Over the past few years, venous thromboembolism (VTE) prophylaxis has been rising up the healthcare agenda. In 2008, the UK arm of the international ENDORSE study reported that only 74% of surgical patients and 37% of medical patients who were at risk of VTE (according to American College of Chest Physicians’ 2004 criteria) received pharmacological thromboprophylaxis.1 Since then, many healthcare organisations have appointed thrombosis leads — supported by nominated leads from all relevant specialisms, including pharmacy. However, the incidence of VTE among patients admitted to hospital can still be reduced further.

In January 2010, the National Institute for Health and Clinical Excellence published “Venous thromboembolism: reducing the risk” (which replaces previous guidance published in April 2007).2 Its main intention is to reduce the estimated 25,000 deaths that occur from hospital-acquired VTE each year. Unlike the old guideline (which only covered surgical patients), the new version is applicable to all hospital inpatients over 18 years of age, including those admitted for day surgery. It lays out clear rules for assessing the risks of both VTE and bleeding. Thrombosis committees in all hospitals will need to digest what the new guideline means for their organisations and agree local implementation strategies and pathways.

Main recommendations

The key feature of the guideline is that it requires all adult inpatients to have their risk of VTE and risk of bleeding assessed on admission to hospital. If the risk of VTE outweighs the risks associated with bleeding, appropriate VTE prophylaxis is offered. If a patient has any risk factors for bleeding or if the risk of bleeding outweighs the risk of VTE, pharmacological prophylaxis should not be offered. However, other forms of prophylaxis can still be considered.

The guideline also states that patients should be reassessed within 24 hours of admission and again whenever their condition changes. It highlights the importance of mobility, hydration and, where used, the monitoring of mechanical thromboprophylaxis. The need to monitor mechanical prophylaxis (eg, to identify patients with poor circulation who have been issued badly fitting stockings) is often overlooked. NICE suggests that compression stockings need to be removed for hygiene purposes and the skin inspected at least once a day (and more often for high-risk, immobile patients).

Surgical patients For most surgical patients, pharmacological prophylaxis will need to continue as long as their mobility is significantly reduced — generally for five to seven days.

For patients undergoing major surgery to remove malignant tumours from the abdomen or pelvis, prophylaxis is recommended for 28 days after surgery. This use of extended postoperative prophylaxis is analogous with that used for routine hip and knee replacement surgery (although the duration of prophylaxis for hip and knee replacements is different).

Day surgery Practice will need to change for the care of day surgery patients — a group for whom, historically, it is unusual to offer thromboprophylaxis. The guideline recognises that following some day surgery procedures (eg, laparoscopic cholecystectomy) some patients have reduced mobility and other additional risk factors for VTE. It recommends mechanical and pharmacological prophylaxis be prescribed (in those considered to be at increased risk) until normal levels of mobility are achieved.
mobility are resumed — normally after five to seven days.

For patients receiving lower-limb plaster casts, a VTE risk assessment will need to be carried out; where the risk is raised, pharmacological prophylaxis should be offered. When supplied, prophylaxis should be continued until the plaster cast is removed.

Medical patients At present, it is fair to say that thromboembolic risk assessments are not routine for all medical patients. However, by implementing NICE’s recommendation that all patients should be risk-assessed, trusts can ensure that such assessments become routine for medical patients.

In addition, the guideline makes specific reference to the care required for certain “at risk” groups of medical patients.

Stroke One contentious debate concerns post-stroke patients and the risk of haemorrhagic transformation (see Box 1). Many care of the elderly consultants will not currently consider using pharmacological prophylaxis in post-stroke patients because of this risk.

According to NICE, pharmacological prophylaxis should only be considered once haemorrhagic stroke is excluded, if the risk of haemorrhagic transformation is low and where there is at least one other risk factor for VTE. It also recommends that compression stockings should not be provided to patients who have suffered an acute stroke. (In the CLOTS 1 trial, prevention against VTE was found to be low but the risk of skin damage high for patients using compression stockings post-stroke.)

Cancer Non-ambulant patients who have been diagnosed with cancer are recognised as being at increased risk of VTE. This is caused partly by some medicines used to treat or suppress malignant tumours and partly by the condition itself. The guideline acknowledges this risk and highlights the need for pharmacological thromboprophylaxis to be considered for patients diagnosed with cancer.

Palliative care NICE suggests that thromboprophylaxis should be considered for patients receiving palliative care if there is a reversible, acute reason for them being at an increased risk of VTE.

Pregnancy In the case of women who are pregnant or have given birth within the previous six weeks, those admitted to hospital and not undergoing surgery need to have their VTE risk assessed. However, the criteria used for the risk assessment are different from those for other medical or surgical patients (for example, being over 35 years of age is considered a risk factor when pregnant, whereas non-pregnant individuals are only considered to be at risk if they are over 60 years of age). If a pregnant woman has one or more risk factors for VTE, she should be considered for pharmacological prophylaxis.

Those who are admitted for surgery, including a Caesarean section, should all be considered for mechanical and pharmacological prophylaxis.

Choice of prophylaxis The guideline makes reference to using low molecular weight heparin, unfractionated heparin, rivaroxaban, dabigatran and fondaparinux as necessary for patients who require pharmacological prophylaxis. It does not specify which product should be used but advises clinicians to use medicines for licensed indications and to prescribe licensed doses.

Antiplatelets The guideline states that antiplatelet medicines (eg, aspirin) do not provide adequate thromboprophylaxis under any circumstances. Therefore, those clinicians currently using aspirin for VTE prophylaxis will need to review their practice.

Stockings Compression stockings have been used widely for many years to prevent VTEs. Nonetheless, during that time, the question of whether to use full- or knee-length stockings has attracted much debate. The new guideline suggests that either can be used. More importantly, whichever stockings are used, they should provide graduated compression and produce a pressure of approximately 14–15mmHg at the calf.

For the first time, contraindications to the use of stockings are provided — eg, post-stroke (see above), for patients with heart failure, etc. Instead, foot impulse devices or intermittent pneumatic compression devices should be considered for those who have a major restriction of mobility or another VTE risk factor, and for those for whom pharmacological prophylaxis is contraindicated.

Patient involvement The guideline requires patients to be kept informed, where appropriate, of the outcomes of VTE risk assessments and of

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**Box 1: Haemorrhagic transformation**

When a stroke is caused by a clot (rather than a bleed), cerebral blood vessels can be damaged. Once the clot has been broken down, there is a risk that the damage might cause a subsequent bleed. This is known as haemorrhagic transformation.

Many elderly care consultants are cautious about using thromboprophylactic medicines in such patients due to the risk of worsening a potential subsequent bleed.

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Continued on p85
measures being taken to reduce their VTE risk. The need for patients to be taught how to recognise the signs and symptoms of VTE is also reinforced, along with what action to take and how to administer pharmacological thromboprophylaxis (if it is to be continued after discharge from hospital).

Such an approach allows patients to play a more active role in reducing their VTE risk. This is especially important because the number of patients who should receive thromboprophylaxis after they are discharged from hospital is increasing and is expected to increase further after the guideline is implemented.

Cost of implementation
Implementing the guideline is likely to attract the cost of using more intermittent pneumatic compression, foot impulse devices, stockings and pharmacological prophylaxis. This might be perceived as a barrier to its implementation. However, NICE believes that implementing the guideline will result in cost savings because it will reduce the number of VTEs that need to be treated.

Additional costs can also be set against those incurred by organisations that fail to implement the guideline — eg, higher premiums from the NHS Litigation Authority. Furthermore, reducing the incidence of VTE is a priority in the NHS operating framework for 2010/11; failure to implement VTE reduction strategies will incur financial penalties with primary care trusts able to withhold money set aside for meeting “Commissioning for quality and innovation” (CQUIN) targets.

In view of the high priority given to this issue by chief medical officer Liam Donaldson — a message reinforced at the time the guideline was launched — Monitor and the Care Quality Commission will wish to see evidence that this guideline is implemented when they conduct their annual reviews of trust performance.

References
3 Dennis M, Sandercock PA, Reid J, et al. Effectiveness of thigh-length graduated compression stockings to reduce the risk of deep vein thrombosis after stroke (CLOTS trial 1); a multicentre, randomised controlled trial. Lancet 2009;373:1958-65.

Venous thromboembolism (VTE) is thought to account for 25,000 deaths each year in UK hospitals. The Department of Health published thrombotic risk assessment tools in September 2008 and the National Institute for Health and Clinical Excellence has now published guidelines for the management of thromboembolic risk for hospital inpatients. NICE and the DH recommend that all patients who are at risk of VTE should be offered thromboprophylaxis. In light of these new guidelines the acute trust I work for is in the process of implementing its VTE policies. This has got me thinking about my role as a prescribing pharmacist for medical patients.

There are several large randomised controlled trials investigating VTE prophylaxis in medical patients. MEDENOX® and PREVENT® are the most widely cited. Although neither of these trials showed significant reductions in mortality rates, they did demonstrate reductions in the cumulative endpoint of pulmonary embolism, symptomatic deep vein thrombosis (DVT) and asymptomatic DVT. These two trials reveal the benefits of low molecular weight heparin (LMWH) for thromboprophylaxis but I do not believe they resolve the complex issue of how to calculate venous thromboembolic risk in medical patients.

As a medical admissions pharmacist I actively assess patients’ thrombotic risk and prescribe the most suitable prophylactic treatment. I will adjust LMWH doses based on renal function and initiate graduated compression stockings as appropriate. Educating medical colleagues and discussing complex patients with them is also important.

Nonetheless, in reflecting on my prescribing of thromboprophylaxis I find inconsistencies. When educating doctors and junior pharmacy staff I tend to encourage aggressive prescribing, meaning most people will receive a LMWH. When considering individual patients I am more reluctant to prescribe.

The difference in approach can be explained by my understanding of the complexities around calculating VTE risk and of the gaps in the literature. For instance, I believe it is unclear whether or not a patient’s thromboembolic risk is cumulative depending on the number of risk factors they possess and, indeed, whether or not all risk factors should carry the same weight. Despite NICE providing clear recommendations on the matter, I find it difficult to ignore the many unanswered questions, particularly with regard to patients with multiple comorbidities.

There is a dichotomy between what I practise daily and what I teach to colleagues. Is it right that I do not practise what I preach?

David Gibson is senior clinical pharmacist (medical admissions) at Darlington Memorial Hospital

References

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