Dear Sir,

The risk of venous thromboembolism (VTE) in patients with lower limb plaster cast immobilization is poorly defined. Few prospective studies have evaluated the effect of prophylaxis on the risk of VTE, and clinical guidelines usually omit recommendations on thromboprophylaxis in this setting. However, the reported incidence of venographically proven deep vein thrombosis (DVT) in patients with lower limb fractures ranges from 27% to 77% (1-5), although the sample size of these studies ranged from 12 to 90 patients. In patients immobilized by lower limb plaster casts, the incidence of DVT ranged from 1.1% to 16.5% in studies within which ultrasonography was used to diagnose VTE (6-9). The results of a recent study (10) showed a statistically significant reduction in the incidence of DVT when low molecular weight heparin (LMWH) was administered to patients who were immobilized in a plaster cast following a leg fracture or rupture of the Achilles tendon as compared to placebo.

Because of the lack of clinical guidelines and the uncertain definition of the levels of risk, we tested the hypothesis that there is significant practice variation amongst orthopedic surgeons in the use of antithrombotic prophylaxis in such patients.

We performed a telephone survey to assess the use of VTE prophylaxis in patients with lower limb fractures and in patients with lower limb plaster cast immobilization among Italian orthopedic surgeons. The selection of the sample and the interviews were carried out by a group specialized in epidemiological surveys, ISIS Research (Milan, Italy). The study was supported by an educational grant offered by Astra Zeneca (Milan, Italy). Two-hundred orthopedic surgeons, representing 200 orthopedic departments throughout the country, were selected. All interviewed physicians were asked if they routinely prescribe antithrombotic prophylaxis, if prophylaxis is prescribed to all patients or to selected patients, the type of prophylaxis and the timing of administration.

For patients with lower limb fractures, 94.5% of the selected orthopedic surgeons prescribe pharmacologic antithrombotic prophylaxis. Of them, 93.1% prescribe antithrombotic prophylaxis to all patients, without any risk stratification. LMWH is by far the most selected prophylactic option, being used by 96.8% of the interviewed physicians. Prophylaxis of VTE is started at the time of diagnosis by 74.6% of the orthopedic surgeons, on the evening of the day when the fracture is diagnosed by 20.1%, on the day after diagnosis by 4.2%, and after more than 24 hours by 1.1%. Fifty-five per cent prescribe prophylaxis until the patient returns to normal weight bearing, 40.7% for more than 10 days, 2.1% between 5 and 10 days, 0.5% for less than 5 days, 1.6% according to the clinical situation.

In patients with plaster cast immobilization, 91% of the interviewed physicians prescribe some form of VTE prophylaxis. Of them, 25.8% prescribed prophylaxis based on individual risk stratification. Conditions considered to be relevant to decide the prescription of antithrombotic prophylaxis are summarized in Table 1. LMWH is prescribed by 96.2% of the orthopedic surgeons. Prophylaxis is started before plaster cast is applied by 41.8%, at the time of application by 28.6%, 6 to 12 hours after application by 26.9%, and 12 to 24 hours after the application by 2.7%. Prophylaxis is administered until the patient returns to normal weight bearing by 65.4%, for more than 10 days by 28.6%, for 5 to 10 days by 2.2%, for less than 5 days by 1.1%, until removal of the plaster cast by 2.7%.

Table 1: Conditions considered to be relevant to decide the prescription of antithrombotic prophylaxis in patients wearing plaster cast.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>68.1%</td>
</tr>
<tr>
<td>Concomitant diseases at risk for venous</td>
<td>48.9%</td>
</tr>
<tr>
<td>thromboembolism</td>
<td></td>
</tr>
<tr>
<td>Varicose veins</td>
<td>46.8%</td>
</tr>
<tr>
<td>Previous episode of venous thromboembolism</td>
<td>44.7%</td>
</tr>
<tr>
<td>Obesity</td>
<td>46.2%</td>
</tr>
<tr>
<td>Known thrombophilia</td>
<td>31.9%</td>
</tr>
<tr>
<td>Indication to plaster cast</td>
<td>25.5%</td>
</tr>
<tr>
<td>Dimensions of the plaster cast</td>
<td>19.1%</td>
</tr>
<tr>
<td>Duration of plaster cast</td>
<td>17.0%</td>
</tr>
<tr>
<td>Oestrogen therapy</td>
<td>12.8%</td>
</tr>
</tbody>
</table>

Correspondence to:
Dr. Walter Ageno
U.O. Medicina Interna I
Ospedale di Circolo
Viale Borri 57
21100 Varese
Italy
Tel: +39-0332-278594, Fax: +39-0332-278229
E-mail: agewal@yahoo.com

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Despite the lack of adequate information on the risk of VTE, we have observed a very high prescription rate of pharmacologic antithrombotic prophylaxis by Italian orthopedic surgeons. The results of our survey reveal that a large majority of interviewed physicians consider these patient populations at such a high risk of VTE to require prophylaxis independently from their age or from the presence of other concomitant risk factors. Conversely, we have observed a greater heterogeneity in terms of timing and duration of prophylaxis, since none of the answers was associated with greater than 75% consensus among the respondents.

Apparently, orthopedic surgeons are giving greater attention to the problem of VTE and have acquired great familiarity with the use of LMWH. This observation is interesting since underuse of prophylactic strategies has been frequently reported in recent years in other surgical settings, despite absolute evidence of a high risk of VTE and overwhelming evidence of efficacy of antithrombotic prophylaxis (11). The role of “medical legal pressures” might play an important role. Indeed, the results of this survey indicate the need for future research.

Walter Ageno1, Francesco Dentali1, Davide Imberti2
1Department of Internal Medicine, University of Insubria, Varese, Italy and 2Department of Internal Medicine, Piacenza Hospital, Piacenza, Italy

References


Local and general factors are the likely cause of venous thrombosis in lower limb arthroplasty

Dear Sir,

We have examined the relative role of inherited and acquired thrombophilic factors in the pathogenesis of leg vein thrombosis (VT) in 72 consecutive patients undergoing lower limb arthroplasty (LLA) [total knee arthroplasty (TKA)=50; total hip arthroplasty (THA)=22] in view of published reports of high incidence of postoperative VT in LLA inspite of prophylactic heparin therapy (1).

Tests for fibrinogen, factor VIII, protein C and antithrombin activities, and those for free protein S antigen, activated protein C resistance (APCR), lupus anticoagulant, plasminogen and serum homocysteine were carried out at presentation using standard techniques (2). Protein S activity was not determined because of its rapid decline both on storage and after thawing of the frozen plasma, and due to the instability of commercial reagents after reconstitution (unpublished data). Factor V Leiden and Prothrombin gene mutations were detected using PCR-RFLP [3]. Venous thrombosis in the lower limbs was evaluated preoperatively in all patients by colour contrast Doppler sonography (CCDS), which was validated in an earlier study for its high sensitivity (92%) and

Correspondence to:
Dr. Amar Das Gupta
Hematology Section
Department of Laboratory Medicine
P.D. Hinduja National Hospital & Medical Research Centre
Mumbai 400 016, India
Tel.: +91 22 24447301, Fax: +91 22 24442318
E-mail: dr_adasgupta@hindujahospital.com

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