Preventing venous thromboembolism in acute medical patients

A. ELIS\textsuperscript{1} and M.H. ELLIS\textsuperscript{2}

From the \textsuperscript{1}Department of Medicine and \textsuperscript{2}Blood Bank, Sapir Medical Center, Meir Hospital, Kfar Saba, and Sackler Faculty of Medicine, Tel-Aviv University, Tel-Aviv, Israel

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Summary

Background: While extensive data support the clinical benefit and cost-effectiveness of routine thromboprophylaxis in surgical patients, the use of this approach in medical patients has been controversial. However, recent data, mainly from the MEDENOX trial, support routine thromboprophylaxis in acutely ill medical patients.

Aim: To determine attitudes towards VTE prevention in such patients, in departments of internal medicine in Israel.

Design: Questionnaire-based survey.

Methods: A questionnaire regarding aspects of VTE prophylaxis was mailed to all heads of internal medicine departments in Israel (\(n=90\)). The questionnaire also included data concerning VTE prevention measures in specific acute medical illnesses, based on the MEDENOX study population.

Results: Fifty-eight (64\%) departments returned the questionnaire. Forty-seven (81\%) of them considered VTE a clinical problem in their departments, but only 37 (63\%) had a routine VTE prevention policy. The most frequently used modality for VTE prophylaxis was low-molecular-weight heparin. There was little agreement concerning the exact indications or risk factors in which VTE prophylaxis measures should be used, except the combination of acute medical disabling illness and previous VTE.

Discussion: The results emphasize the need for detailed guidelines and risk assessment models for VTE prevention treatments in acutely ill medical patients, as well as better education for physicians.

Introduction

Pulmonary emboli are found in 33\% of patients who die in hospital.\textsuperscript{1} The frequency of venous thromboembolism (VTE) in patients in medical departments is reportedly at least as high as that in surgical patients who are deemed to be at moderate risk for VTE.\textsuperscript{1-4} Nevertheless, while there are extensive data to support both the clinical benefit and the cost effectiveness of routine thromboprophylaxis in surgical patients, the use of routine VTE prophylaxis in medical patients has been controversial, mainly because of the heterogeneity of design and patient population in published trials.\textsuperscript{3,4}

Recently, data have emerged to support the benefit of routine thromboprophylaxis in acutely ill medical patients. In the MEDENOX trial, a double-blind placebo-controlled study, Enoxaparine, given subcutaneously at a dose of 40 mg daily, reduced the risk of VTE in acutely ill patients treated in medical departments.\textsuperscript{5} A meta-analysis of the pooled data available for several heparins also showed their beneficial influence on the prevention of VTE in medical patients.\textsuperscript{6}

The purpose of this study was to determine the attitude towards routine VTE prevention in acutely ill medical patients, similar to the population in the...
MEDENOX trial, in internal medicine departments in Israel.

Methods
A questionnaire regarding various aspects of VTE prophylaxis among acutely ill medical patients was mailed to all 90 heads of internal medicine departments in Israel in January 2003. Three months later, the questionnaire was sent again to those who had not yet replied. The questionnaire evaluated the physicians’ perception of VTE as a clinical problem in their department, whether their department had a defined policy for VTE prevention, and what prophylactic means were employed. Participants were also asked about their use of VTE prevention measures in specific acute medical illnesses based on the MEDENOX study population5 (Table 1). Replies were anonymous, and data retrieved from the questionnaires were entered into an Excel (Microsoft) spreadsheet.

Results
VTE prevention in internal medicine departments
Fifty-eight (64%) of the 90 heads of internal medicine departments in Israel returned the questionnaires. Forty-seven (81%) considered VTE to be a clinical problem in their departments, but only 37 (63%) had a routine VTE prevention policy. The main reasons for not using VTE prevention measures were: low prevalence of VTE, bleeding complications of VTE prophylaxis, and the high cost of drugs used for VTE prophylaxis.

The most frequently used modality for VTE prophylaxis was low-molecular-weight heparin (LMWH) (54 departments, 93%). Other modalities are shown in Table 2A. Twenty-two departments (38%) had more than one preferred measure (Table 2B).

VTE prevention measures for specific acute medical illness

Congestive heart failure (NYHA III/IV)
Most of the internal medicine departments used VTE prophylaxis measures in congestive heart failure (CHF) (NYHA III/IV) patients, but only sometimes. However, one third of the departments considered severe CHF as an absolute indication for VTE prevention, while 17% did not (Table 3A).

Acute respiratory failure not requiring ventilatory support
One third of the departments did not use any VTE prophylaxis in acute respiratory failure patients who do not require ventilatory support. Another third said they might use it sometimes, while only 16% added VTE prevention measures to the treatment of these patients. However, 17% of the heads of the internal medicine departments did not respond to this question, probably meaning that they do not know whether this acute illness is a clinical problem.

Table 1 The questionnaire concerning the use of VTE prevention measures in specific situations based on the MEDENOX study population

<table>
<thead>
<tr>
<th>A. Would you use VTE prevention measures in medical patients older than 40 years who have one of the following?</th>
<th>B. One of the following: acute infection without septic shock; acute low back pain or sciatica or vertebral compression; acute arthritis or rheumatoid arthritis of the legs; acute episode of inflammatory bowel disease; associated with at least one additional risk factor for VTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestive heart failure (NYHA class III/IV).</td>
<td>Age &gt;75 years</td>
</tr>
<tr>
<td>Acute respiratory failure which does not require ventilatory support.</td>
<td>Cancer</td>
</tr>
<tr>
<td></td>
<td>Previous VTE</td>
</tr>
<tr>
<td></td>
<td>Obesity</td>
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<tr>
<td></td>
<td>Varicose veins</td>
</tr>
<tr>
<td></td>
<td>Hormone therapy (anti-androgens or oestrogens except HRT)</td>
</tr>
<tr>
<td></td>
<td>Chronic heart or respiratory failure</td>
</tr>
</tbody>
</table>

Table 2 Modalities for VTE prevention

<table>
<thead>
<tr>
<th>Departments (n, %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Modalities for VTE prevention</td>
</tr>
<tr>
<td>LMWH</td>
</tr>
<tr>
<td>Aspirin</td>
</tr>
<tr>
<td>UFH</td>
</tr>
<tr>
<td>Compression stocking</td>
</tr>
<tr>
<td>B. More than one preferred modality for VTE prevention</td>
</tr>
<tr>
<td>LMWH/UFH</td>
</tr>
<tr>
<td>LMWH/compression stockings</td>
</tr>
<tr>
<td>LMWH/aspirin</td>
</tr>
<tr>
<td>LMWH/UFH/aspirin</td>
</tr>
<tr>
<td>LMWH/aspirin/compression stockings</td>
</tr>
</tbody>
</table>

LMWH, low-molecular-weight heparin. UFH, unfractionated heparin.
for developing VTE, or they do not consider VTE a clinical problem in these patients (Table 3A).

**Acute infection without septic shock**
In acute infection without septic shock, most of the departments (32, 55%) considered previous VTE to be a definite indication for VTE prophylaxis treatment. Other risk factors were also ‘sometimes’ considered in these patients: age >75 years (29, 50%), cancer (24, 42%), obesity (26, 45%) and chronic heart/respiratory failure (33, 57%) (Table 3B).

**Acute low back pain or sciatica or vertebral compression**
Only previous VTE was considered by many of the departments (24, 42%) as an indication for VTE prophylaxis in patients with acute arthritis of the legs. A definite ‘no’ response was given for age >75 years (24, 41%), varicose veins and hormonal therapy (25, 43%, each) (Table 3B).

**Acute inflammatory bowel disease**
None of the departments considered an acute episode of inflammatory bowel disease as an indication for VTE prophylaxis treatment, reflected by the high proportion of ‘no’ responses for many of the risk factors: age >75 years (32, 55%), obesity (23, 40%), varicose veins (28, 48%), hormone therapy (27, 46%) and chronic heart/respiratory failure (22, 38%). Nevertheless, about 25% of the departments sometimes used VTE prevention
measures in acute episodes of inflammatory bowel disease when combined with any of the risk factors (Table 3B).

Discussion
The majority of internal medicine department heads in Israel consider VTE to be a clinical problem, and most have a routine policy for VTE prophylaxis, mainly using LMWH. However, practice varies considerably concerning the precise indications or risk factors for which VTE prophylaxis is administered. An exception to this is in the case of the combination of acute disabling medical illness in patients with previous VTE. These patients were uniformly considered a high-risk group in which VTE prevention measures should be used.

Similar results were found in a study performed in Norway. The response to the questionnaire used in that study (92%) was higher than that in our study. All departments declared that they practice VTE prophylaxis, but only 21% had written guidelines. In most of the departments, the decision to implement VTE prophylaxis was left to the treating physicians. In our study, 63% of the departments declared that they have a routine VTE prevention policy. However, we did not formally establish the prevalence and extent of written departmental guidelines. It would appear that these may be limited, based upon the frequency of the response ‘sometimes’ in reply to questions regarding the use of routine VTE prophylaxis in clinical situations where VTE prophylaxis is now generally accepted as being indicated.

The acute medical illnesses and VTE risk factors that were presented in the questionnaire are well accepted as representing high-risk states for VTE. Furthermore, they were used as inclusion criteria in the MEDENOX study, the leading study in this area. Other studies also used the same risk factors. Cohen concluded that a history of previous VTE, age >40 years, obesity and prolonged immobilization were all associated with increased risk for VTE in medical patients, and spinal cord injury and cancer patients were at even greater risk. Ageno et al. considered malignancy, heart failure, stroke, acute infection, acute respiratory failure, acute rheumatic disorder and inflammatory bowel disease as risks for VTE in their study on the use of thrombosis prophylaxis treatment in medical patients. Nevertheless, in a recent analysis of the MEDENOX study results, only the presence of an acute infectious disease, age >75 years, cancer and a history of VTE were independent risk factors for VTE.

In accordance with these data we would have expected more widespread use of VTE prophylaxis in most of the cases presented in the second part of the questionnaire. However, the variability of responses that we obtained implies that there is no agreement regarding the indication for VTE prevention measures among the heads of internal medicine departments in Israel, except for previous VTE, which was considered by most to be a considerable risk factor. Similar results were found in other studies. Cohen concluded that use of thromboprophylaxis is frequently low, even in high-risk patients, and Ageno et al. found that prophylaxis was prescribed for only 46% of the medical patients with risk factors for VTE. Reasons for the low rate of prophylaxis measures use include the lack of useful risk assessment models for medical patients, and the need for improved physician education regarding VTE prophylaxis.

The study has a number of weakness. The data are based on the 58 (64%) heads of internal medicine departments who returned the questionnaire. However, this is the anticipated rate of returned questionnaires in similar surveys. The study also lacks validation of its results by retrospective analysis of medical files. This is planned for future studies. Nevertheless, the study does represent usual clinical practice in Israel, mainly because the opinions were given by the heads of the internal medicine departments who determine the clinical practice in their own departments, and who are responsible for the treatment of the vast majority of medical patients in Israel.

In conclusion, our results emphasize the need for detailed guidelines and risk assessment models for VTE prevention treatments in acutely ill medical patients, as well as better education for physicians.

References
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