm 10.06^*$
PRL (nM/l)	$4435.29 \pm 219.39^*$	$3873.10 \pm 212.38$	$4235.99 \pm 210.07^*$
Placental lactogen (nM/l)	$2851.31 \pm 151.22^*$	$2173.38 \pm 162.82$	$2762.79 \pm 160.09^*$
Chorionic gonadotropin (nM/l)	$292.49 \pm 21.71^*$	$221.11 \pm 14.82$	$287.73 \pm 10.12^*$
Cortisol (nM/l)	$1741.38 \pm 121.77^*$	$2327.38 \pm 102.67$	$1680.44 \pm 108.02^*$

Note: probability \* -  $p < 0.05$  – relative to group 1

The normalization of hemodynamic, endocrinological parameters, respectively, positively influenced the fetal state

in patients of group 2, as evidenced by the biophysical profile of the fetus (Table 7).

**Table 7:** Biophysical profile of the fetus during full-time pregnancy

Indices	Control n=30	Groups of women	
		1 n=30	2 n=30
1	2	3	4
NST	3.00±0.16*	2.00±0.14	4.00±0.17*
DDF	2.00±0.14*	1.50±0.13	1.80±0.13*
Amniotic fluid volume	4.00±0.21*	2.20±0.20	4.50±0.19*
Fetal motor activity	5.00±0.30*	2.20±0.14	4.60±0.20*
Fetal tone	3.00±0.16*	2.50±0.16	3.40±0.18*

Note: probability \* -  $p < 0.05$  – relative to group 1

All of the parameters of the biophysical profile of the fetus studied in full-term pregnancy in women of the group 2 are significantly changing ( $p < 0.05$ ) relative to group 1, where generally accepted therapeutic-prophylactic measures were used.

In evaluating morphometric changes of the placenta (Table 8), it was determined, that morphometric indices clearly confirm the positive influence of the improved by us algorithm on adequate production and functioning of growth factors, the metabolism of the placenta and its ability to develop the necessary adaptation reactions.

**Table 8:** Morphometric changes of the placenta

Indices	Control n=30	Groups of women	
		1 n=30	2 n=30
Weight, g	530.08±21.75*	390.10±21.70	483.09±20.68*
Thickness, cm	3.52±0.17*	2.98±0.15	3.48±0.19*
Area of the maternal surface, cm <sup>2</sup>	286.20±11.71*	221.35±11.57	278.09±12.99*
FPC	0.18±0.01*	0.13±0.01	0.17±0.01*
Fetal weight, g	3350.08±129.79*	2620.20±84.57	3400.20±144.26*

Note: probability \* -  $p < 0.05$  – relative to group 1

Macroscopically, in such placenta, there was a decrease of point calcinosis in the form of white color inclusions, which passed into the depth of the cotyledons. Also, areas of thrombosis and hemorrhages in the cortical and intermediate villi were significantly less frequent, and hardening of intermediate villi was observed. Compared with group 1, in the placenta of pregnant women with varicose veins of the lower extremities, who received the improved by us algorithm, there was a decrease of cases of deposition of calcium salts in the stroma of villi, basal plate and in the structure of pseudo-infarctions at 13.3%, hemorrhages into the intervilli spaces at 23.3%), as well as hemorrhages and edema of amniotic membranes and umbilical cord at 10.0%, respectively.

### Conclusion

Thus, the obtained results testify to the positive influence of the improved by us algorithm not only on the clinical consequences of obstetric and perinatal pathology, but also on the functional state of the fetoplacental complex in women with VVLE.

### References

- Ageeva MI. Doppler studies in obstetric practice. M: Vidar, 2015, 112.
- Volkov AE, Okorokov AA. Diagnostic value of echography in varicose veins of the pelvis. Ultrasound diagnosis. 2014; 2:24-27.
- Gazdieva ZM. Varicose disease during pregnancy. Clinic, diagnosis and treatment: Extended abstract of dissertation PhD, med. Sciences. Rostov-on-Don, 1999, 16.
- Demidov BS. The clinical significance of Doppler in the diagnosis and prediction of placental insufficiency in the second and third trimesters of pregnancy: Extended abstract of dissertation PhD, med. Sciences. Moscow. 2000, 18.

- Eliseev OM. Cardiovascular diseases in pregnant women. M: Meditsina, 2014, 28.
- Zubarev AR, Bogachev IYu, Mitkov VV. Ultrasound diagnosis of diseases of the veins of the lower extremities. Moscow, 2009, 104.
- Milovanov AP. Functional morphology and mechanisms of regulation of the uteroplacental blood circulation. Bulletin of the Russian Association of Obstetricians and Gynecologists. 2014; 3:109-115.
- Proskuriakova OV. Dopplerography in gynecology. Moscow, 2009, 133-144.
- Antoniuk-Kysil VM, Dziubanovsky IYa, Yenikeyeve VM. Treatment of atypical forms of progressive varicose veins in pregnant women (varicose veins of the inguinal canal). Zdoroviye zhenshchiny. 2017; 5:57-62.
- Літературу слід оформляти відповідно до стилю Vancouver!!! Автори. Назва статті. Назва журналу. 2017; 45:23-45.