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Letter to the Editors-in-Chief

Determinants of severe post-thrombotic syndrome: The role of thrombus location

Dear Editors-in-Chief,

Despite the results of the ATTRACT study [1], which showed a higher risk of major bleeding and no effect on the risk of the post-thrombotic syndrome (PTS), pharmaco-mechanical thrombolysis is still advocated for the treatment of deep vein thrombosis (DVT) involving the ilio-femoral tract [2]. However, whether these patients are indeed the ones at the highest risk of developing severe PTS is still uncertain.

Between 2003 and 2009, we followed 869 consecutive outpatients with ultrasound confirmed proximal DVT at two Italian centers. Patients had either unprovoked or provoked DVT without an indication for indefinite anticoagulation at that time. Patients received initial therapeutic anticoagulation with unfractionated or low-molecular-weight heparin followed by vitamin K antagonists therapy [3,4]. Patients were seen at 6, 12, 18, 24 and 36 months and were assessed for signs and symptoms of PTS, as defined by the Villalta scale [5]. Patients with a score > 14 or a skin ulcer at any time during follow-up were labeled as having severe PTS [3,4,6]. The main objective of this study was to determine the incidence of recurrent venous thromboembolism (VTE) and PTS in relation to the presence or absence of residual vein thrombosis [3]. Now we report on the association between the anatomical location of the thrombosis and subsequent development of severe PTS.

The demographic and clinical characteristics of the patients with DVT involving the common femoral vein only, the popliteal vein only, or both locations are shown in Table 1.

After a mean follow-up of 34 months, PTS developed in 343 of the 869 patients (39.5%) and was severe in 47 (5.4%). Severe PTS developed in 3 of the 91 patients (3.3%) with DVT confined to the common femoral vein, in 22 of the 439 (5.0%) with DVT involving the popliteal vein only, and in 22 of the 339 (6.5%) with thrombosis involving both locations (all differences not statistically significant). When adjusted for age, gender and body mass index, the hazard ratio of severe PTS in patients with common femoral vein thrombosis (either isolated or in combination with the popliteal vein) was 1.18 (95% CI, 0.66 to 2.10; $p = 0.57$), as compared to patients with thrombosis of the popliteal vein only.

Although our findings are in contrast with those of others [7], they are fully consistent with those coming from previous observations, in which ascending phlebography had been used to detect DVT [8,9]. It should be realized that our ultrasound work-up did not include an evaluation of the iliac vein. However, in previous studies that employed ascending contrast venography the iliac vein was involved in most patients with a common femoral vein thrombosis [8,9], whereas isolated iliac vein thrombosis was not observed [10]. Hence, we believe that our results are robust.

In conclusion, in patients with proximal DVT treated with oral anticoagulants only, severe PTS is uncommon. Moreover, based on our study results the incidence of severe PTS in patients with a clot location in the ilio-femoral tract does not differ from that occurring in patients with a clot confined to more distal veins. Accordingly, the use of pharmaco-mechanical thrombolysis driven by the thrombus location seems unfounded.

Table 1
Main characteristics of the study patients according to the thrombus location.

Features	Common femoral vein (No = 91)	Popliteal vein (No = 439)	Both (No = 339)
Age (mean ± SD)	58.3 ± 19.2	59.6 ± 16.8	60.8 ± 18.4
Males (n,%)	37 (40.7)	230 (52.4)	153 (45.1)
Previous VTE (n,%)	13 (14.3)	51 (11.6)	39 (11.5)
Obesity, BMI ≥ 30 (n,%)	6 (6.6)	58 (13.2)	41 (12.1)
Unprovoked (n,%)	37 (40.7)	235 (53.5)	172 (50.7)
Symptoms of PE (n,%)	16 (17.6)	65 (14.8)	45 (13.3)
Anticoagulation length, mo (mean ± SD)	5.0 ± 3.5	5.1 ± 3.9	5.4 ± 4.3
Length of follow-up, mo (mean ± SD)	32.7 ± 8.3	33.8 ± 6.7	34.1 ± 6.2

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