Prevention of postoperative lower extremity deep vein thrombosis (Literature Review)

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ABSTRACT

Revelance. Acute thrombosis of the inferior vena cava system is a dangerous disease threatening the development of pulmonary embolism (TELA), the mortality rate of which reaches 30% [1]. Among the etiologic factors of this severe complication, postoperative venous thrombosis occupies an important place, the prevention of which eliminates not only the danger of TELA, but also chronic venous insufficiency in the distant period. How often does thrombosis complicate the course of the postoperative period? How real is this danger? The answer to these questions depends on the attitude of surgeons to the problem of postoperative venous thromboembolic complications and their activity in carrying out the necessary preventive measures.

The data on the incidence of postoperative thrombosis are quite contradictory [3, 4]. If based only on clinical data, it seems to be insignificant. At the same time, deep vein thrombosis of the lower limbs occurring after various surgical interventions is characterized by asymptomatic course. Sometimes the first and only manifestation of such thrombosis may be fatal TELA. This circumstance explains the extremely high percentage of massive embolism undiagnosed in life (up to 50% and more).

Keywords: pulmonary embolism, thrombosis, fibrinogen, postoperative thrombosis, cardiovascular.

When using the test with labeled fibrinogen after surgery, venous thrombosis in high-risk groups is detected in 66% of cases after oncologic operations and up to 90% after orthopedic interventions [2]. The majority of postoperative thrombosis is localized in the deep veins of the lower leg. The test with I125-labeled fibrinogen is the most informative in such thrombosis localization [5]. It allows to detect even small thrombi forming in the valve sinuses. At the same time, such thrombosis itself does not pose a serious threat to the life and health of patients. It becomes dangerous only with widespread forms of thrombotic process, which can be detected by phlebography and ultrasound duplex scanning.

X-ray contrast study in the immediate postoperative period in patients without any clinical symptoms is not justified because of its invasive nature and possible complications. Clinically significant venous thromboses can nowadays be successfully detected by ultrasound duplex angioscanning [2]. The possibility of early detection of embolization-prone venous thrombosis using a noninvasive ultrasound method prompted us to conduct this study in order to estimate their incidence in the immediate postoperative period.

Our data showed that 11% of operated patients with moderate and high risk of postoperative thromboembolic complications have clinically significant thrombosis of deep veins of the lower limbs, and they are mostly asymptomatic.

Thus, to date, ultrasound angioscanning is the most acceptable method of diagnostics of acute venous thrombosis in terms of accuracy and reliability, in most cases successfully competing with other methods of venous lesions detection. Simplicity, non-invasiveness and possibility of repeated application, even in severe condition of the patient, create real conditions for wide use of this method for detection of acute phlebothrombosis during examination of postoperative patients.

Analyzing the latest national and international clinical recommendations on the prevention of thromboembolic complications in the postoperative period in surgical patients. surgical patients it should be noted that despite the large number of Despite the large number of publications devoted to the solution of this problem, many studied risk factors with different prognostic value that contribute to the development or are predictors of thromboembolic complications in surgical patients. development or are predictors of VTEO, the issues of prognostication and selection of prophylaxis method remain open and are far from being finally solved. final solution. Among the causes of postoperative mortality VTEO and pulmonary artery thrombosis is 10-21% and ranks 2-3rd after peritonitis and cardiovascular disease. peritonitis and cardiovascular failure. Despite significant progress in the development of methods for predicting venous thromboembolic complications in the postoperative period, the problem of creation of personalized and at the same time based on a comprehensive approach, methods of reliable prediction of venous thromboembolic complications in the postoperative period. approach, methods of reliable prognostication remains relevant to date (Silina E.V.V. today (Silina E.V., et al., 2018; Kruchinina M.V., et al, 2018;). The lack of unified prognostic scales creates significant difficulties for the physician in the issues of risk stratification and the choice of rational and personalized tactics in VTEO prophylaxis (Pestrikova T.Y., et al., 2018, ESC Guidelines on the diagnosis and management of acute pulmonary embolism, 2014; Jimynez D.,et al., 2016). In this regard In this regard, there are attempts to implement new approaches with the expansion of the list of possible risks and markers of VTE. possible risks and markers of VTEO in different groups of patients The developed scales of VTEO prognosis based on the stratification of risk factors The developed scales for VTEO prognosis based on risk factor stratification, which have proven themselves in elective surgery, are not always accurate enough in emergency surgery. are not always accurate enough in urgent situations, when the number of these factors are significantly increased, and some of them cannot be determined in the short preoperative period in the in the short preoperative period in the emergency patient.

Traditional diagnostic methods have low sensitivity and specificity. This does not allow the use of one or another test for global assessment and monitoring of the hemostasis system in the perioperative period. Therefore, in recent years, the active creation of new integral methods of hemostasis system assessment is underway all over the world. new integral methods of hemostasis system assessment (Krivoschekov E.P., Migunov I.A., 2015; Zhdanov R.I., et al., 2016; SoshitovaN.P., etal., 2011).

The results of our study indicate that for timely detection of asymptomatic acute venous thrombosis in the inferior vena cava system dynamic duplex scanning in the early postoperative period is fundamentally indicated for all patients with moderate and high risk of venous thromboembolic complications. On the other hand, the fact that every tenth such patient in a general surgical hospital is found to have quite common thrombosis in the inferior vena cava system

indicates a real danger. The nonspecific prophylactic measures taken in them are ineffective. The obtained data clearly indicate the necessity of using anticoagulant agents in such situations. Our experience shows the expediency of prescribing low-molecular-weight heparin. Prophylactic use of enoxaparin allows reducing the incidence of postoperative venous thrombosis 4 times compared to the group without anticoagulant prophylaxis and 2 times compared to patients who received unfractionated heparin.

Venous thromboembolic complications (VTEO) is a collective term that combines saphenous and deep vein thrombosis, as well as pulmonary embolism (TELA). They remain the most important problem of clinical medicine and affect the professional sphere of doctors of all specialties without exception.

Acetylsalicylic acid** is the only drug currently included in a number of national recommendations for the prevention of VTE after elective hip or knee arthroplasty (see section 5.4.1) in patients without additional risk factors for thrombosis [8]. Randomized clinical trials and published meta-analyses show that ASC demonstrates similar efficacy to anticoagulants in the prophylaxis of VTEO after knee or hip arthroplasty both in scab prophylaxis, when it is administered after several days of NMG regardless of additional risk factors for VTEO in patients [8], and when administered from the first day after surgery in patients without additional risk factors [3]. To prevent postoperative hemorrhagic complications it is advisable to start NMG administration not later than 12 hours before or not earlier than 12 hours after endoprosthesis, NFH - not later than 4-6 hours before or not earlier than 12 hours after surgery [1]. It is known that there are no fundamental differences in the efficacy and safety of pharmacologic prophylaxis when it is started before or after endoprosthesis [11]. According to the instructions for use, the minimum time after surgery when it is possible to start taking the drugs is 1-4 hours for a half dose of dabigatran, 6-10 hours for rivaroxaban, and 12-24 hours for apixaban. Venous thromboembolic complications (VTEO) is a collective term that combines saphenous and deep vein thrombosis, as well as pulmonary embolism (PTE). They remain the most important problem of clinical medicine and affect the professional sphere of physicians of all specialties without exception (Bokeria L.A. et al., 2015; Heit J.A., 2008).

VTEOs occupy the third place among all cardiovascular diseases,

including coronary heart disease and stroke (Rogers S.O., 2007; Cohen A.T. et al.

et al, 2008; Heit JA., 2008; Chae E.J. et al, 2010;Bokeria L.A. et al, 2015). B

In clinical practice of a doctor, especially in surgical specialty, the weighty

deep vein thrombosis (DVT) and TELA, the possibilities of their timely diagnosis, treatment and preventive measures are of great importance. The problem of prevention

DVT for surgical gynecology is very relevant, because the frequency of DVT after various gynecologic operations varies.

after various gynecologic surgeries varies within 11-37% (Tikhomirov A.L. et al., 2006).

The risk of VTEO is higher in patients with concomitant diseases: varicose veins, diabetes mellitus, hypertension,

fat metabolism disorder, thromboembolic complications in the anamnesis, thrombophilia, malignancies, diseases of the cardiovascular system, in patients with posthemorrhagic anemia and after repeated interventions (Ozolinya L.A.,2011, Dukhin A.O. et al., 2014). Increased risk

development of these complications is noted in women taking hormonal

drugs (Kiryushchenkov P.A. et al. 2015, Ozolinya L.A. et al., 2019, Sosnova

E.A. et al.,2020). The main problem of VTEO prevention is not in increasing the number of of high-risk patients and not in the lack of effective means of prevention, but in the lack of proper organization of prevention, insufficient attention to this problem. To date, VTEO prophylaxis is performed for all surgical patients.

surgical patients, but the nature of the preventive measures applied is determined by the risk strategy.

measures are determined by the risk strategy. Assignment of a patient to the group with low,

skillful, and low risk of VTE.low, skillful, or high risk group is based on the existing scales that take into account the planned volume and duration of surgical treatment, somatic status, patient history and other risk factors for thromboembolic complications (Kearon C. et al., 2012).

One of many models for assessing the risk of thromboembolic complications is the Caprini scale (Caprini J.A.), in which the degree of risk is assessed by summing up the scores for various risk factors (Barinov V.E. et al., 2014;

Cohen A.T. et al, 2005; Kyrle P.A. et al, 2005; Murin S. et al, 2005;

Schneider A., 2006). However, these risk factors are not tailored to gynecologic patients after abdominal and vaginal surgeries. In addition,

there is no algorithm for the preparation of patients for surgery and their preoperative examination.

Literatures

1. Ryazantsev, D. I. et al. Risk analysis of thromboembolic complications development during joint endoprosthesis in elderly patients in the early postoperative period // Vestnik IvGMA.
1. postoperative period // Vestnik IvGMA. 2016. № 2.
2. Kopenkin S.S. Prevention of venous thromboembolic complications in orthopedic surgery: new opportunities // Bulletin of Traumatology and Orthopedics.
3. Orthopedics. N. N. Priorov. 2010. № 1. C. 35-38.
4. Rosenfeld B.A. et al. Neuroendocrine stress hormones do not recreate the postoperative hypercoagulable state // Anesth. Analg. Anesth Analg, 1998. T. 86, № 3. C. 640-645. 4. Guyton A.K., Hall D.E. Medical Physiology. M.:Logosfe / ed. by Kobrin V.I.. per. s angl. 2008. 1296 c.
5. Falck-Ytter Y. et al. Prevention of VTE in orthopedic surgery patients. Antithrombotic therapy and prevention of thrombosis, 9th ed: American College of Chest Physicians evidence-based clinical practice guidelines // Chest. American College of Chest Physicians, 2012. T. 141, NO. 2 SUPPL. P. e278S-e325S.
6. Freedman K.B. et al. A meta-analysis of thromboembolic prophylaxis following elective total hip arthroplasty // J. Bone Jt. Bone Jt. Surg. - Ser. A. Journal of Bone and Joint Surgery Inc.,2000. T. 82, № 7. C. 929-938.
7. Migita K. et al. Venous thromboembolism after total joint arthroplasty: Results from a Japanese multicenter cohort study . Arthritis Res. Ther. BioMed Central Ltd, 2014. T. 16, № 4.
8. Sarmiento A., Goswami A. Thromboembolic disease prophylaxis in total hip arthroplasty Clin. Orthop. Relat. Res. Lippincott Williams and Wilkins, 2005. № 436. C. 138-143.
9. Hamilton W.G. et al. Mechanical thromboembolic prophylaxis with risk stratification in total knee arthroplasty. // J. Arthroplasty. Churchill Livingstone Inc. 2015. T. 30, № 1. C. 43-45.
10. Geerts W.H. et al. Prevention of venous thromboembolism: American College of Chest Physicians evidence-based clinical practice guidelines (8th edition) // Chest. American College of Chest Physicians, 2008. T. 133, NO. 6 SUPPL. 6. C. 381S-453S.
11. Di Nisio M., van Es N., Büller H.R.. Deep vein thrombosis and pulmonary embolism // The Lancet. Lancet Publishing Group, 2016. T. 388, № 10063. C. 3060-3073.
12. Kahn S.R.. The post-thrombotic syndrome // Hematology. Bulgarian Medical Society of Hematology, 2016. T. 2016, № 1. C. 413-418.
13. Ast M.P. et al. Clinical outcomes of patients with non-fatal VTE after total knee arthroplasty // J. Arthroplasty. Arthroplasty. 2014. T. 29, № 1. C. 37-39.