Preventing VTE in patients immobilised in lower limb cast
May 2010

Introduction
Immobility from having a lower limb in plaster (or similar) is recognised as a patient-related risk factor for venous thromboembolism\(^1\). The National Institute for Health and Clinical Effectiveness (NICE) suggest in their guidelines\(^1\) (2010) that VTE prophylaxis for patients with lower limb plaster casts who are assessed to be at increased risk of VTE should be considered after carefully evaluating the risks and benefits. A recent review\(^2\) found that in adults with leg immobilisation, thromboprophylaxis with LMWH reduces the risk of VTE by about half, with a low risk of bleeding events.

A patient-completed VTE risk assessment pro forma was developed and approved by the Thrombosis committee in 2009 and was complaint with the draft guidance that NICE had published at that time\(^3\). The pro forma was subsequently revised in April 2010 following the analysis of the initial pilot data and the publication by NICE of their updated guideline\(^1\).

All patients attending the Fracture Clinic for application of a lower limb plaster were given the questionnaire to complete (appendix 1). Depending on their risk score, the patients were either given advice on preventative measures for VTE only, or were additionally prescribed LMWH to be self-administered for the duration of the lower limb plaster. The completed questionnaires were kept in the clinic.

Indicators

<table>
<thead>
<tr>
<th>standard</th>
<th>percentage</th>
<th>exceptions</th>
<th>evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients attending the fracture clinic for lower limb plaster to complete a self-administered questionnaire.</td>
<td>100%</td>
<td>Patient refusal</td>
<td>Completed questionnaires in clinic</td>
</tr>
<tr>
<td>The management of all patients scoring 3 or more to be discussed with the clinic doctor</td>
<td>100%</td>
<td>none</td>
<td>Completed questionnaires</td>
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Results
153 patients completed a VTE risk assessment questionnaire. None refused to complete the questionnaire. However, 4 patients attended the clinic twice and therefore their second questionnaire was omitted from the data analysis (risk factors were unchanged between visits).

149 questionnaires were included in the analysis.
14 patients (9%) had a score of equal to or greater than 3 and therefore triggered an automatic discussion with the clinic doctor as to whether prophylaxis was needed.

Of those patients who scored 3 or more and were subsequently discussed with the clinic doctor:
- Five were in-patients – three were already receiving LMWH one was already on Clopidogrel. On one form no note had been made as to the outcome of the assessment. One of the patients was pregnant and had been started on LMWH by her midwife.
- A clinical decision was made not to prescribe LMWH for 4 patients.

To determine whether any patients subsequently developed a VTE event, the patients included in the audit were then cross-referenced against a database of patients referred to the Anticoagulation clinic.

The Information Team provided a password protected list of all patients referred to the anticoagulation clinic for the first time.

One patient (risk score = 5) who was prescribed LMWH in clinic, was subsequently seen with a suspected DVT. He was scanned and found not to have a DVT.

There were no other patients on the anticoagulation clinic database that matched those seen in the Fracture Clinic.

**Missing data**
There were a number of risk assessment forms where the outcome of the clinical decision for patients who scored 3 or more had not been noted. The outcome for all but one of these patients was found through accessing the relevant patient’s medical record.
Retrospective data could not be found for one patient as the patient’s name was incomplete and the hospital number had not been recorded. All the forms with missing data were version 1.0 of the self-assessment form. Version 2.0, currently in use, has a clear space for the patient’s identifying label and an additional tick box to facilitate recording of the clinical decision.

**Patient acceptance**
None of the patients who were prescribed LMWH in the Fracture Clinic returned the patient acceptance questionnaire.

**Conclusions**
The fracture staff have found the tool simple to use and helpful. There have been no reports of any difficulties that patients have had in completing the tool.

The scoring system effectively distinguishes between patients with, and without, predictable VTE risk.

VTE rates are lower than might be expected in this group of patients and provides limited support for the continued use of LMWH in selected patients in this high risk group.

**Recommendations**

<table>
<thead>
<tr>
<th>Action</th>
<th>by whom</th>
<th>by when</th>
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<tbody>
<tr>
<td>Re-audit in three months</td>
<td>KB</td>
<td>September 2010</td>
</tr>
<tr>
<td>Take report to Thrombosis Committee</td>
<td>KB</td>
<td>July 2010</td>
</tr>
<tr>
<td>Send report to Clinical Director for orthopaedics</td>
<td>KB</td>
<td>June 2010</td>
</tr>
</tbody>
</table>

**References**

1. Venous thromboembolism - reducing the risk: full guideline CG92 NICE. January 2010
3. Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. NICE Clinical Guideline 92 February 2010