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MODERN APPROACHES TO THE PREVENTION OF THROMBOPHLEBITIS: LITERATURE REVIEW

Annotation. Superficial thrombophlebitis or superficial vein thrombosis (SVT) results from thrombus formation in a superficial vein with associated inflammation of the vessel wall. SVT is most often observed in the lower extremities, with greater saphenous vein (GSV) involvement in 60-80% of affected individuals. SVT is 6-fold more common than venous thromboembolism (VTE) with a yearly incidence rate of 0.64%. It is important to note that SVT is different from thrombus within the superficial femoral vein which is a deep vein and requires the same approach to management as deep vein thrombosis (DVT) in other deep veins. Risk factors for SVT are similar to those for deep vein thrombosis (DVT) and pulmonary embolism (PE) and include active malignancy or cancer therapy, surgery, venous procedures, trauma/injury, immobilization, obesity, estrogen use/pregnancy (particularly in the first month postpartum), a personal or family history of VTE, and inherited thrombophilia. In addition, SVT often occurs in the presence of varicose veins (present in up to 80% of SVT patients) and, in the upper extremities, is often associated with intravenous catheters. SVT is a risk factor for concomitant and future VTE.

Keywords: superficial venous thrombosis, varicose vein, etiology, pathogenesis, epidemiology.

Introduction. Superficial venous thrombosis (SVT), an inflammatory–thrombotic process of a superficial vein, is a relatively common event that may have several different underlying causes. This phenomenon has been generally considered benign, and its prevalence has been historically underestimated; the estimated incidence ranges from about 0.3 to 1.5 event per 1000 person-years, while the prevalence is approximately 3 to 11%, with different reports depending on the population studied. However, such pathology is not free of complications; indeed, it could extend to the deep circulation and embolize to pulmonary circulation. For this reason, an ultrasound examination is recommended to evaluate the extension of SVT and to exclude the involvement of deep circulation. Also, SVT may be costly, especially in the case of recurrence. Therefore, accurate management is necessary to prevent sequelae and costs related to the disease. This review aims to analyse the epidemiology of SVT, its complications, optimal medical treatment, and open questions with future perspectives. SVT is a relatively common disease that mostly affects the lower limbs. The incidence is estimated to be 0.3–0.6 events per 1000 person-years in young people and 0.7–1.5 events per 1000 person-years in older patients [1], not so different than DVT, which is estimated to be about 1 in every 1000 cases [2]. However, the real incidence of STV is probably underestimated.

Materials and methods. The STEPH study was a descriptive, multicentre, community-based study conducted over 1 year in the adult resident population of an urban area in France. The study included 265,687 adults and 171 of them had symptomatic SVT, confirmed with ultrasound performed by vascular specialists. The measured annual diagnosis rate of SVT was 0.64% of adults [95% confidence interval (CI) 0.55% to 0.74%]; however, it is possible that the primary care setting underestimated the true prevalence [7]. Another study analysed the

prevalence of clinically diagnosed SVT in the Swiss population. The prevalence reported was about 3–11% depending on the population analysed . Notably, the latter two studies are old and based only on clinical diagnoses; therefore, the real prevalence could be underestimated. The venous thrombosis prevalence rate was found to be 2.9% in women and 0.8% in men aged ≥ 49 in an Italian study (Anemone) that used a self-managed questionnaire to investigate the prevalence of the condition in blood donors. After testing for confounding potentials, a significant and independent association was found between a history of venous thrombosis and age. Another interesting point is the seasonality of SVT. A small retrospective study showed an increase in the summer months; a possible explanation could be the poor compliance of patients to pharmacologic therapy and elastic stockings . Other reports did not confirm such an observation, although a small increase was observed in summer .

Results. It is worth noting that most data about patients with SVT are derived from old studies with methodological limitations. New studies using diagnostic technologies such as ultrasound could allow for a better epidemiological definition of pathology and complications. The risk factors for SVT and DVT are similar: advanced age, varicose veins, pregnancy, post-operative states, immobilization, malignant neoplasms, autoimmune diseases, obesity, trauma, hypercoagulable states, use of oral contraceptives or hormonal therapies, previous episodes of DVT/PE, vascular access, infusion of hypertonic solutions or endothelial damaging substances, and autoimmune diseases [4].

Unlike DVT, varicose veins are the primary risk factor for lower-limb SVT, and they are found in 90% of cases [8,9]. Among autoimmune disorders, Behcet's disease has been associated with SVT onset. Also, patients with Buerger's disease are particularly susceptible to SVT. Interestingly, in such cases a peculiar inflammation of the three layers of the vessel has been described [4,10]. Superficial thrombophlebitis starts with microscopic thrombosis. When venous turbulence or stasis, vessel wall injuries, abnormal coagulability, or vessel wall injuries, microthrombi could propagate and subsequently form macroscopic thrombi. Vascular endothelial injury reliably results in thrombus formation by triggering an inflammatory response that results in immediate platelet adhesion. Platelet aggregation is mediated by thrombin and thromboxane A₂.

Predisposition to the occurrence of varicose veins, working conditions that contribute to this, as well as the appearance of symptoms of the disease are sufficient grounds for compression therapy, it seems to be the most reliable and affordable way to correct venous outflow and the work of the musculo-venous pump of the lower leg. Elastic bandages or therapeutic knitwear (knee socks, stockings or tights) can be used.[6] Compression hosiery prevents stretching of superficial veins and accelerates blood flow through the deep venous system.

The simplest method of elastic compression is leg bandaging. In this case, bandages of medium and short extensibility are used. Compression bandage should be applied in the morning, before the patient gets out of bed. The doctor must teach the patient the technical features of this procedure. The bandage begins to be applied from the foot, immediately at the base of the toes, then it is wound in a spiral so that each subsequent turn covers the previous one by 2/3 of the width Bandage. It is especially important that the heel is tightly bandaged - for this purpose, the "hammock" technique is used. It is necessary to inform the patient that the maximum stretch and, accordingly, pressure of the bandage should be exerted on the foot and in the ankle area, they should be gradually reduced towards the hip.

Convenient for the patient and the most adequate from the point of view of normalizing venous outflow from the lower extremities, undoubtedly, is the use of special compression hosiery. With its help, a fixed, graduated pressure is created, gradually decreasing from the periphery to the center. The task of the doctor is to recommend the necessary type of product (knee socks,

stockings or tights) and the class of compression. [5] The patient should choose the product strictly according to his size and use it regularly. Currently, there is a sufficient selection of high-quality medical knitwear in a wide price range on the Russian market.

To prevent the progression of chronic venous insufficiency and the development of varic thrombophlebitis, it is advisable to resort to pharmacotherapy. The patient needs to know that drug treatment solves several problems: increasing the tone of the venous wall, improving microcirculation and lymphatic outflow, relieving inflammation, correcting disorders of the fluid properties of the blood.

Conclusion. Finally, in cases of valvular insufficiency of the subcutaneous venous trunks and perforating veins, patients should be persuaded of the need for timely surgical intervention. They should understand that a properly performed operation protects them from the occurrence of varic thrombophlebitis and the dangers associated with it.

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