Preventing venous thromboembolism in hospitalised patients

Why is this important?

There are two common types of thromboses that can occur in a person's veins – deep vein thrombosis (DVT) and pulmonary embolism (PE). These are different manifestations of the same disease process, venous thromboembolism (VTE).

The incidence of VTE has been found to be around 135 times greater among hospitalised patients compared to those in the community.[1] Recent research suggests that close to a quarter of those with VTE had recently been hospitalised for surgery and another quarter for a medical illness. Some 75 per cent of fatal PEs in hospitals struck high-risk medical patients.[2]

The prevention of VTE in hospitals has been identified internationally as a stand-out opportunity to improve patient safety. Not only is there a strong evidence base for VTE preventive measures, but they are relatively cheap and straightforward to implement.[3,4]

In Australia, each year there are approximately 16,000 hospitalisations where DVT is among the conditions reported. For PE, the number is almost 14,000. Assuming a case fatality rate of 15 per cent for PE,[5] there would be 2000 deaths from this cause annually across Australia. PE is one of the single most common preventable causes of hospital death, accounting for or contributing to 10 per cent of all deaths in hospital.

The National Institute of Clinical Studies has identified the underuse of preventive measures for VTE as a clinical priority. Published clinical audits suggest there is a large gap between evidence and practice.

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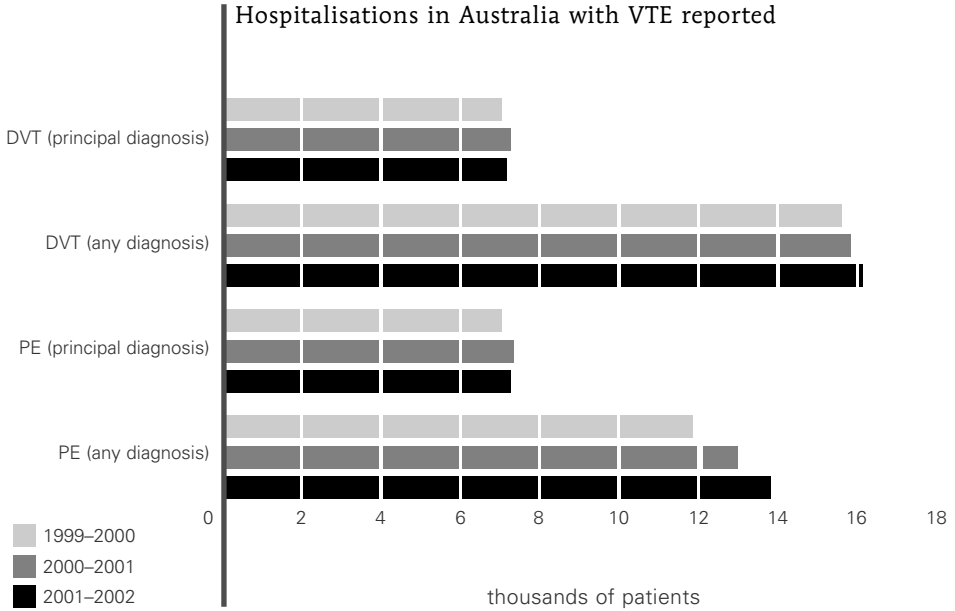
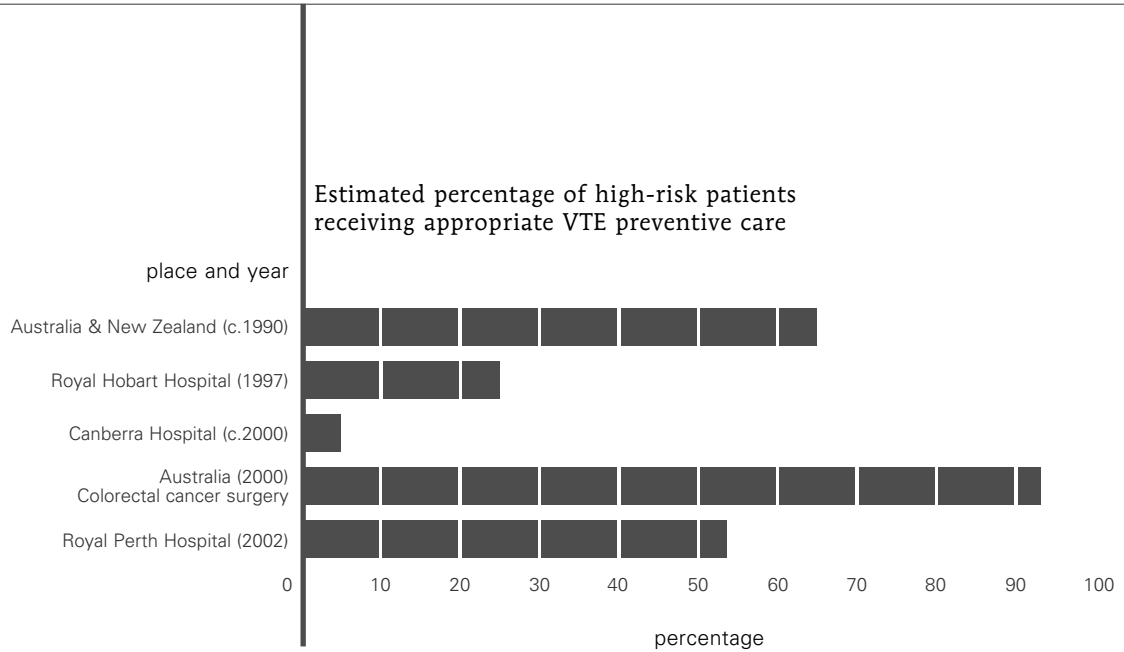
Best available evidence

Various pharmacological and mechanical methods are used to prevent VTE, including the use of heparin (both unfractionated and low molecular weight), warfarin, aspirin, elastic compression stockings and intermittent pneumatic compression. Numerous clinical guidelines on prevention have been published in recent years, including two editions of guidelines for Australia and New Zealand.[6–11] There are also two other Australian clinical practice guidelines that make recommendations for patients with specific conditions.[12,13]



DVT: ICD-10-AM code I80.2; PE: ICD-10-AM codes I26.0 and I26.9

Source: Australian Institute of Health & Welfare (S. Halpin, pers. comm., 28 Jul 2003)



Sources: Fletcher et al. 1992; Peterson et al. 1999; Wan et al. 2003; Ahmad et al. 2002; McGrath & Spigelman 2003

Current practice

Various reports have presented data on prevention of VTE among high-risk, mainly orthopaedic surgery patients, in an Australian setting.[14–17] In patients with colorectal cancer, preventive care for VTE is more likely in capital city hospitals.[18] At the same time, a rural-based study of surgeons has identified prevention of VTE as an area requiring further education.[19]

Implications

- VTEs occur and are sometimes the cause of death among a proportion of hospital patients either while they are inpatients or within a few months of their discharge. Much of this morbidity and mortality could be prevented.
- Widespread use of preventive measures could be introduced to surgical and medical patients who are identified as being at risk.
- The opportunity exists to provide appropriate evidence-based, cost-effective thrombosis prevention to all at-risk patients, both during their hospital stay and during their outpatient care, if necessary.

References

1 Heit JA, Melton LJ, 3rd, Lohse CM, Petterson TM, Silverstein MD, Mohr DN et al (2001) Incidence of venous thromboembolism in hospitalized patients vs community residents. *Mayo Clin Proc* 76: 1102–1110

2 Heit JA, O'Fallon WM, Petterson TM, Lohse CM, Silverstein MD, Mohr DN et al (2002) Relative impact of risk factors for deep vein thrombosis and pulmonary embolism: a population-based study. *Arch Intern Med* 162: 1245–1248

3 Agency for Healthcare Research and Quality (2001) Making health care safer. A critical analysis of patient safety practices: Summary. AHRQ Publication no. 01–E057 Agency for Healthcare Research and Quality, Rockville, MD (Available from www.ahrq.gov/clinic/ptsafety/summary.htm)

4 Agency for Healthcare Research and Quality (2001) Patient safety practices rated by strength of evidence. Addendum to Summary. AHRQ Publication no. 01–E057b Agency for Healthcare Research and Quality, Rockville, MD (Available from www.ahrq.gov/clinic/ptsafety/addend.htm)

5 Cushman M, Tsai A, Heckbert S, White R, Rosamund W, Enright P et al (2001) Incidence rates, case fatality, and recurrence rates of deep vein thrombosis and pulmonary embolus: the longitudinal investigation of thromboembolism etiology (LITE): XVIII Congress, The International Society on Thrombosis and Haemostasis, 6–12 July 2001, Paris, France

6 Fletcher JP, McLellan D, Cade J, fisher C, Gibbs H, Stacey M et al (1999) Prevention of venous thromboembolism. National Working Party on the Prevention and Management of Venous Thromboembolism and Chronic Venous Insufficiency. *ANZ J Surg* 69: 4–5

7 The National Working Party on the Management and Prevention of Venous Thromboembolism (2001) Prevention of Venous Thromboembolism. Best Practice Guidelines for Australia and New Zealand. Second Edition. Health Education & Management International, Sydney

8 Scottish Intercollegiate Guidelines Network (2002) Prophylaxis of venous thromboembolism (SIGN 62). Scottish Intercollegiate Guidelines Network, Edinburgh

9 Kleinbart J, Williams M, Rask K (2001) Ch. 31 Prevention of venous thromboembolism. In: Shojania KG, Duncan BW, McDonald KM, Wachter RM (eds), Making health care safer. A critical analysis of patient safety practices. AHRQ Publication no. 01–E058. Agency for Healthcare Research and Quality, Rockville, MD

10 Geerts WH, Heit JA, Clagett GP, Pineo GF, Colwell CW, Anderson FA Jr et al (2001) Prevention of venous thromboembolism. *Chest* 119: 132S–175S

11 Nicolaides AN, Breddin HK, Fareed J, Goldhaber S, Haas S, Hull R et al (2001) Prevention of venous thromboembolism. International Consensus Statement. Guidelines compiled in accordance with the scientific evidence. *Int Angiol* 20: 1–37

12 National Health and Medical Research Council (1999) Guidelines for the prevention, early detection and management of colorectal cancer (CRC). AusInfo, Canberra

13 Hague WM, North RA, Gallus AS, Walters BN, Orlikowski C, Burrows RF et al (2001) Anticoagulation in pregnancy and the puerperium. *Med J Aust* 175: 258–263

14 Fletcher JP, Koutts J, Ockelford PA (1992) Deep vein thrombosis prophylaxis: a survey of current practice in Australia and New Zealand. *ANZ J Surg* 62: 601–605

15 Wan S, Ting J, Olsen A, Croser J, Eikelboom J (2003) Thromboprophylaxis practice patterns in hip fracture surgery patients: experience in Perth, Western Australia. *ANZ J Surg* 73: 826–829

16 Peterson GM, Drake CI, Jupe DM, Vial JH, Wilkinson S (1999) Educational campaign to improve the prevention of postoperative venous thromboembolism. *J Clin Pharm Ther* 24: 279–287

17 Ahmad HA, Geissler A, MacLellan DG (2002) Deep venous thrombosis prophylaxis: are guidelines being followed? *ANZ J Surg* 72: 331–334

18 McGrath D, Spigelman A (2003) A comparison of concordance with NHMRC guidelines for patients with colorectal cancer treated in capital cities and elsewhere. Proceedings of the Royal Australasian College of Surgeons Annual Scientific Meeting, Brisbane, 5–9 May 2003
(Available from www.ncci.org.au/supp/p_abstracts.htm)

19 Birks DM, Gunn IF, Birks RG, Strasser RP (2001) Colorectal surgery in rural Australia: scars; a surgeon-based audit of workload and standards. *ANZ J Surg* 71: 154–158