

MODERN WAYS TO PREVENT THROMBOEMBOLIC COMPLICATIONS IN POSTOPERATIVE BEMOANS

X.A.Abdullayev

Master of Anesthesiology and Resuscitation Specialist Stage 3

Muratov TM. N.

PhD. Department of Anesthesiology and Resuscitation
Tashkent Medical Academy Tashkent, Uzbekistan

Abstract:

Prevention, diagnosis and treatment of postoperative pulmonary thromboembolism is a very difficult task. This is due to the uniqueness of the clinical picture, the need to use complex expensive equipment and various approaches to choosing a drug treatment regimen. It is up to the doctor to carefully prescribe the drugs that have just appeared and substantiate them with reliable evidence of their effectiveness. Currently, the main role for treating doctors is played by the selected algorithm for the purpose of prevention, diagnosis and treatment of this condition, as well as the timely conduct of anticoagulant and antiagregant therapy, the correct implementation of the capabilities and benefits of hospitals in practice.

Keywords: computed tomography, multispiral computed tomography, magnetnoresonance tomography, pulmonary artery thromboembolism, Poly organ failure, ultrasound examination, venous thromboembolic complications.

Introduction

The intensity of the prophylaxis of venous thromboembolic complications in a hospital bed should be proportional to the assessment of the likelihood of their development. Today, there are two models of classifying patients into risk groups for the development of postoperative, venous thromboembolism. There are several published guidelines that differ significantly in the methods used to assess the risk of developing thromboembolic complications [7]. The first model, the "group", is based on the assignment of the patient to a known risk group, for which the average frequency of complications is indicated and the effectiveness of specific preventive measures is determined. In 2014, V. E. A study conducted by Barinov among 140 high-risk surgical patients [6,] showed that the decisive factor in the development of postoperative venous thrombosis is the accumulation of individual risk factors. In the presence of three or more individual risk factors, special care is required for the patient. The second model is based on taking

into account the total number of cases prone to" individual " thrombosis , the effect of each of which on the overall risk of developing venous thromboembolic complications is expressed in points. The first individual risk stratification model was not effective enough and was therefore not used in clinical practice. In 2005, a.T. Cohen [2] and co-authors created an individual model to assess the risk of thromboembolic complications in medical patients.

Currently, the most used and studied scale is the 2005 scale. When it was created, study 17 included patients from the surgical, cardiovascular, urological, gynecological, Otorhinolaryngology departments and resuscitation department patients. According to the results of stratification, all patients can be divided into three traditional risk groups, each of which involves the use of standard preventive measures in different combinations: elastic bandage binding (embolic socks in the hospital, elastic bandages), anticoagulants (non-fractional and low molecular heparins, fondaparinux, vitamin K antagonists, rivaroxaban, dabigatran), active methods of accelerating blood flow (intermittent pneumatic compression, electric myostimulation of the lower leg). However, there is also a small group of extremely high risks that require an individual and targeted approach to the appointment of preventive measures . Thus, for a low risk group, early activation and elastic compression are recommended, for a moderate risk group - an elastic compression (not necessary) in combination with pharmacoprophylaxis or active methods of accelerating blood flow in the event of a high risk of hemorrhagic complications. , for a high - and extremely high-risk group-in combination with anticoagulants and (possibly) active methods of accelerating blood flow (binding) with an elastic bandage. While the standard preventive approach is very effective in low and moderate risk groups, in high and extremely high risk patients it cannot always prevent the development of venous thromboembolic complications [4]. At the same time, the proportion of patients in the high and extremely high risk group of patients in the surgical department can be 41% or more [13]. In 2014, K.V.Lobastov conducted a study aimed at assessing the validity of the 2005 Caprini scale . This study confirmed the high diagnostic value of this scale [6].

The low effectiveness of elastic compression in this group of patients has already been shown in a number of studies [36]. The frequency of registration of thrombotic phenomena in the control group and the localization of the thrombotic process once again confirm the inefficiency of elastic compression in the extremely high risk group. This method of mechanical Prevention does not allow sufficient emptying of the sural sinuses , which leads to the development of thrombosis in this area , further development of the process and its spread to the vessels of the legs. When using standard preventive methods , the proportion of thrombosis remained high, despite the fact that the frequency of registration of thrombotic phenomena that we have identified is lower than in modern literature. The use of anticoagulants (in standard prophylactic mini-doses) did not lead to the desired decrease in the frequency of pulmonary ventilation in the control group. Endogenous causes of inefficiency of Mini-doses include thrombophilia, developed

against the background of an active oncological process, endothelial dysfunction in sepsis, increased thromboplastin against the background of pneumonia or stroke, etc. Exogenous factors are included to activate hemostasis. in our study of surgery, central vein catheterization, etc., all patients did not begin to receive pharmacoprophylaxis in the postoperative period after 12 hours after surgery, and some delayed. The use of Mini-doses involves prescribing anticoagulant therapy before surgery, if the patient does not have an active coagulation cascade, which allows blocking the coagulation factor X, the inhibition of which requires 50 times less drugs than the inhibition of activated antithrombin. This amount of factor X [5]. In the population most prone to thrombosis, the use of standard preventive mini-doses does not always lead to the desired effect. Currently, in this group of patients, preference is given to individual doses, the main parameter for their selection is the level of anti-Xa activity [5]. All thrombotic events recorded in the study were recorded in the first two weeks of the postoperative period, which corresponds to world literature [4]. This suggests that the first two weeks are very important in terms of the development of thrombotic phenomena, and the preventive protocol should be very effective. The population of the patients we examined in this study belongs to a group with a very high risk of venous thromboembolic complications . All patients belonged to different profiles and had a score of 11 or more on the Caprini scale, indicating that they had many factors predisposing to thrombosis. This model includes a 2005 version of the Caprini scale, which takes into account 38 individual risk factors rated from 1 to 4 points, taking into account the weight of each individual factor According to modern literature, the frequency of isolated lesions of the sural sinuses can vary from 17.6 to 42%, and the frequency of development of the thrombotic process with the transition to the muscular vessels of the leg is 49-80.4% [22]. In our study, isolated lesions of the sural sinuses were found in 2 patients, and in 6 patients there was a development of the process of spreading to the vessels of the legs. The total frequency of acute venous thrombosis was 8.8% (95% CI 4.7-15.9). PE was reported in 1 case per 1% (95% CI 0.2-5.4). The source of pulmonary embolism was not identified in our observations, the chunk did not detect signs of an acute thrombotic process in the leg veins and sural sinuses . However, the sural sinus is of particular interest as a possible source of thrombotic masses that lead to the development of pulmonary embolism. The selected 102 study data show a higher frequency of pulmonary embolism in isolated damage to the leg muscle veins than in isolated thrombosis of the tibial veins [8]. Therapeutic tactics in relation to the identified sural thrombosis are very heterogeneous. Some authors have not found a significant development of the thrombotic process and an increase in pulmonary embolism even without treatment [9].

The purpose of the work. In postoperative patients, pulmonary artery thromboembolism is a deep approach to preventive measures and reduction of mortality by early detection of possible complications as a result of the study of forecasting criteria and the introduction of new methods of treatment into practice.

Materials and methods. 60 patients who have applied to the multidisciplinary clinic of the Tashkent Medical Academy are examined in laboratory and instrumental. We divided the patients into 2 groups: control group - 20 patients, the main group - 40 patients. Prevention of thromboembolic disorders in patients of the control group was carried out on a protocol basis with treatment and elastic compression, bandage fixation. In our main group of patients, treatment measures were carried out in the preoperative period, taking into account the time of blood clotting, laboratory and instrumental examinations and possible complications on the surface. Also, in the main group, elastic bandages, knitted bandages were applied to prevent thromboembolic complications. In the main group, the number of patients was 40, of which 27 men and 13 women. The number of patients in our control group is 20, 14 men and 6 women.

Research results

In addition to hypercoagulation, the condition of the vascular wall also plays an essential role in the development of venous thrombosis. In this case, apparently, phleboprotectors, which also increase the tone of the vascular wall and have a positive effect on the microcirculatory bed, are undeservedly forgotten in the schemes of postoperative prevention. The use of venoactive drugs has a positive effect in cases of varicose veins, chronic venous insufficiency and thrombosis on their background, the drugs are effective against pain and inflammation. In thrombophlebitis, increased daily doses of drugs are recommended (for hydroxyethyl rutosides – GER by 1.5 times, for micronized purified flavonoid fraction – MOFF by 2-3 times) for a period of 5-7 days [3]. The therapeutic effect of phleboprotectors is systemic in nature, affecting the venous system not only of the lower extremities, but also of other anatomical areas (upper extremities, retroperitoneal space, pelvis, etc.) [34]. There are currently no targeted studies on the effects of phleboprotectors on the vascular wall in the postoperative period, however, given in most cases the safety of their use and a very significant effect on chronic changes in the vascular wall, as well as the results of their inclusion in the complex therapy of thrombophlebitis, the question is raised about the expediency of supplementing the schemes of comprehensive prevention of postoperative thromboembolic complications, especially in patients with concomitant varicose veins, chronic venous insufficiency. Most phleboprotectors of plant origin have a positive effect on the microcirculatory system and have antioxidant properties, which can be a significant contribution to the prevention of microcirculatory disorders and oxidative stress in patients with acute surgical pathology accompanied by endotoxemia. Given the important importance of hypercoagulation syndrome in the structure of pathophysiological shifts in patients with postoperative thromboembolic complications, a group of saponins with anticoagulant effect is seen as promising among phleboprotectors. In clinical recommendations for chronic venous diseases, preparations based on horse chestnut extract are used in complex therapy in the early stages of C0S–C2S according to the CEAR classification [9]. A combined preparation based on horse

chestnut seed extract in combination with thiamine (vitamin B1) Escuzan contains a mixture of saponins (escin and prosapogenin), as well as bioactive substances of other pharmacological groups, such as bioflavonoids (quercetin, kaempferol and their diglycosyl derivatives), antioxidants (proanthocyanidin A2) and coumarins (esculin, fraxin) [4]. The drug has venotonizing, antiexudative, capillaroprotective, decongestant and antioxidant effects, is able to suppress the activity of elastase and hyaluronidase involved in the destruction of proteoglycans – the main components of the endothelium and extracellular matrix. The drug is also able to inhibit the migration of leukocytes, reduce the adhesive ability of neutrophils and inhibit the release of inflammatory mediators, reduces the permeability and fragility of capillaries [3,4]. Studies have noted the effectiveness of the drug in relation to postoperative edema, and a result comparable to compression therapy is also demonstrated [40]. A positive point for use in the postoperative period is the presence of Escuzan in the form of a liquid form that is easily absorbed into the oral cavity. In the high-risk group of VTE in patients with concomitant varicose veins and a longer restriction of mobility in the postoperative period, it is advisable to supplement the complex of preventive measures with phlebotropic drugs. Thus, the analysis of the literature data suggests that modern comprehensive schemes for the prevention of postoperative thromboembolic complications, based on an individualized assessment of the risk of thrombosis, have significantly reduced adverse outcomes in surgical patients. Nevertheless, in emergency surgery, especially in patients with concomitant pathology (varicose veins, obesity, oncology, gene mutations), the frequency of venous thrombosis remains at a higher level, which suggests further search for ways to improve the complex of preventive measures taking into account the pathophysiology of these groups of patients.

Conclusion

Thus, the risk group for the development of thromboembolic complications was: patients over 40 years old, vascular diseases from side diseases 35%, obesity II Level III 30%, urinary tract infection 15%, large-scale operations (requiring longer than 45 minutes). Prevention of thrombo embolic complications in patients was carried out with reference to clinical - laboratory analysis(coagulogram, ACHTV,thrombotest, hematacrit, fibrinogen). Although thromboembolic complications as a prognosis had a high incidence of vtea in the postoperative and preoperative period, this incidence decreased based on standard and preventive treatment measures when the conclusions of clinical laboratory tests were analyzed.

References

1. A clinical outlook-based prospective study on venous thromboembolism after cancer surgery: the @ ristos project / G. Agnelli, G. Bolis, L. Capussotti, R.M. Scarpa, F. Tonelli, E. Bonizzoni, [et al.] // Annals of surgery. – 2006. - Vol. 243(1). – P. 89.

-
2. A multicentre, double-blind, randomized study to compare the safety and efficiency of once-daily ORG 10172 and twice-daily low-dose heparin in preventing deepvein thrombosis in patients with acute ischemic stroke / R. Dumas, F. Woitinas, M. Kutnowski [et al.] // Age Ageing. – 1994. - Vol. 23. – P. 512-516.
 3. A pilot evaluation of a neuromuscular electrical stimulation (NMES) based methodology for the prevention of venous stasis during bed rest / B.J. Broderick, D.E. O'brien, P.P. Breen, S.R. Kearns, G. Olaighin // MedEngPhys. – 2010. - Vol. 32(4). – P. 349-355.
 4. A validation study of a retrospective venous thromboembolism risk scoring method / V. Bahl, H.M. Hu, P.K. Henke, T.W. Wakefield, D.A.Jr. Campbell, J.A. Caprini // Ann Surg. – 2010. - Vol. 251(2). – P. 344-350.
 5. Andriyashkin A.V. Guliyev S.A., Nikishkov A.S. and others. Prevention of venous thromboembolic complications in patients with postoperative ventral hernias: results of an observational cross-sectional study. Phlebology. 2017; 11 (1): 17-20.
 6. Zubritsky V.F., Koltović A.P., Shabalin A.Yu., etc. Prevention of venous thromboembolic complications in gunshot wounds of the abdomen and pelvis. Polytrauma. 2016;
 7. Yang Xiao. Evidence of venous thrombosis in the European population: the role of surgical interventions. Emergency medicine. 2017; 4 (83): 24–9.
 8. Zatevakhin I.I. The role of ultrasound angioscanning in the early diagnosis of asymptomatic acute venous thrombosis of the inferior vena cava system in operated patients. Materials of the III conference of the Association of Phlebologists of Russia. Rostov-On-Don, 2001.
 9. Bergquist D. Postoperative thromboembolism: frequency, etiology, prophylaxis. Berlin: Spring Verlag, 1983.
 10. Vardanyan A.V. Prognosis and prevention of postoperative venous thromboembolic complications. Author's abstract. dis. ... Doctor of Medical Sciences, M., 2008.
 11. Vlasov S.V. Mechanisms of development, prognosis and prevention of thrombosis in injuries and orthopedic operations with a high risk of thromboembolic complications. Abstract of the dissertation of the Doctor of Medical Sciences. Leninsk-Kuznetsky, 2014.
 12. Azizov G.A., Kozlov V.I. Chronic venous insufficiency of the lower extremities: features of microcirculation. Vestn. RUDN. Series "Medicine", 2003; 3: 117-20
 13. Russian clinical guidelines for the diagnosis, treatment and prevention of venous thromboembolic complications (VTEO). Phlebology. 2015; 4 (Issue 2.): 3-52
 14. Chernyakov A.V. Modern principles of treatment of patients with chronic diseases of the veins of the lower extremities. Rus. med. journal. 2017
 15. Klovov V.A., Khorev A. N., Baranov A.A. Risk factors for thromboembolic complications in patients with large ventral hernias. medicine. 2012

-
16. Stoiko Yu.M., Kiriyenko A.I., Ilyukhin E.A. et al. Diagnosis and treatment of thrombophlebitis of the superficial veins of the extremities. Appointments of the Association of Phlebologists of Russia. Phlebology. 2019;
 17. Bogachev V.Yu., Boldin B.V., Jenina O.V. Escuzan: pharmacology, pharmacokinetics and therapeutic characteristics. Outpatient surgery. 2019
 18. Glushkov, N.I. Complex prevention of postoperative venous thrombotic complications in Elder and senile patients /N.I. Glushkov, A.K. Zhane, S.V. Openchenko // Kuban Scientific Medical Bulletin. – 2010. – No. 9. - pp. 60-63.
 19. Goldina, I.M., Trofimova, E.Y. Possibilities of ultrasound examination in the diagnosis of acute thrombosis of deep veins of the lower leg / I.M. Goldina, E.Y. Trofimova // Ultrasound and functional diagnostics. - 2009. – No. 1. - pp. 59-68.
 20. Gordeev, I.G. Clinical physiology of hemostasis. Textbook for doctors / I.G. Gordeev, E.O. Taratukhin, O.Y. Shaidyuk. – M.: Silicea-Polygraph, 2013. – 128 p.