

Prevention of venous thromboembolism

The four professions* position statement

* Academy of Medical Royal Colleges, Royal College of Midwives, Royal College of Nursing and Royal Pharmaceutical Society

Summary

Risk assessment and prevention of venous thromboembolism (VTE) are key clinical priorities for all hospitalised patients. Based on available evidence to date on this topic, the four professions advise their members to follow current NICE recommendations (CG92) on risk assessment and prevention of VTE. This guidance is intended for all healthcare professionals within the United Kingdom.

Background

The term VTE refers to blood clots that occur inside veins. These clots (or thromboses) usually form in the deep veins of the leg, such as the calf or thigh, although occasionally deep vein thromboses (DVTs) can occur in other veins of the body. The majority of deaths from VTE are caused by part of the clot breaking off, travelling around the body and eventually blocking the pulmonary arteries (arteries in the lungs). This is known as a pulmonary embolism (PE). Whilst some a PE can be fatal, those who survive may develop long-term comorbidities, often related to the initial DVT, including post-thrombotic syndrome, which consists of chronic swelling and ulceration of the legs. This can significantly impact quality of life.

Estimates of hospital-acquired VTE

In 2005, a House of Commons Health Select Committee in England conducted a one day inquiry into the prevention of VTE in hospitalised patients¹. The subsequent report estimated that 25,000 avoidable deaths occur every year in the UK from hospital-acquired VTE. Despite being frequently quoted, this figure has never been substantiated or used by NICE as a basis for any calculations in their guidance. However it is widely agreed that many thousands of deaths occur every year from preventable VTE acquired in hospitals across the UK. Work in England is still ongoing to develop up-to-date and accurate statistics about incidence and death from hospital-acquired VTE, though this task is significantly difficult due to the often clinically silent nature of VTE, and a fall in the number of post-mortems in recent years.

Preventing hospital-acquired VTE

There is significant evidence to support the view that hospital-acquired VTE can be prevented through a combination of two simple, safe and effective steps:

- a risk assessment of patients for their VTE and bleeding risk, to identify those at risk of VTE and those for whom preventative treatment is appropriate; and
- administering preventative treatment for those identified as being at risk of VTE, in the form of pharmacological prophylaxis and/or mechanical prophylaxis.

¹ Available at <http://www.publications.parliament.uk/pa/cm200405/cmselect/cmhealth/99/99.pdf>.

Current NICE guidance, Clinical Guideline 92 (CG92)², provides a comprehensive and up-to-date set of best practice recommendations for VTE prevention applicable across England and Wales. The guideline makes recommendations on assessing and reducing the risk of VTE in patients in hospital, and offers guidance on the most clinically- and cost-effective measures for VTE prophylaxis in these patients. The recommendations take into account the potential risks of the various options for prophylaxis and patient preferences. VTE prevention, in line with the recommendations contained within CG92 is therefore a simple, safe and effective measure which can prevent thousands of avoidable deaths from hospital-acquired VTE every year.

Analysis of recent evidence

Evidence reviews are regularly conducted by NICE to ensure that current guidance is up-to-date with emerging literature. The most recent evidence update on VTE was published by in February 2012 by NHS Evidence³. This update examined new evidence relevant to CG92 published up till August 2011, including a meta-analysis of 14 randomised controlled trials in general medical patients⁴, and concluded that the current evidence concurred with recommendations for prevention of VTE in CG92.

More recently however, CG92 has come under scrutiny following the publication of the LIFENOX trial in December 2011⁵, a study comparing the efficacy of enoxaparin (a low molecular weight heparin) versus placebo in 8307 patients with graded compression stockings. The study did not find any statistically significant differences in all cause mortality at 30 and 90 days, though the study was underpowered as death rates in the study group were lower than in those used for power calculations. Mortality figures at 90 days showed an absolute risk reduction (ARR) of 0.2%, comparable to an ARR of 0.1% estimated in the economic model used for CG92. The LIFENOX study therefore does not show any evidence that estimates of mortality reduction in CG92 were incorrect; indeed it supports the premise of a small reduction in mortality, albeit very weakly.

Having reviewed both published trial literature and peer challenge of the existing guidance to date, it is clear that recent evidence, once quality assessed, will not change existing recommendations for VTE risk assessment of medical patients. There is therefore no basis to suggest an immediate update to CG92. NICE will undertake a formal review of the evidence to date in early 2013.

Financial cost of hospital-acquired VTE

VTE prevention is a cost-effective measure for national health boards to implement. NICE has calculated that compliance with CG92 to prevent hospital-acquired VTE saves money, over and above the cost of managing VTE once it has developed.

Following the publication of CG92, NICE placed VTE prevention within its list of top ten cost-effective guidelines. NICE estimated that effective VTE prevention would cost the NHS in the UK an additional £21.9 million nationally, but this figure is more than offset by the anticipated reductions in DVT and PE. In 1993, the Office for Healthcare Economics estimated that the annual cost of treating patients who developed post-surgical DVT and PE alone was in the region of £204.7 to £222.8 million in the UK.

² Available at <http://www.nice.org.uk/nicemedia/live/12695/47195/47195.pdf>.

³ Available at <https://www.evidence.nhs.uk/evidence-update-6>.

⁴ Bump GM, Dandu M, Kaufman SR et al. (2009) How complete is the evidence for thromboembolism prophylaxis in general medicine patients? A meta-analysis of randomized controlled trials. *Journal of Hospital Medicine* 4: 289–97.

⁵ Kakkar AK, Cimminiello C, Goldhaber SZ, et al. (2011) Low-molecular-weight heparin and mortality in acutely ill medical patients. *N Engl J Med.* 365(26):2463-72.

These figures clearly demonstrate that compliance with best practice in VTE prevention (that is, risk assessment of patients for VTE on admission and the administration of appropriate prophylaxis) makes financial sense for the NHS at a time when there are significant pressures to manage costs. VTE prevention is a simple, effective, and cost-efficient measure to save lives.

Of related interest, NICE has recently also published guidance on management of VTE diseases and the role of thrombophilia testing (CG144)⁶.

Implications for clinical practice

As per current guidance, all hospitalised patients should be assessed on admission for risk of VTE. Where appropriate, prophylaxis should be administered, taking into account the specific risks and benefits to the individual.

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⁶ Available at <http://guidance.nice.org.uk/cg144>.