Improving uptake of prophylaxis for venous thromboembolism in general surgical patients using prospective audit

Ged J Byrne, Mark J McCarthy, Stanley H Silverman

Venous thromboembolism is a common postoperative complication.[1] Prophylactic measures can reduce its incidence,[2 3] and a case has been made for formal stratification analysis when prescribing such treatment.[4] To assess the uptake of venous thromboembolism prophylaxis, we undertook an audit of general surgical inpatients in a busy district general hospital (hospital A).

Methods and results

The audit took place on a general surgical firm managed by two consultants. Both were keen that all "at risk" patients received prophylaxis for venous thromboembolism. Their prophylaxis policy was verbal, expressed to house officers and nurses at the start of each house officer's post, and reiterated at regular intervals (strategy 1).We assessed every patient to see if they had received appropriate prophylaxis in accordance with accepted risk factors.[5] Of 195 inpatients studied, only 101 (51%) had done so.

These deficiencies in prophylaxis uptake prompted an A4 sized protocol sheet, the introduction of which was then supplied to all general surgical wards. This contained a risk factor assessment, designed to allow prophylaxis to be prescribed in accordance with a numerical risk. Each patient was given a score; a table present on each sheet allowed the house officer to prescribe the correct prophylaxis. The house officers were instructed to attach a completed sheet to all general surgical admissions (strategy 2).

After strategy 2 had been introduced an audit was performed on 159 patients: 60 (37%) had a completed risk assessment sheet among their case notes; only 87 (54%) had received appropriate prophylaxis.

Subsequently, the A4 risk assessment sheet was miniaturised and applied to the reverse side of a standard prescription sheet (fig 1). The nurses on the general surgical wards were instructed to check for completion of the sheet during each of their six daily ward rounds. If this had not been completed they were to inform the house officers of their "oversight" (strategy 3).

An audit of strategy 3 was performed on 203 patients, 196 of whom had the miniaturised formal risk assessment sheet on the back of their prescription sheets. Of these patients, 191 had received appropriate prophylaxis. To confirm our findings, the same system was introduced into a rural hospital (hospital B) and an audit was performed on 200 patients. One hundred and seventy nine had the mini-form present on their prescription sheets and of these, 171 had received appropriate prophylaxis. Combining the results of hospitals A and B gave a sample size of 403: 375 (93%) had the mini-forms attached to the prescription charts and 362 (90%) of these had received appropriate prophylaxis (χ^2 test 128.84 with 2 degrees of freedom; $P < 0.005$ strategy 3 *v* strategies 1 and 2). Spot check case note and prescription sheet audits for strategies 1, 2, and 3 were undertaken two months after the introduction of each on all general surgical ward admissions. This took in four sets of new house staff, two months into their posts.

Affix continuation sheet 'C' here

Other treatment

Pharm.	Date	Time		Doctor	Sig.	Counter sig.

DVT Risk Assessment

Risk factor — Risk score ☐ — TED stocking ☐ — S/c Heparin ☐

Age >40	1
Intra-abdo malignancy	3
Sepsis	3
Gross varicose veins	1
Age >60	2
Previous DVT/PE	3
Obese	2
Laparatomy	2
COAD/IHD	3
Emergency	2
Contraceptive pill	3

1. 0 - No risk
2. 1-2 - Low risk TED
3. >3 - Mod/high risk TED and Heparin
4. Vascular surgery 5000u bd after epidural. No TED
5. Breast <5 TED only
6. Non-operative admission spending most of day in bed. TED and Heparin

Fig 1—*Formal risk assessment sheet applied to reverse side of standard prescription sheet*

Comment

The introduction of oral or written protocols is an accepted method of correcting deficiencies in medical practice. As we have shown, the introduction of an untried protocol may not improve current practice.

Strategies 1 and 2 placed the burden of responsibility for venous thromboembolism prophylaxis on the admitting house officer. The addition of a formal risk assessment policy alone (strategy 2) did not improve uptake, and its failure may have been due to the fact that it placed a further burden on the house officer, combined with a lack of availability of protocol sheets.

Strategy 3 tackled both of these problems. Regular nursing drug rounds allowed this protocol to become a formal part of each patient's management on admission. The ward medical staff, however, do not participate in such frequent, monitored events.

In conclusion, the introduction of a formal risk assessment sheet on to a standard prescription sheet would improve uptake of accurate venous thromboembolism prophylaxis. It is important, however, to complete and repeat the audit cycle.

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Department of Surgery, Kidderminster Hospital, Kidderminster, West Midlands
Ged J Byrne, *senior house officer, general surgery*

Department of Surgery, City Hospital, Birmingham B18 7QH
Mark J McCarthy, *senior house officer, general surgery*
Stanley H Silverman, *consultant vascular surgeon*

Correspondence to:
Mr Silverman.

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