



Current practice for anticoagulation prophylaxis in inguinal hernia surgery: a questionnaire survey

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Abstract

Aims The incidence of deep vein thrombosis (DVT) and pulmonary embolism (PE) is well documented in patients undergoing surgery involving general anaesthesia. A large number of trials have been conducted establishing the efficacy of prophylactic measures against deep vein thrombosis, yet there remains wide practice variation amongst surgeons regarding the use of anticoagulation measures. The main aims of our study were to survey the use of DVT prophylaxis for inguinal hernia repairs in the UK, and to establish any variations amongst British surgeons in their use of anticoagulation measures for repair of inguinal hernias.

Methods We conducted a questionnaire survey amongst surgeons of the Association of Endoscopic Surgeons of Great Britain and Ireland (AESGBI). Two hundred and fifty questionnaires were sent with a response rate of 72%.

Results Our results have shown wide variation amongst British surgeons in the use of anticoagulation measures. Furthermore, only 10% of the surgeons in the laparoscopic and 14% in the open group risk stratify their patients; 10% of the surgeons do not use any DVT prophylaxis at all.

Conclusions Although the incidence of DVT in inguinal hernia repair is very low this is a very commonly performed procedure. Both over and under treatment with thromboprophylaxis can have implications in terms of side effects and costs. One possible way to avoid problems is to risk stratify patients before thromboprophylaxis is instituted.

Thromboembolic disease has long been recognised as a major cause of post-operative mortality and morbidity. The incidence of deep vein thrombosis (DVT) in patients having general surgical procedures is quoted to be about 25%;¹ these figures, however, have been confounded by the different selection criteria used by various large studies in this field. The THRIFT II consensus group, for instance, quoted a DVT incidence of 10–80% in general, urological and gynaecological patients.^{2,3} Despite the fact that many risk factors for DVT are known and the efficacy of prophylaxis is well established,^{4,5} there are no fixed guidelines for the use of DVT prophylaxis in various general surgical operations, and practice varies from surgeon to surgeon. The inconsistent use of DVT prophylaxis can lead to under or over treatment; the former putting the patient at risk of post-operative thromboembolic disease,¹ and the latter resulting in undesirable side effects,⁶ not to mention cost implications.⁷

Methods

The majority of the surgeons practising laparoscopic hernia repairs in the UK are also involved in open hernia surgery (100% in our study). We therefore used the members of the Association of Endoscopic

Surgeons of Great Britain and Ireland (AESGBI) as a representative sample for our questionnaire survey. This would give us the additional benefit of highlighting any difference in practice of anticoagulation prophylaxis between open and laparoscopic hernia repairs. Figure 1 is the questionnaire that was posted subsequently to 250 consultant surgeons.

Figure 1. Questionnaire survey sent to surgeons of the Association of Endoscopic Surgeons of Great Britain and Ireland (AESGBI)

<p>Q1) Do you carry out laparoscopic repair of inguinal hernias?</p> <p>Q2) Which of the following measures do you undertake to prevent DVTs in a patient having laparoscopic inguinal hernia repair? (Tick one or more) Anticoagulants (heparin/Clexane[®] etc). Please mention dose and timing. Stockings Intermittent pneumatic compression Others</p> <p>Q3) Which of the following measures do you undertake to prevent DVTs in a patient having open inguinal hernia repair? (Tick one or more) Anticoagulants (heparin/Clexane[®] etc). Please mention dose and timing. Stockings Intermittent pneumatic compression Others</p> <p>Q4) What thromboprophylactic measures, if any, do you take for inguinal hernia repairs done under local anaesthetic?</p>

Results

In total, 250 questionnaires were posted. We received 185 replies out of which three surgeons were already retired and two could not be located at their particular address. We have therefore worked out our calculations from a figure of 180 completed replies (72% response rate).

Ninety nine surgeons (55%) perform laparoscopic repairs for inguinal hernias and all of them do open hernia repairs as well, whereas 81 surgeons (45%) repair hernias by an open technique only. Out of the 99 that do laparoscopic hernias, 75 take identical measures for DVT prophylaxis for laparoscopic and open hernias, whereas 24 differ between prophylaxis for open and laparoscopic surgery. There is no consistent pattern, but out of these 24, 17 surgeons take slightly more measures for their laparoscopic hernias and 7, for their open hernias.

Tables 1 and 2 show the methods used for prophylaxis in laparoscopic and open hernia repairs respectively. As clearly demonstrated by these figures, there is no predominant method used for prophylaxis, instead the distribution is random and seems rather empirical. Ten per cent in the laparoscopic group and 14% in the open group said that the only time they use pharmacological prophylaxis, with or without any additional measures, is when the patient is at a high risk of thromboembolic disease post-operatively. High-risk factors were defined as age over 40 years, previous DVT and obesity.

Table 1. Prophylactic anticoagulation measures for laparoscopic repair of inguinal hernia

Type of prophylaxis	Number of surgeons (%)
Heparin and stockings	22 (22.2)
Stockings and IPC	12 (12.1)
No measures	12 (12.1)
Stockings	12 (12.1)
High risk only*	10 (10.1)
IPC	10 (10.1)
Heparin, stockings and IPC	9 (9.1)
Heparin and IPC	6 (6.1)
Heparin	6 (6.1)

IPC = intermittent pneumatic compression

*these patients received heparin, with or without mechanical prophylaxis, only if stratified in high-risk group (heparin could be unfractionated heparin or low-molecular-weight heparin)

Table 2. Prophylactic anticoagulation measures for open repair of inguinal hernia

Type of prophylaxis	Number of surgeons (%)
Heparin and stockings	35 (19.4)
Stockings	26 (14.4)
High risk only*	25 (13.9)
Heparin, stockings and IPC	25 (13.9)
No measures	19 (10.6)
Stockings and IPC	18 (10.0)
IPC	17 (9.4)
Heparin	9 (5.0)
Heparin and IPC	6 (3.3)

IPC = intermittent pneumatic compression

*these patients received heparin, with or without mechanical prophylaxis, only if stratified in high-risk group (heparin could be unfractionated heparin or low-molecular-weight heparin)

We also included a question about the use of DVT prophylaxis in hernia repairs under local anaesthetic. The results (Table 3) yet again showed no consistent pattern, with different groups practising various techniques. Twelve surgeons do not perform hernia surgery under local anaesthetic. Again 10 (5.6%) use pharmacological prophylaxis only if the patient is in a high-risk group.

As far as the use of heparins was concerned, in the open group a total of 100 surgeons use heparins with or without additional measures, out of which 44 use low-dose unfractionated heparins (UFH) and 56 use low-molecular-weight heparins (LMWH). These figures were nearly the same for the laparoscopic hernia repairs.

Table 3. Prophylactic anticoagulation measures for open repair of inguinal hernia performed under local anaesthetic

Type of prophylaxis	Number of surgeons (%)
No measures	46 (25.6)
Stockings	31 (17.2)
Heparin and stockings	24 (13.3)
No reply	14 (7.8)
Heparin, stockings and IPC	12 (6.7)
Do not perform surgery under local anaesthetic	12 (6.7)
Stockings and IPC	11 (6.1)
High risk only*	10 (5.6)
IPC	8 (4.4)
Heparin	8 (4.4)
Heparin and IPC	4 (2.2)

IPC = intermittent pneumatic compression

*these patients received heparin, with or without mechanical prophylaxis, only if stratified in high-risk group (heparin could be unfractionated heparin or low-molecular-weight heparin)

Discussion

Surveys conducted in the United States⁸ and England⁹ have shown wide practice variation in the use of DVT prophylaxis. In 1993 the estimated cost to the National Health Service of DVT and PE was over £200 million. If all the patients at high risk of developing post-surgical DVT had received prophylaxis, the NHS would have saved between £30 million and £80 million.¹⁰ On the other hand, use of heparin (UFH and LMWH) has been reported to be associated with wound complications and haematomas,^{6,11,12} resulting in morbidity with its accompanying financial implications. The rational application of DVT prophylaxis demands knowledge of risk factors. All surgical patients admitted to the hospital should be assessed for their risk of DVT with respect to their medical history, clinical signs, existing conditions and the result of blood tests. They should then be categorised according to their level of risk and appropriate prophylaxis given.

The incidence of DVT and PE after inguinal hernia repair is very low. Dudda and Schunk have quoted a rate of 0.9% for PE and 0.7% for DVT in their series of 1202 inguinal hernia operations.¹³ Kark et al reported one case of DVT in a review of 1098 hernia repairs under local anaesthetic without any prophylaxis.¹⁴ Begin has reported one case of DVT from a series of 200 laparoscopic, extraperitoneal inguinal hernia repairs in France.¹⁵ Kopanski et al have shown a statistically significant difference in the incidence of thrombotic complications after laparoscopic and open operations with the former being much lower than the latter.¹⁶ Finally, there is evidence to support the preferred use of LMWH over UFH in general surgery with respect to better prophylactic efficacy, once-daily injections and cost-saving implications,^{17,18} but even this topic is subject to debate and controversy.

Our study is a very simple one, highlighting the variance and inconsistency in the use of anticoagulation measures amongst British surgeons. Although most surgeons are aware of the associated risks and are using some form of prophylaxis, the pattern is random and inconsistent.

The wide variation shown in our survey reflects the lack of research on which to base good practice. Some might argue that, due to the very low rate of DVT in inguinal hernia repair, 'type' of prophylactic measure is not important. We, however, point out that this is a very commonly performed procedure and lack of risk stratification before instituting prophylaxis can potentially cause over or under treatment of patients with its associated cost implications.

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