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PECULIARITY OF PREGNANCY AND LABOR IN WOMEN WITH VARICOSE DISEASE

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Abstract

The analysis was performed on data related to the course of pregnancy and childbirth of 100 women aged 21-42 years with varicose disease of different degrees of duration, severity and burden. Primiparas were 25 (25%) women, multiparas: 75 (75%). Necessary prenatal laboratory tests were performed for the all pregnant women. Particular attention was paid to indices of blood coagulation. Depending on the severity of varicose veins, all pregnant women were divided into 2 groups. The first group involved 39 (39%) women with unexpressed varicose veins (no pointed varicosities), limit dilatation vein on the foot and leg area. Group 2 included 61 (61%) women with evident varicose veins, which involved both lower extremities and external and internal genital organs.

In women surveyed there was a high frequency of obstetric complications, mainly after 25-26 weeks of pregnancy, when the venous pressure of the pelvic organs and lower extremities began to grow significantly due to compression of the retroperitoneal veins of the uterus. Proceeding from obstetric situation and intensity of varicose disease the optimal method of delivery was chosen.

Depending on the intensity of varicose disease and combined obstetric pathology the delivery occurred naturally in 39% and the cesarean section in 61%, while in four cases subsequent hysterectomy without adnexa was performed. In almost all cases elastic bandages were applied at the affected thigh area and in 10 (16.4%) cases prior to operation vessel surgery was performed: ligation of vena safena magna from the varicose side.

In 7 (11.5%) women venous thrombosis of the lower extremity was diagnosed. In 39 (63.9%) women upon opening of the abdominal cavity varicose veins of uterus and appendages were found. During the postpartum period puerperas continued to be under supervision, clinical and laboratory studies were repeated, the correction of therapeutic doses of medicine prescribed by vascular surgeon was done. Puerperas were discharged from the hospital in a satisfactory condition at 3-5 days postpartum, and 7 days after surgery under the supervision of an obstetrician-gynecologist and a vascular surgeon.

Pregnant women with varicose disease belong to the high risk group both according to obstetrical pathology and development of thrombosis, thrombophlebitis of veins of lower extremities and pelvis, as well as the most dangerous complication, pulmonary thromboembolism, which can lead to the sudden death, in view of which joint monitoring by obstetrician-gynecologist and a vascular surgeon is required for adequate management of pregnancy and delivery.

Keywords: *varicose veins, thrombophlebitis, pregnancy and delivery, thromboembolism, cesarean section, hysterectomy.*

INTRODUCTION

As a rule, varicose disease strikes lower extremities and is characterized by varix dilatation of different veins on one or both extremities.

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Varicose disease can affect any part of the body, but veins of legs and feet are more susceptible to varicose. Veins of lower body are under high blood pressure when standing and walking, so they are more prone to varicose disease [*Sabelnikov V., Shulepova E., 2001*].

Varicose veins are usually regarded in the syndrome of congenital dysplasia of the connec-

tive tissue, that is, the inherited deficiency carcass of a vein wall, resulting in a state when even normal hydrostatic load leads to increased subcutaneous routes. Therefore, even after radical treatment the varicose disease may continue to progress, affecting more and more new veins, and all patients with varicose veins need constant dispensary observation. Varicose disease occurs in 50-60% of population in developed countries [*Sabelnikov V., Shulepova E., 2001*].

The likelihood to develop varicose veins in women is several times larger than that of men. About 20% of men and 40% of women suffer from different forms of this disease [*Mikhin S., Spiridonov E., 2006a*].

In women varicose disease mostly appears after delivery, aborts, as well as in case of hormonal therapy. Varicose veins, in turn, complicate the course of subsequent pregnancy and delivery [*Mikhin S., Spiridonov E , 2006a*].

The pathological process involves both superficial and deep veins, walls of veins become thinner, their valves expand and lose the function of keeping the blood. Instead of active movement to the heart blood remains inactive too long in dilatated veins and particular during tension, cough, straining effort tend to the foot [*Mashinski A., 2005*].

Varicose is a lasting condition that does not disappears itself. For a long time it is manifested only as a cosmetic defect; however the progressive development of the disease leads to complications: painful sensation, edema, venous lameness, pigmentation, lipodermatosclerosis, inflammatory changes and trophic ulcers [*Kutin A. et al., 2005*].

Varicose veins often accompany pregnancy and may complicate its course. Taking into account the anatomical features varicose veins of lower extremities and varicose veins of the pelvis are distinguished. This division is somewhat arbitrary. In the majority of cases both forms can occur in patients. In the first trimester the main pathogenetic mechanism of varicose veins emergence is a change in hormonal levels. Changing levels of estrogen and progesterone contribute to changes in blood vessel wall. Increasing the concentration of progesterone reduces the tone of smooth muscles of the venous wall, reducing its excitability and electrical activity, promotes the stretching of the venous wall, which rises to 150% of norm, returning to it after 8-12 weeks after delivery. Uteroplacental blood flow increases to 500 *mL/min* [*Mikhin S., Spiridonov E. 2006 b;c*].

Later on the mechanical components of pregnant uterus pressure to the venous vessels of the pelvis is added. Due to increasing plasma volume and expansion of the vascular bed there occurs a significant change in volume of circulating blood creating an additional impact on the vessels of the lower extremities. In addition to the hemodynamic changes in pregnant women there are changes in the venous wall and venous valves, which can be combined with a congenital deficiency of the connective tissue [*Mikhin S., Spiridonov E., 2006d*]. By the 3rd trimester of pregnancy there is a significant increase in the diameter of femoral and great saphenous veins. After birth, the diameter of the greater saphenous veins is reduced, but not to the original values, which, of course, may eventually lead to development of veno-venous high-relief or reflux, that is abnormal blood flow from the system deep in the system of surface (subcutaneous) veins. In this case, the excess of blood volume (hypervolemia) and high blood pressure (hypertension) cause the transformation of the subcutaneous venous network (expansion and pathological tortuosity), which is not adapted to such influences and has no strong frame structures in its own wall and surrounding tissues [*Saveleva G., 2000; Saveleva V., Kirienko A., 2005*].

Congenital or acquired degenerative-dystrophic changes in valvular veins and their relative or absolute failure are usually indicated as the reason of abnormal blood flow. Under the relative failure to understand the lack of closing the valve leaflets due to stretching of the veins and the relative lack of length of the leaf valve. The absolute failure is lack of complete closure of the valves due to their organic lesions (fracture, shortening) [*Shekhtman M., 2005*].

The aim of this research was to study peculiarities of pregnancy and the choice the optimal method of delivery for women with varicose disease.

Table 1

Pregnancy term at the admitting

Pregnancy term	Number of pregnant women (n=100)	Quantity of pregnant women, %
30-32 week	4	4
33-35 week	6	6
36-38 week	37	37
39-41 week	53	53

MATERIAL AND METHODS

The analysis of data on pregnancy and delivery of 100 women has been carried out. The age range was 21-42 years; 35 (35%) of women were at the age of 21-27 years, 51 (51%): 28-35 years, and 14 (14%): 36-42 years. At the time of admitting, the term of pregnancy was 30-32 weeks in 4 (4%), 33-35 weeks in 6 (6%), 36-38 weeks in 37 (37%) and 39-41 weeks in 53 (53%) women (Table 1).

Primiparas were 25 (25%) women, multiparas: 75 (75%). All the observed women suffered varicose disease.

Depending on the severity of varicose veins, all pregnant women were divided into 2 groups:

- the first group included 39 (39%) women with no pointed varicosities, limited dilatation of veins in the foot and leg area;
- the second group embraced 61 (61%) women with evident varicose, which involved both lower extremities and external and internal genital organs.

Complicated obstetric history (spontaneous and artificial abortion, missed abortion, intra uterine growth retardation, pathological attachment of the placenta and its manual separation was revealed in 39 (39%) of women.

Complicated gynecologic history (primary infertility, hypothalamic syndrome, hyperprolactinemia, uterine benign tumor (myomas), ureaplasma, chlamidia, genital herpes, cytomegalovirus, papillomavirus, inflammatory disease of female genitals, ovarian apoplexy, operational interference on adnexa, diatermocoagulation of uterine cervix was recorded in 67 (67%) of women.

Complicated somatic history (varicose disease, hyperthyroidism, hypothyroidism, cholecystitis, gastritis, hypertension, pyelonephritis, urolithiasis) was detected in 26 (26%) of women.

Necessary prenatal laboratory tests were performed for all pregnant women. Special attention was focused on coagulated blood system indices, which revealed the following: for 39 (39%) women coagulations were without peculiarities (Table 2), while in 61 (61%) women the increase of fibrinogen from 11.8 to 18.9 *mcmol/L,* prothrombin index from 101 to 105%, time to recalcification up to 144 seconds, tolerance of plasma to heparin till 8 minutes 40 seconds was recorded (Table 3).

The prescription of the varicosities in 15 (15%) women was 1 year, in 30 (30%): 2 years, in 36 (36%): 3 years, in 19 (19%): 4 and more years (Table 4).

Before the present pregnancy 45 (45%) women received symptomatic treatment, 16 (16%) women pointed to acute attack of the disease at the first term of pregnancy, 34 (34%) in the second and 50 (50%) in the third term of pregnancy. Symptoms of the disease were mainly observed after 25-26 weeks of pregnancy when venous pressure of the small pelvis and lower extremities began to grow due to compression of the retroperitoneal veins of the uterus.

In examined women some complications were observed during the present pregnancy: threatened abortion was in 35, threatened preterm labor was in 62, fetus chronic intrauterine hypoxia (in 10 cases changing to acute) was in 59 women, low degree of pregnant's anemia in 48, edema of pregnant's in 34, early toxemia in

Table 2.

Indices of coagulated blood system at 1st group (n=39)

Indices	Results
Fibrinogen	5.9-11.8 μmol/L
Prothrombin index	80-101%
Time to recalcification	60-121 seconds
Tolerance of plasma to heparin	7 minutes 11 seconds

Table 3.

Indices of coagulated blood system at 2nd group (n=61)

Indices	Results
Fibrinogen	11.8-18.9 μmol/L
Prothrombin index	101-105%
Time to recalcification	121-144 seconds
Tolerance of plasma to heparin	8 minutes 40 seconds

Table 4.

The prescription of the varicosities

Duration	n=100	%
1 year	15	15
2 years	30	30
3 years	36	36
4 years and above	19	19

15, mild preeclampsia in 6, heavy preeclampsia in 2, placenta previa in 4, big fetus in 6, premature separation of placenta in 7, incompetence of the uterine scar in 6, malpresentations in 9, acute condition of chronic herpes in 2, olygoamnion in 4, hydramnion in 5 women (Table 5).

In 38 of pregnant women obesity was revealed: the first degree was observed in 8, the second in 20, the third in 10.

All pregnant women received appropriate treatment for both removal of obstetric pathology and correction of varicose disease (under supervision of vessel surgeon), which was effective in most cases.

Labor analysis of 100 women was done.

The delivery was complicated by premature rupture of the membranes in 32 cases, primary failure of labor in 17, secondary failure of labor in 6, preterm labor in 45 cases (Table 6).

Proceeding from obstetrics situation and intensity of varicose disease the optimal method of labor was chosen.

RESEARCH RESULTS

In the first group we included 39 women with no pointed varicosities, limited dilatation vein in the foot and leg area with term or near to term of pregnancy, which were delivered per vaginal. In 34 cases there was ligation of the leg elastic bandage. The labor was uneventful, passed without particularities.

Hemorrhage was within normal limits. Postnatal period in the first group was without complications. All recently confined women of the first group underwent repeated clinical-laboratory tests. Special attention was paid to the coagulated blood system indices, which were without specific features. Women of the 1st group were discharged from maternity home on the third day of postnatal period.

In the second group there were 39 women with evident varicose that involved both lower extremities and external and internal genital organs. At the same time, a serious obstetric pathology was observed in this group. In 7

Table 5.

Complications during the pregnancy

The name of pathology	First group (n=39)		Second group (n=61)	
	number	%	number	%
Threatened abortion	10	25.6	25	41
Threatened preterm labor	23	59	39	64
Fetus chronic intrauterine hypoxia (in 10 cases changing to acute)	18	46.2	41	67.2
Low degree of pregnant's anemia	19	48.7	29	47.5
Edema of pregnant's	9	23.1	25	41
Early toxemia	6	15.4	9	14.8
Mild preeclampsia	2	5.1	4	6.6
Heavy preeclampsia	-	-	2	3.3
Placenta previa	-	-	4	6.6
Big fetus	3	7.7	3	4.9
Premature separation of placenta	-	-	7	11.5
Incompetence of the uterine scar	1	2.6	5	8.2
Malpresentations	2	5.1	7	11.5
Sharpen of chronic herpes	-	-	2	3.3
Olygoamnion	1	2.6	3	4.9
Hydramnion	1	(2.6)	4	(6.6)

Table 6.

Complications during the delivery

Complications during the delivery	First group		Second group	
	n=39	%	n=61	%
Premature rupture of the membranes	14	35.9	18	29.5
Primary failure of labor	6	15.4	11	18
Secondary failure of labor	2	5.1	4	6.6
Preterm labor	10	25.6	35	57.4

women thrombophlebitis of lower extremities veins was detected.

In view of existing pathology women of that group delivered by cesarean section.

In 51 cases elastic bandage was previously applied at the affected thigh area and in 10 cases, prior to operation, vessel surgeon performed ligation of *vena safena magna* from the varicose side. In 4 cases in view of *placenta accretta* the extent of operation was dilated and hysterectomy without adnexa was performed.

In 39 women during the operation uterine and adnexal vein varicose was detected. In all cases the operation passed without complication. Average blood loss was within the normal range of 500-600 *mL*. Postoperative progress was uneventful. All women were under constant supervision of the obstetrician-gynecologist and

the vascular surgeon.In the second group all women giving birth underwent repeated clinical laboratory tests. Special attention was also devoted to the coagulated blood system indices, which revealed:

- in 42 women coagulations were without peculiarities ,
- in 19 women increase of fibrinogen from 11.8 to 14.06 *μmol/L,* prothrombin index from 101 to 103%, time to recalcification up to 130 seconds, tolerance of plasma to heparin till 7 minutes 45 seconds.

During the postnatal period puerperas received conformable corrective therapy. Elastic bandaging lasted several days in postnatal period. Puerperas were discharged from the hospital in 7 days after surgery under the supervision of an obstetrician-gynecologist and a vessel surgeon.

DISCUSSION

The analysis of pregnancy and labor of women with varicose disease showed increased frequencies of obstetrical complications that were the base for the choice of labor optimal method.

Proceeding from obstetrics complications and severity of varicose veins the optimal method of delivery was chosen:

- in 39 cases of birth held by vaginal;
- in 61 cases delivered by cesarean section;
- in 4 cases (out of 61) subsequent hysterectomy without adnexa was performed;
- in 12.3% of cases, prior to operation there was necessary intervention of a vessel surgeon: vessel surgeon performed ligation of *vena safena magna* from the varicose side;
- in 7 women thrombophlebitis of lower extremities veins was detected;
- in 39 women on the opening of the abdominal cavity varicose veins of the uterus and appendages were revealed.

Pregnant women with varicose disease belong to the high risk group due to both obstetrical pathology and development of thrombophlebitis and thromboembolism of pulmonary artery, which can lead to a sudden lethal outcome; therefore, combined observation of obstetrician-gynecologist and vessel surgeon is required for their adequate management of pregnancy and labor.

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