ISSN: 2755-0168

Journal of Biotechnology & Bioinformatics Research

SCIENTIFIC Research and Community

Research Article

Open Access

Results of using the Components of the FAST TRACK Surgery Protocol in Planned Non-Obstetric Surgical Interventions During Pregnancy

Antonyuk Kysil Volodymyr[1]*, Dziubanovsky Igor[2], Yenikeeva Viktorya[1], Lichner Bogdan[1] and Afonin Dmitii[3]

[1]Department of Obstetrics and Gynaecology, Regional Perinatal Center, Rivne, Ukraine

[2]Department of Surgery, Medical University Ternopil, Ukraine

[3]Department of Surgery, Medical University Rivne, Ukraine

ABSTRACT

Purpose: Evaluates the results of the use of components of the FAST TRACK surgery protocol in elective non-obstetric surgical interventions during pregnancy.

Material and Methods: Planned surgical treatment was performed on 457 pregnant women in the second and third trimesters with primary symptomatic chronic venous disease (PSCP) C2S-4s, Er, As, p, Rg (according to the CEAP 2002 basis classification) using elements of the FAST TRACK surgery protocol.

Results: A multidisciplinary approach to management before and after surgery using the components of the FAST TRACK surgery protocol was used in all patients. They were hospitalized in a specialized obstetric hospital on the day of surgery. All patients underwent perinatal psychotherapeutic preparation of the pregnant woman and fetus for surgery. Planned surgical interventions of the CHIVA type were performed under local anesthesia by a vascular surgeon - the so-called "mono-technologist" or "obstetric vascular surgeon" in the 11-111th trimesters of pregnancy - optimal timing. Due to these factors, 97.2% of operated patients received a positive clinical effect with a 100% absence of complications from the fetus and mother in all operated patients. Treatment did not lead to premature birth, complications of pregnancy. The postoperative period is comfortable. All children were born on time and in satisfactory condition.

Conclusion: A multidisciplinary approach to the management of pregnant women with primary symptomatic chronic venous disease before and after surgery using the components of the FAST TRACK surgery protocol contributes to a comfortable, safe bearing of pregnancy, safety of childbirth and the postpartum period in 100% of operated patients. There was a need for medical support in the postoperative and postpartum periods, in addition to the use of elastic knitwear of compression class 2 (stockings or knee-highs) during physical exertion. In 2.4% of operated patients, postoperative complications from postoperative wounds were noted, which did not require additional treatment, did not affect the development of the child, the course of pregnancy.

***Corresponding author**

Antonyuk Kysil Volodymyr, Department of Obstetrics and Gynaecology, Regional Perinatal Center, Rivne, Ukraine.

Received: May 02, 2025; **Accepted:** May 08, 2025; **Published:** May 16, 2025

Keywords: Non-Obstetric Pathology, FAST TRACK Surgery Protocol, Non-Obstetric Elective Surgical Interventions, Multidisciplinary Approach

Introduction

The development of society at the present stage with its intensive pace of life, with the growth of the role of women in it, prompted the search for new concepts for the treatment of this contingent of patients if necessary. A special place is occupied by the treatment of women during pregnancy. 32%-80% of pregnant women have gestational chronic vein disease (chronic vein disease according to the classification of basic CEAP, 2002) of the lower extremities in the basin of saphenous veins, perineum, external genitalia (basin of non-saphene veins) or in combination thereof. Among women who often become pregnant with short intervals between pregnancies, this pathology accounts for 5.6% of all extragenital pathology. The diagnosis of this pathology is almost solved today, thanks to duplex scanning. At the same time, the treatment of patients with venous pathology requires its urgent solution, since it is an urgent medical and social problem due to the high prevalence of this pathology among women of reproductive age and complications, especially during pregnancy and in the postpartum period [1-6]. In domestic and foreign literature, there are numerous views on the treatment of chronic venous disease in pregnant women with this pathology. There is a constant search and study of opportunities for the implementation of new directions in solving this problem.

The treatment of chronic venous disease during pregnancy is currently based on complex conservative therapy, consisting of the use of phlebotropic drugs and compression stockings

compression class 2, although the question of the advisability of prescribing phlebotropic drugs to all pregnant women with primary symptomatic chronic venous disease is being discussed, since there are restrictions on their use. According to some authors, their use is justified if the benefits outweigh potentially negative reactions in the mother or fetus [7-10]. Positive results were obtained in 54-76% of patients [11,12]. The maximum reduction in the intensity of pain syndrome (by approximately 50%) was observed in the first 2 months of treatment. In the future, this trend is less pronounced [13].

Noteworthy is the opinion of L.I. Romanchuk and I.M. Malanchyn, which proceeds from the serious complications that accompany CVD [14]. The authors believe that the contemplative and passive tactics of managing such pregnant women seem unreasonable, however, radical methods of treatment during pregnancy are unjustified, especially from the first manifestations of the disease.

Maley M. drew attention to the fact that the surgical method of treatment is possible if conservative therapy is ineffective or if it is impossible to use it for one reason or another [15].

The vast majority of surgeons and obstetricians and gynecologists are opponents of planned surgical interventions on the venous system of the lower extremities, perineum, external genital organs during pregnancy, and postpone them for the period after childbirth and the end of breastfeeding, and some recommend performing surgical interventions for women after the end of reproductive age due to fears of possible postoperative problems both in pregnant women and in the fetus. One of the main reasons for the development of complications is considered to be surgical trauma and stress, which today, in their opinion, is the main reason limiting the indications for planned surgical treatment of pregnant women with PSCP [16-18].

The current level of development of medicine contributes to solving this problem due to new approaches to the organization of medical care for this contingent of patients, the introduction of methods of psychological preparation of pregnant women reduces the stress response of the body and the fetus to the offer of surgical intervention and its implementation, the use of minimally invasive surgical interventions. All these requirements are met by the FAST TRACK SURGY (FTS) program, developed and launched for use in the 90s of the XX century by the Danish anesthesiologist N. Kechlet [19-21]. The author, having analyzed the pathophysiological mechanisms of complications after elective surgical interventions, proposed a multicomponent system of measures aimed at reducing the body's stress responses to surgical aggression, which improves the clinical results of planned surgical treatment with a high degree of safety. He formed 18 components of the FTS program and it began to be perceived as a new direction, the evolution of surgical treatment [22].

The use of the components of the "fast-track surgery" program involves their use only in a complex based on the principles of evidence-based medicine in the perioperative period, aimed at reducing postoperative complications, reducing the time of hospitalization, rehabilitation for a short time, reducing the degree of stress manifestations in both the mother and the fetus with minimizing the appropriate reaction of the pregnant woman's body to surgical trauma [23-28].

One of the main components of this program for achieving positive clinical results of elective surgical treatment that is safe for both the pregnant woman and the fetus is a multidisciplinary (team) approach to solving this problem. The team may include an obstetrician-gynecologist, a vascular surgeon, an anesthesiologist, a sonographic doctor, a therapist, nursing staff, and, if necessary, other specialists. A positive result can be achieved only with their coordinated work [25-27].

This problem is solved in a specialized (obstetric) hospital with hospitalization of the patient on the day of surgery, using surgical technologies with minimal surgical aggression, performed by a vascular surgeon "monotechnologist" in the optimal time for the pregnant woman and the fetus, after perinatal psychotherapy in order to minimize stress reactions in the pregnant woman and the fetus to the offer of surgical intervention and the surgical intervention itself [27,28].

At present, therapeutic tactics for primary symptomatic chronic venous disease during pregnancy remains a matter of debate. There are no generally accepted approaches to the choice of treatment methods, and especially indications for elective surgical care.

Having studied and analyzed the literature available to us on the planned surgical treatment of primary symptomatic chronic venous disease during pregnancy, we noted that not enough attention was paid to this problem. The issues are discussed both regarding the organization of planned surgical care, the choice of a medical institution where planned surgical care will be provided, and the volume of surgical intervention. There is no information on the use of the FAST TRACK surgery program specifically during the planned surgical treatment of this pathology [29-32].

Purpose of the Study

To evaluate the results of the use of components of the FAST TRACK surgery protocol in elective non-obstetric surgical interventions during pregnancy.

Materials and Methods

The study included 457 pregnant women operated on as planned due to primary symptomatic chronic venous disease C2s-4s, Er, As, p, Rg (according to the CEAP 2002 classification basis) from 2015 to 2019 on the basis of the Department of Extragenital Pathology of the Municipal Enterprise "Rivne Regional Perinatal Center" of the Rivne Regional Council. Age of pregnant women from 19 to 42 years. average age 24+/- 7 years. First pregnancy – 130 (28.45%), repeated pregnancy – 327 (71.53%). Gestational age is 28-38 weeks. In all planned operated pregnant women with primary symptomatic chronic venous disease, most of the common components and patients adapted to this contingent of patients of the FAST TRACK surgery protocol were used, distributed according to the stage of treatment, taking into account the specifics of the patients:

At the Preoperative Stage

- Informed the patient about the surgical intervention with live, active participation at all stages of surgical treatment;
- Received written consent to surgical intervention from a pregnant woman, after coordination by her with her husband and close relatives (parents);
- Perinatal psychological preparation of the pregnant woman and fetus was carried out;
- Refused to use mechanical cleansing of the large intestine;
- Abandoned premedication with opium analgesics, replacing it with "verbal";
- Abandoned preoperative fasting;

- Prescribed carbohydrate drinking cocktails 1-2 hours before surgery;

At the Intraoperative Stage
- Local anesthesia was used;
- Continued verbal and distraction therapy;
- Minimally traumatic atypical open surgical interventions were used;
- Prevented hypothermia of the pregnant woman's body during surgery;
- Refused, if possible, to use drainage of postoperative wounds;

At the Postoperative Stage
- Abandoned the use of opioid analgesics to reduce postoperative pain;
- Used early enteral nutrition habitual for the patient;

Used early activation of patients from the first hours after surgery. Blood flow through the veins of the lower extremities (superficial and deep), iliac, accessible to view by duplex scanning with the Lanwind Mirror 11 device (Italy) with a linear sensor with a frequency of 8-10 MHZ before and after surgery, with the obligatory Valsalva test in the supine and standing position, was also studied. The intensity and dynamics of postoperative pain in the early postoperative period (the first 24 hours after surgery) were assessed every 6 hours using the circadian visual-analog scale (c-VAS) by V.S. Astakhov and co-author. with an interpretation of the results by Jensen M.R. et al. [33,34]. Particular attention was paid to the possible effect of postoperative pain on the change in the position of the pregnant woman in bed, which, before surgery, ensured safe comfort of the fetus, the so-called pain at rest (static pain). With the help of cardiotocography, the effect of planned surgical intervention on the fetal heartbeat, uterine tone on the Teamcare V7.43 device 30 minutes before surgery and 30 minutes after the intervention was studied in dynamics. Cardiotocography was recorded for 20 minutes.

Results and Discussion

Among 19,789 patients treated and given birth in the regional perinatal center, 995 (5.02%) pregnant women were diagnosed with CVD. After performing a duplex scan, 895 (89.95%) patients were diagnosed with primary chronic venous disease (ER according to the CEAP classification of 2002). Among this group of pregnant women, 785 (78.89%) showed progression of the disease from the first weeks of pregnancy. which depended on the trimester of pregnancy. Treatment was carried out on an outpatient basis under the supervision of an obstetrician-gynecologist and a vascular surgeon. 529 (67.38%) patients with PSCP did not receive a positive result from conservative therapy.

One of the reasons for the lack of a positive clinical result from conservative therapy was that 45.5% of pregnant women could not use compression stockings (knee socks, stockings), which is one of the main components of this therapy. After performing a duplex scan of the saphenous veins and inguinal canals, they established a descending development of the primary symptomatic chronic venous disease, the spread of pathological reflux through the subcutaneous-femoral fistula to the proximal branches of the large saphenous vein into the bundle of Delbe (lateral, medial, external pubic veins), the femoral and tibial segments of the large saphenous vein and/or from the dilated veins of the inguinal canal or perineum to the saphenous veins of the thigh and lower leg.

Also, in 23% of pregnant women, the progression of clinical manifestations of chronic venous insufficiency in primary symptomatic chronic venous disease was detected, due to duplex scanning, an increase in the failure of the ostial and/or priostial valves and / or valves of perforating veins. If at the beginning of the disease in 85% of patients reflux was localized within the thigh with subcutaneous-femoral reflux or in the upper third of the lower leg with subcutaneous-popliteal reflux or in combination, then with the progression of the disease, reflux spread to the entire length of the thigh in 23.4% of the examined; on the thigh, lower leg and/or foot in 12.3% of pregnant women, in addition, pronounced reflux was noted due to the subcutaneous-femoral fistula into the proximal branches of the large saphenous vein, which forms the Delbe bundle, and in 25.3% additional refluxes appeared due to failed valves of perforating veins, mainly on the lower leg.

Therefore, compression of the distal parts of the lower limb (lower leg and/or thigh) with elastic knitwear in this group of pregnant women contributed to hypervolemia in the veins of the Delbe bundle, external genitalia, perineum, which was clinically manifested by an increase in pain and discomfort, the spread of varicose veins mainly in the external genital organs, perineum, upper third of the thigh, which caused failure.

The obstetrician-gynecologist asked the vascular surgeon about the possibility of choosing an effective method of treating progressive pathology with ineffective conservative therapy.

After receiving the final results of the examination and treatment at the council by a collegiate obstetrician-gynecologist and vascular surgeon, if necessary with the participation of other specialists, taking into account the obstetric status of the pregnant woman, manifestations of venous pathology, after assessing the risks of exposure to the pregnant woman and the fetus of anesthesia and surgical intervention, a decision is made on possible options for further treatment, which are brought to the attention of the pregnant woman. All pregnant women operated by us took an active part in planning the choice of treatment method, especially surgical, and evaluating its effectiveness. The patient was informed about the existing methods of surgical intervention and the surgical method that was offered. For an easier and better understanding of the stages of surgical intervention by the patient, reducing her anxiety, 87.5% used communication with patients in the department who underwent the same type of surgical interventions, in 12.5% they used brochures and posters. The final choice of treatment method remains with the pregnant woman. A pregnant woman does not accept written consent to surgery on her own, but only after agreement with her husband and family (parents). 457 (45.93%) pregnant women with C2s-4s, Er, As, p, Rg (according to the CEAP 2002 basis classification) were operated on.with primary symptomatic chronic venous diseas. We have formed an appropriate strategy for planned surgical treatment of primary symptomatic chronic venous disease based on the FAST TRACK surgery program using most of its components. The program is based on a multidisciplinary approach in a specialized obstetric hospital.

Indications for Elective Surgery

In 286 (62.58%) pregnant women, clinical manifestations of the disease progressed despite conservative therapy; 61 (13.35%) patients have a pronounced deterioration in the quality of life and restriction of social activity, an increase in cosmetic problems; in 110 (24.07%) - active prevention of hemorrhagic, thrombophlebitis and thromboembolic complications both during pregnancy and in the postpartum period, and a decrease in the frequency of surgical delivery.

495 surgical interventions were performed: 339 (74.18%) patients in the second trimester of pregnancy and 118 (25.82%) patients in the third trimester. Surgical interventions for 346 (75.49%) pregnant women were performed on one limb and 111 (24.29%) cases on two limbs (56 pregnant women in one session, and in 55 cases - every other day). In our opinion, the optimal period of pregnancy for the safe performance of elective surgery is the gestational age of the fetus - 28-38 weeks. During this period, the fetal organ systems and especially cardiac activity are already fully formed, which acquire properties inherent in similar organs and systems of the baby, due to which there is a maximum possibility of correctly assessing the condition of the fetus before and after surgery. For the mother, this is the period from the middle of the second to the middle of the third trimester of pregnancy, when most pregnant women have stabilization of the psyche, there is a minimal threat of premature birth. This is the period of the lowest frequency of manifestations of inferior vena cava syndrome in its minimal manifestations [35-39]. During these periods, we performed 98.5% of planned surgical interventions. The purpose of surgical intervention is to strive for the maximum possible normalization of venous hemodynamics by surgery through the elimination of pathological refluxes in the area of femoral-subcutaneous and/or subpopliteal-subcutaneous joints, perforating veins on the thigh and/or lower leg, diagnosed by sonography with the removal of varicose reservoirs (conglomerates) if necessary.

In all cases, planned surgical interventions were performed only in a specialized obstetric institution with trained medical personnel (medical, secondary) to monitor the condition of pregnant women and fetuses before, during and in the postoperative period, equipped with appropriate diagnostic equipment for timely detection of abnormalities, and able to immediately begin treatment. In addition, the capabilities of the institution allow performing surgical interventions on the venous system of the basin of saphene and/or non-saphene veins on its basis, since surgical interventions do not require specific conditions and special surgical instruments, peculiarities in the training of paramedical personnel in the operating room for their implementation.

Perinatal psychological preparation of mother and child was carried out by all operated patients. The main goal is to reduce the patient's stress response to both the proposed surgical treatment of the pathology and the surgical trauma through psychoprophylaxis. Unfortunately, until recently, the psychological side of pregnancy, childbirth and interaction with the fetus was not decisive and therefore was not taken into account in the links of traditional medicine. It is noted that the severity of stress during pregnancy is influenced not by the event itself that caused it, but by the reaction of the pregnant woman to what happened. In addition to affecting the body's nervous system, stress also suppresses the already weakened immune system of the expectant mother [37,40,41]. We noted that the child reacts sensitively to changes in the mother's emotions by his behavior (impulses). Our operated pregnant women noticed gender inequality in the response to stress: the male fetus reacts more violently to surgical stress than the female fetus. The expectant mother notes when she is nervous - she feels excessive movements in her own womb, interpreting them with the words: "mischievous", "hooligan", "pushing" or "moving strongly". This is due to the fact that at the time the expectant mother experiences a nervous shock, vasospasm occurs, and the child experiences oxygen starvation and lack of nutrients [37].

Using the authors' experience, at our request, parents, most often mothers of all of us operated on, used a psychological (telepathic) way of influencing the fetus, based on the dyad "mother-child" and/or the triad "mother-child-father", based on the idea that "maternal and paternal love is a single emotional field". We noted in 98.8% of operated patients the positive effect of perinatal psychotherapy, which led to a decrease in manifestations of stress in the fetus. The mothers did not notice excessive movements in their own womb, which would be interpreted by the words: "mischievous", "hooligan", "pushing" or "moving strongly", the rhythm of life "activity-sleep" was not disturbed [42,43]. In all cases, complete fasting and preparation of the large intestine before surgery were abandoned. We used the approach recommended by the European Society of Anesthesiology, USA, Great Britain, which is based on the fact that refusal to take solid food 6 hours before the operation and the so-called clean liquid 2 hours before the operation is not desirable, since it does not carry an additional risk of aspiration and at the same time objectively increases comfort, reduces the degree of thirst in patients.

All pregnant women operated on by us consumed carbohydrate drinking cocktails in a volume of up to 250-400 ml an hour before surgery. Consuming carbohydrates in the form of liquids provides additional benefits – it reduces hunger and thirst, helps reduce stress by stimulating the production of serotonin, and reduces patient anxiety [44-46]. At the intraoperative stage, they abandoned drug premedication, replacing it with a "verbal" one, and continued it during surgery. An anesthetic for short-acting local anesthesia (concentration, volume) was used, taking into account the physiological characteristics of the pregnant woman, which made it possible to adequately perform the planned pathogenetic planned open surgical treatment in full, safe for the mother and fetus. The normothermy of the patient's body was observed by creating comfortable conditions in the operating room during the surgical intervention. They abandoned the routine use of drains. They used low-traumatic surgical approaches and open atypical pathogenetic mini-surgical technologies, which were performed by a "mono-technologist" surgeon registered in the staff of the institution, who has specific knowledge of the anatomy of the development of primary symptomatic chronic venous disease in pregnant women, with relevant experience in surgical interventions, who can use this knowledge in the surgical treatment of pregnant women.

All surgical interventions were performed as planned in 98.6% of patients on the day of hospitalization in an obstetric hospital without premedication, using tumescent anesthesia and surgical techniques of the CHIVA type for anesthesia for anesthesia in the descending development of primary symptomatic chronic venous disease in 357 (78.12%) patients, and in the ascending development of the disease, a combination of CHIVA and ASVAL techniques was used in 100 (21.88%) pregnant women.

We have introduced and use a combination of distraction therapy (squeezing a tennis ball or rubber toy in the hand) with verbal therapy, which reduces psycho-emotional stress in a pregnant woman. We also took into account the fact that each pregnant woman operated by us in 98.5% has an individual position in bed - safe and comfortable for the fetus (on the left side), the same was used on the operating table in order to prevent the development of aorto-caval syndrome or inferior vena cava syndrome. The surgical intervention lasted 100% up to an hour.

Analysis of the results of planned surgical treatment of 457 (1.5%) pregnant women with venous pathology C2S-C4S, EP, As, p, Pr (according to the CEAP classification basis, 2002), operated in an obstetric hospital, according to the developed indications, at the optimal gestation period of 28-38 weeks, showed that in

the postoperative period, all operated complications directly related to the performance of surgical interventions were not observed. Assessment of the effect on fetal cardiac activity of planned surgical treatment according to the FAST TRACK surgery protocol began to be studied 30 minutes before surgery and 30 minutes after the end in comparison. It was evaluated according to the following parameters: basal heart rate, heart rate variability (amplitude and frequency of oscillations); the presence and type of temporary changes in the form of acceleration (acceleration) or deceleration (deceleration) of the heart rhythm with the help of cardiotocography. Cardiotocography recording was performed for 20 minutes. (Table 1).

Table 1: Evaluation of Cardiotocography Results

Showcases	30 minutes before surgery	30 minutes after surgery
basal heart rate (bpm)	130 +/-20.5 (normocardia)	140+/-10.3 (normocardia)
Variability (bpm)	Wavy 15+/-10,5	Wavy 20+/-4,1
Frequency of oscillations cycle/min	2+/-0,8	5+/-1,3
Deceleration (bpm)	Missing	Missing
Acceleration	2+/-0,2	3+/-0,3

Analyzing the fetal heart rate before and after surgery, it was noted that 100% of the operated patients did not have a negative effect on fetal cardiac activity and that there was no data to suspect fetal distress. At the postoperative stage, all operated pregnant women received their usual nutrition in full 1-1.5 hours after the operation. There were no restrictions on early activation of operated patients in the first hours after surgery, depending on the desire and well-being of pregnant women. Planned surgery with local anesthesia in 100% of operated patients did not affect the obstetric status of the pregnant woman both during surgery and 30 minutes after its execution. The tone of the mother's uterus before and after surgery is normotonus according to cardiotocography (Table 2).

Showcases	Before surgery (N -457)	After surgery (N-457)
Uterine tone	Normotonus	Normotonus
The value of blood pressure on the brachial arteries (mmHg)	Systolic 110 +/-10.2 Diastolic 85+/-5.3	Systolic 125+/-5.3 Diastolic 90+/-8.3
Pulse rate (beats in 1 minute)	90 +/-6,3	95+/-4,5
Pulse rhythm	Rhythmic	Rhythmic

According to the subjective assessment of all operated patients, pain in the early postoperative period (up to 24 hours) tended to increase the intensity of pain in the first 6 hours after the intervention, stabilizing after 12 hours with a tendency to reduce it during follow-up. At the end of the first 6 hours after the intervention, pain was in the range of 66-74 mm (moderate pain) in 92% of operated patients, which did not require the administration of painkillers; Only in 8% of pregnant women the pain was in the range of 75-89 mm (severe pain), which required in 98% of cases a single administration of non-opium painkillers, mainly in tablet form, to relieve pain. The most commonly used drug was a drug that is both an analgesic and a tocolytic (such as indomethacin). After 12 hours, in 98.5% of cases, postoperative pain was kept within 50-72 mm (moderate pain), and in 1.5% of operated patients - within 75 mm (moderate pain with a tendency to severe), which did not require the administration of painkillers. 24 hours after surgery, all operated patients had pain in the range of up to 44 mm (mild pain), which had little effect on the volume of physical activity (Figure 1).

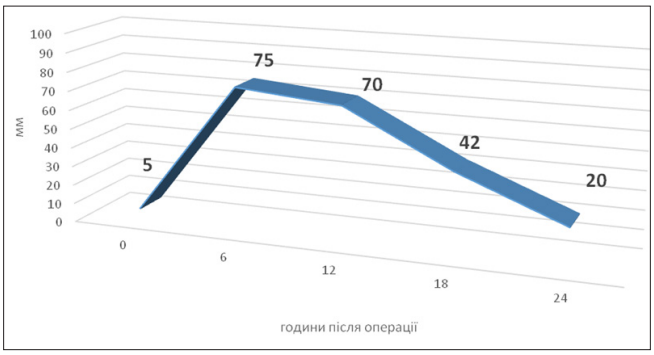

Figure 1: Dynamics of Pain in the Early Postoperative Period (24 hours after surgery)

It was noted that all pregnant women operated by us in the period before surgery took a position in bed that was safe and comfortable for the fetus. In 98.3% of cases, it was a position on the left side, only 1.7% of pregnant women did not notice a negative effect on the fetus depending on the position in bed. The surgical intervention performed did not affect the change in the usual position in bed, which was used by the operated to minimize pain at rest (static pain), so as not to use analgesics.

After 2 weeks, a control duplex scan of the operated limbs was performed. It was noted that refluxes that were detected before surgery through the femoral-subcutaneous, popliteal-subcutaneous fistula, perforating veins are absent, since they are ligated. No new refluxes were detected, the trunks of the large and / or small saphenous veins and their remaining branches are moderately filled. The Valsalva test is negative. In the subcutaneous tissue of the legs and feet, there are no or minor signs of soft tissue edema.

According to the subjective assessment of their condition, 96% of operated pregnant women improved both general and local status, 89.3% noted an improvement in the quality of life, and 90% of operated women improved their psycho-emotional state and social activity. When analyzing the course of pregnancy, depending on the nature of treatment of primary symptomatic progressive varicose veins, it was noted that among pregnant women (p-529) who received conservative therapy as a result of pronounced varicose veins of the external genital organs and perineum, in 28% of cases, childbirth took place through cesarean section, and in 75% of cases, patients with severe varicose veins of the lower extremities received prophylactic doses of direct anticoagulants (LMWH) in order to prevention of thrombophlebetic, thromboembolic complications. In 10% of cases, they were diagnosed with acute thrombophlebitis of the saphenous veins before childbirth, which required urgent surgical intervention. In the group of pregnant women with surgical treatment of PSCP (p-457), there were no indications for caesarean section due to varicose veins of the external genital organs, perineum, pregnant women of this group did not receive anticoagulants before, during and in the postpartum period for prophylactic purposes. We used only elastic knitwear in the form of knee-highs, stockings of compression class 2 during physical exertion (Table 3).

Table 3: The Course of Pregnancy Depending on the Methods of Treatment

Showcases	Operated (N457)	Conservative treatment (529)
Caesarean section due to PPPC (varicose veins of the inguinal canal, perineum and external genital organs	there was no	22%
Acute thrombophlebitis	There was no	1,5%
Use of LMWH	-	Taken according to the scheme in all patients
Disease dynamics		
Disease progression	2%	68%
Stable form of the disease	8%	10%
Disease regression	84%	22%

After evaluating the obtained data on the condition of 457 operated pregnant women and fetuses, 294 (82.6%) patients were discharged from the hospital whose indicators were within the normal range, at their request, after 24 hours; 17.4% of operated patients – 48 hours after surgery with recommendations under the patronage of an obstetrician-gynecologist and a surgeon at the place of residence under the following conditions: adequate mental assessment of the pregnant woman's condition; full consent of the pregnant woman to discharge; the possibility of self-care in the postoperative period; readiness to adhere to the usual rhythm of life and regimen with the maximum approximation of physical (motor) activity as to surgery; no need for constant medical supervision; willingness to take the necessary measures in case of complications when staying at home; mandatory two-way telephone communication throughout the postoperative period; the presence of stable psychological comfort in the patient's family. 62 (13.57%) pregnant women operated on at the end of the third trimester remained in the hospital until delivery. In 11 (2.4%) patients in the postoperative period, complications were noted: in 6 (1.31%) patients in the form of postoperative wounds in the form of seratomas, which were eliminated, and in 5 (1.1%) patients - thrombophlebitis of individual isolated branches of the large saphenous vein on the lower leg, which did not require additional treatment, did not limit the physical activity of patients. Complications were eliminated before delivery.

Conclusions

Our experience of using the FAST TRACK surgery program in the planned surgical treatment of pregnant patients with primary symptomatic progressive varicose veins in the II-III trimester of pregnancy has shown its high efficiency and safety.

Close cooperation between an obstetrician and a vascular surgeon in a specialized obstetric institution is decisive in the choice of tactics for the treatment of primary symptomatic progressive varicose veins of the lower extremities, external genital organs, perineum in pregnant women.

Indications for planned surgery: progression of clinical manifestations of primary symptomatic progressive varicose veins in the absence of a positive result from conservative therapy of primary symptomatic progressive varicose veins of the lower extremities, perineum, external genital organs and inguinal canal; an increase in cosmetic defects on the external genital organs and open parts of the lower extremities; preparation of the birth canal for safe childbirth in a natural way.

The use of perinatal psychological support for the mother, and through it for the fetus, had a positive effect on the preparation of the pregnant woman for safe surgery.

Surgical intervention carried out in a planned manner according to the FAST TRACK surgery program in a specialized obstetric institution by a vascular surgeon "mono-technologist" or "obstetric vascular surgeon" due to the primary symptomatic progressive varicose veins according to individual indications, taking into account the condition of the pregnant woman, fetus, venous hemodynamics, is 100% safe for the mother and fetus according to the data of an objective examination; positive in 97% of operated patients, both according to the clinical results of the examination and according to the subjective assessment of patients.

This approach leads not only to a quick recovery with a significant reduction in the total terms of treatment and rehabilitation, but also has a social effect due to the rapid restoration of the quality of life of patients.

Operated pregnant women in the postoperative period, during childbirth and in the postpartum period did not need medical support. If necessary, especially during physical exertion, elastic knitwear in the form of knee-highs, stockings of compression class 2 was used [47].

The mission of the vascular surgeon today is to prove to both obstetricians and gynecologists and most surgeons that the surgical treatment of primary symptomatic progressive varicose veins is safe for the mother and fetus, with a positive clinical outcome for the mother only if the relevant recommendations are strictly followed.

- There is no conflict between the authors
- All authors took an active part in writing the article
- Materials published with the consent of patients
- The article is written as a summary of the work of the department.

References

1. Stoyko Yu M (1992) Varicose Veins St Petersburg VMedA 21.
2. Shekhtman MM (2003) Guide to extragenital pathology in pregnant women Moscow: Triada X 816.
3. Danilenko Dixon DR (2001) Risk factors for deep vein thrombosis and pulmonary embolism during pregnancy or post partum a population based case control. Am.J Obstet Gynecol 184: 104-110.
4. Budanov PV (2008) Features of prevention and treatment of varicose veins in pregnant women. Difficult patient 28-31.
5. Delaney AG (1983) Anestesia in the pregnancy woman. Clin obsstet. Gynecology 246-248.
6. Medved VI (2012) Pregnancy-associated pathology. Zhinochiy likar 08-14.
7. Medved VI (2010) Venous complications in pregnant women. Medical Aspects of Women's Health 7: 29-33.
8. Medved VI (2007) Topical therapy of varicose veins and chronic venous insufficiency in pregnant women. Reproductive health of women 62-64.
9. Savelyev VS (1996) Modern trends in surgical treatment of chronic venous insufficiency. Phlebolhipology 5.
10. Benyuk VO (2010) Prophylaxis of complications of varicose veins in women in labor. Benyuk VO, Medved VI, Nikonyuk TR, Koval SD. Zdorovye zhenyny 8: 84-87.
11. Vanscheidt W (2000) Guidelines for testing drugs for chronic venous insufficiency. VASA 29: 274-278.
12. Steins A (2000) Physical therapy in patients with chronic venous insufficiency. Phlebologie 29: 48-53.

13. Veverkova L, Jedika V, Wechsler J, Jan Kalač (2006) Analysis of the various procedures used in great saphenous vein surgery in the Czech Republic and benefit of Daflon 500 mg on postoperative symptoms. Phlebolymphology 13: 195-201.
14. Romanchuk LI (2009) Prevention of complications of chronic venous insufficiency in pregnant women. Women's Health 3: 70-73.
15. Maley MI (2013) Chronic venous insufficiency in the risk zone. Medical aspects of women's health 4: 46-49.
16. Krasinski Z (2006) Pregnancy as a risk factor in development of varicose veins in women. Gynecol Pol 77: 441-449.
17. Artymchuk NV (2007) Varicose veins of the pelvic organs. Gynecology 74-77.
18. Reznichenko GI (2004) Prophylaxis of thromboembolic complications in pregnant women of the risk group. Reznichenko GI, Antonyuk IA. Thrombosis in clinical practice: prevention, diagnosis, treatment. Materials of the 1Ukrainian Conf KYu 150-152.
19. Kehlet H (1997) Multimodal approach to control postoperative pathophysiology and rehabilitation. H Kehlet Br J Anaesth 606-617.
20. Kehlet H (2008) Evidence-Based Surgical Care and Evolution of Fast-Track Surgery. Annals of Surgery 248: 189-198.
21. Kehlet H (2011) Fast-track surgery-an update on physiological care principles to enhance recovery. Langenbeks archives of surgery 396: 585-590.
22. Wind J (2006) Systematic review of enhanced recovery programmesin in colonic surgery. J Wind Brit J Surg 93: 800-809.
23. Wodlin NB (2012) The development of fast-track principles in gynecological surgery. Acta Obstetricia et Gynecologica Scandinavica 92: 17-27.
24. Nelson G (2016) Guidelines for pre- and intra-operative care in gynecologic/oncology surgery. Enhanced Recovery After Surgery (ERAS) 140: 313-322.
25. Nelson G (2016) Guidelines for postoperative care in gynecologic/oncology surgery. Enhanced Recovery After Surgery (ERAS) 140: 323-332.
26. Zatevakhin II (2017) Program of accelerated recovery of patients in surgery as a multidisciplinary problem. Program of accelerated recovery of surgical patients. Library of a specialist doctor 208.
27. Zatevakhin II, Pasechnik II, Gubaidullin RR (2015) Part 1 // Surgery: Journal named after N.I. Pirogov 9: 4-8.
28. Zatevakhin II (2015) In the future, the direction of FAST TRACK can become a standard for the provision of planned surgical care in the Russian Federation. Anesthesiology and Resuscitation 8.
29. Novikov KV (2009) Surgical treatment of varicose veins in pregnant women. Outpatient surgery 135-136.
30. Novikov KV (2001) Surgical treatment of varicose veins of the lower limbs in pregnant women. Outpatient surgery 2: 37-38.
31. Vorobyov VV (2009) Surgical treatment of varicose veins in pregnant women. Ambulatory Surgery 39-40.
32. Petrov VV, Shmidt AA, Novikov KV (2012) Vestnik Rossiyskoy voenno-meditsinskoy akademii [Vestnik Rossiyskoy voenno-meditsinskoy akademii] 40: 228-232.
33. Astakhov VA (2014) Modification of the visual-analog scale for assessing the pain syndrome after extensive abdominal operations. Regional anesthesia and treatment of acute pain 26-30.
34. Jensen MP (2003) Interpretation of visual analog scale ratings and change scores:a reanalysis of two clinical trials of postoperative pain. J Pain 4: 407-414.
35. Anokhin PK (1975) Uzlovye voprosy teorii funktsional'noy sistemy [Node issues of the theory of functional system]. -M.; Nauka 1975.
36. Skrypnikov AM (2017) Perinatal psychology. Medkniga Publishing House 168.
37. Ancheva IA (2017) Prevention of stress during pregnancy and childbirth. Zdorovye zheny 32-34.
38. Zaporozhan VM (2012) Prophylaxis of stress in pregnant women. Actual problems of transport medicine 105-109.
39. Dubossarskaya YA (2014) Problems of reproductive health with the position of perinatal psychology Collection of scientific works of the Association of Obstetricians and Gynecologists of Ukraine 129-133.
40. Severnyy AA, Soloed KV, Shalina RI, Balandina TA (1995) Psychosomatic aspects of pregnancy. Social and clinical psychiatry 17-22.
41. Prokhorov AO (1990) Metody psikhicheskoy samoregulyatsii [Methods of mental self-regulation]. / A.O. Prokhorov // Kazan 88-89.
42. Akvis DS (1999) Otsovskaya lyubov / D. S. Aquis.//-M.; Profizdat 92.
43. Nickel H (1988) The Role of the Father During Pregnancy and Birth and Siene Bedentung for The Postnatal Development of Cattle.//Schr.Des Fachb,Symposium «New Insights.Life Before and During Birth»-University of Osnabrück 1988.
44. McLeot R (2005) Members of the Evidence Based Reviews in Surgery, Canadian Association jf General surgeons and American College of Surgeons evidence based reviews in surgery.14. Preoperative tasting for adults to prevent perioperative complicetions. Canadian journal of surgery 48: 409-411.
45. Ljungqvist O (2003) Preoperative fasting. Br J Surg 90: 400-406.
46. Sipos P (2007) Fast –track colorectal surgery. P.Sipos,P. Ondrejka. Hungarian Medical Journal 165-174.
47. Ancheva IA (2017) Prevention of stress during pregnancy and childbirth. Women's Health 5: 32-34.