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Thromboprophylaxis in elective foot and ankle patients—Current practice in the United Kingdom

P.D. Hamilton BMedSci, FRCS(Orth)[a,*], K. Hariharan MB Bch, FRCS(Orth)[b], A.H.N. Robinson BSc, FRCS(Orth)[a]

[a] Department of Trauma and Orthopaedics, Addenbrooke's Hospital, Cambridge CB2 2QQ, United Kingdom
[b] Department of Trauma and Orthopaedics, The Royal Gwent Hospital, Cardiff Road, Newport, Gwent NP20 2UB, United Kingdom

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ABSTRACT

Background: The incidence of venous thromboembolism (VTE) is unknown in elective foot and ankle surgery. The National Institute for Health and Clinical Excellence (NICE) recently published guidelines on reducing the risk of venous thromboembolism in surgical patients. This includes patients undergoing elective foot and ankle surgery.
Method: In March 2010 we surveyed the current practice in VTE prophylaxis in elective foot and ankle surgery amongst members of the British Orthopaedic Foot and Ankle Society (BOFAS).
Results: The response rate was 84 (53%). The total number of elective foot and ankle operations performed by the surveyed group was 33,500 per annum. The estimated incidence of DVT, PE and fatal PE was 0.6%, 0.1% and 0.02%. In our study the number of patients needed to treat to prevent a single fatal PE is 10,000 although this figure is open to important bias.
Conclusion: We question the applicability of the NICE guidelines to patients undergoing elective foot and ankle surgery. We consider that this data justifies the prospective study of the incidence of VTE in patients undergoing elective foot and ankle surgery, without the use of chemical thromboprophylaxis.

1. Introduction

Prevention of venous thromboembolism (VTE) in medical and surgical patients is controversial. Without the use of thromboprophylaxis deep venous thrombosis (DVT) has a reported incidence of up to 40% in both medical and surgical patients. Incidences of VTE of up to 60% are reported after orthopaedic surgery, although this uses radiological detection of DVT as an endpoint [1,2]. The majority of studies have been performed after hip and knee arthroplasty. This incidence is used as evidence for the use of chemical VTE prophylaxis, assuming that reducing radiologically detected DVTs in turn reduces the incidence of clinical DVTs, pulmonary emboli (PE's) and most importantly fatal PE. Pulmonary embolus is a rare complication and large enough studies to directly measure significant reductions in PE incidence are complex and costly to perform. A further complication of DVT is post-thrombotic syndrome, with ulceration of the leg. The reported incidence of post-thrombotic syndrome in symptomatic DVT is 25% [3]. The rate in asymptomatic DVT has not been well established, although an incidence of post-thrombotic syndrome of 8% at 5 years is reported [4].

The incidence of DVT in foot and ankle surgery has been documented at between 0.22% and 4% [5–8] with risk factors in this group of patients being a past history of VTE, hindfoot surgery with immobilization, non-weight bearing while immobilized, age over 60 and obesity (body mass index >30 kg/m^2) [5,6,8]. These studies include elective and trauma patients and vary both in patient selection, mode of detection and methodology.

When considering VTE prophylaxis the risks versus the benefits need to be considered. The risk of complications is low with mechanical prophylaxis. Chemical prophylaxis has increased risks of bleeding both locally and systemically. The incidence of bleeding complications is unknown in foot and ankle surgery. The efficacy of low molecular weight heparin (LMWH) in reducing radiologically detected DVTs is approximately 50% [9]. The incidence of heparin induced thrombocytopenia (HIT) with prophylactic LMWH is 0.5% with an associated mortality of 10% (0.05% of the total population) [9].

Finally, one must consider the cost and acceptability of the patients. Currently the cost of LMWH per day is £4.04 [10] but this does not take into account the time needed for education,

* Corresponding author. Tel.: +44 07887712431; fax: +44 01223 257221.
E-mail addresses: pauldhamilton@gmail.com, pauldhamilton@gmail.com (P.D. Hamilton).

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administration and blood tests. Compliance to LMWH injections after discharge has been reported at 55–72% [11,12].

Evidence based guidelines for VTE prophylaxis have been produced in the United Kingdom (UK) [9] and the United States of America (USA) [1]. The most recent of these was published by NICE in the UK [9]. In the UK remuneration for treatment has been linked to the implementation of these guidelines, pressuring clinicians to follow the guidelines, whether they agree with them or not. There is also concern as to the legal implications of non-adherence to the guidelines.

The aim of this study is to establish current practice amongst British foot and ankle surgeons as to the use of thromboprophylaxis in elective foot and ankle patients undergoing surgery. This study was circulated at the time of publication of the NICE guidelines, but before their widespread implementation.

2. Methods

All members of the British Orthopaedic Foot and Ankle Society (BOFAS) were contacted via e-mail and asked to fill out an on-line questionnaire. The contact details for BOFAS members were obtained from the 2009 British Orthopaedic Association handbook. Only practicing consultants were included. The questionnaire was sent out in March 2010 and respondents were given two months to reply. Non-responders were contacted a further two times via e-mail. All analysis was performed using Microsoft Excel 2007.

The questionnaire is shown in Fig. 1. The questionnaire was designed to record the estimated number of cases of VTE, and to assess individual surgeons practice, and the way that their practice had been influenced by the introduction of central guidelines. We were also interested in exploring the surgeon's perception of procedure specific and patient specific factors on their use of VTE prophylaxis.

3. Results

One hundred and sixty members of BOFAS were contacted. We received 84 replies (53%). 29 (34%) of surgeons were dedicated foot and ankle surgeons, with over 90% of their operative cases being elective foot and ankle surgery. 70 (83%) of the surgeons performed over 50% foot and ankle surgery. In total the number of elective foot and ankle operations performed by the surveyed group was 33,500 per annum. This is an average 399 operations per surgeon per year.

The VTE rates are shown in Table 1. These figures were obtained by dividing the number of VTE's experienced by the total number of operations performed. The surgeons' estimate of the risk of VTE was higher than the VTE rates and is shown in Table 2.

The NICE guidelines had been read by 76 (90%) surgeons with 44 (52%) individuals feeling that these centrally produced guidelines would alter their practice. Furthermore 78 (93%) surgeons considered that the evidence upon which the guidelines were based was not applicable to foot and ankle surgery. In those individuals who were going to change their practice as a result of the guidelines, 35 (80%) were going to do so as a result of legal implications, 26 (59%) because of hospital policy requirements and 11 (25%) for patient safety.

46 (54%) individuals had introduced a system in to implement the guidelines. Only 24 (29%) give written advice and 66 (79%) discuss VTE prophylaxis with their patients. The majority of surgeons advise stopping oestrogen containing oral contraception (65%) with less (32%) recommending the stopping of hormone replacement therapy. 50 (60%) of surgeons used regional anaesthetic where possible to reduce the risks of VTE.

The current types of prophylaxis used are shown in Table 3. Use of prophylaxis when using different surgical procedures as a single risk factor is shown in Table 4. Table 5 shows use of prophylaxis in patients with single risk factors regardless of surgical procedure. The number of days this prophylaxis is

1. What percentage of your practice is elective foot and ankle surgery?

2. From your experience and knowledge of the literature what do you feel is the risk of developing a venous thromboembolism (VTE) requiring treatment in elective foot and ankle surgery?

3. In your elective foot and ankle practice only please estimate-

a. the number of operations you perform per year.

b. the number of deep vein thromboses requiring treatment you experience per year.

c. the number of pulmonary emboli per year.

d. the number of fatal pulmonary emboli per year.

4. With regard the current National Institute for Health and Clinical Excellence (NIHCE) guidance for VTE thromboprophylaxis (January 2010)

a. have you read them?

b. do you think it will alter your practice?

c. do you think the evidence on which the guidance is based is applicable to elective foot and ankle surgery?

d. do you have a system in place to implement the guidelines?

e. do you have a system in place for monitoring platelet count on those requiring low molecular weight heparin (LMWH) prophylaxis?

5. There are procedure specific and patient specific factors that determine the need for chemoprophylaxis. This question explores your perception of the procedure specific factors, and question 6 will look at patient specific factors.

Please consider the factors in isolation, hence an answer of "sometimes" equates to a NO.

Do you give chemoprophylaxis in your elective foot and ankle practice when performing the following procedures and if so how long do you give it for?

a. Ankle arthroscopy

b. Hindfoot fusion

c. Tarsometatarsal fusion

d. Hallux valgus surgery

e. Forefoot reconstruction

f. Any procedure were the anaesthetic and surgical time is greater that sixty minutes.

g. Any procedure requiring plaster immobilisation.

Fig. 1. Questionnaire.