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[Intervention Review]

Interventions for preventing venous thromboembolism in adults undergoing knee arthroscopy

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ABSTRACT

Background

Knee arthroscopy is a frequent surgical procedure. Arthroscopy procedures are considered minimally invasive. However, some patients will need extended surgical time, suffer injury and immobilization thus increasing the risk for thromboembolic events. Incidence of deep venous thrombosis (DVT) in patients undergoing knee arthroscopy is reported to be from 0.6% to 17.9% depending on the diagnostic method used. Different approaches are available for thromboprophylaxis (mechanical or pharmacological).

Objectives

To assess the effectiveness and safety of thromboprophylaxis to reduce the incidence of DVT in patients undergoing knee arthroscopy.

Search methods

We searched the Cochrane Peripheral Vascular Diseases Group Specialized Register (last searched October 2006) the CENTRAL (last searched Issue 4, 2006), MEDLINE (1966 to 2006), EMBASE (1980 to 2006), and Lilacs (1988 to 2006). We contacted specialists known to be involved in phlebology and interested in post thrombotic syndrome for details of unpublished and ongoing trials.

Selection criteria

Randomized clinical trials (RCTs) and controlled clinical trials (CCTs), whether blinded or not (i.e. double blinded, single blinded or unblinded) of all type of interventions, whether mechanical or pharmacological, single or in combination, used to prevent DVT in males and females over 18 years old undergoing knee arthroscopy. There was no restriction on language.

Data collection and analysis

Two authors independently assessed trial quality and extracted data. Study authors were contacted for additional information.

Main results

Four trials involving 527 predominantly male participants were included. The main weakness of the studies was the lack of correct stratification of the arthroscopic intervention.

The relative risk (RR) of thrombotic events was 0.16 (95% confidence interval (CI); 0.05 to 0.52) comparing any type of low molecular weight heparin (LMWH) versus placebo. All thrombotic events but one (pulmonary embolism in the LMWH group) were distal venous thrombosis.

Adverse events were most common in the intervention group than in the control group, RR 2.04 (95% CI 1.21 to 3.44). There were 66 episodes of adverse events. The number needed to harm was 20 for any adverse events.

Authors' conclusions

This meta-analysis suggests that LMWH reduces the incidence of distal DVT diagnosed by sonogram. The clinical benefit of this is uncertain. No strong evidence was found to conclude thromboprophylaxis is effective to prevent thromboembolic events and safe, in people with unknown risk factors for thrombosis, undergoing knee arthroscopy.

PLAIN LANGUAGE SUMMARY

Interventions for preventing venous thromboembolism in adults undergoing knee arthroscopy

Knee arthroscopy is a common, minimally invasive surgical procedure used both for diagnosis and treatment of knee conditions. It is increasingly carried out in day surgery using various types of anaesthesia. Some people are at increased risk of developing deep vein thrombosis (DVT) because of factors including a previous history, immobilization, smoking, obesity, varicose veins and increasing age. Different approaches are available for preventing DVT (thromboprophylaxis), both mechanically and with drug medication. The characteristic symptoms of DVT are limb pain and swelling (edema) but often there are no obvious signs or symptoms. DVT at or above knee level (proximal) is associated with an increased risk of pulmonary embolism (which can be fatal) but isolated calf DVT (distal) rarely causes symptoms and is asymptomatic. Arthroscopy patients are often young and soon become mobile again. The incidence of DVT is reported to be from 0.6% when diagnosed clinically to 17.9% using the most sensitive imaging techniques (venography).

This review reports that low molecular weight heparin reduces the incidence of distal DVT diagnosed but the clinical benefits of this are uncertain. The review authors identified four completed studies from three countries that randomly assigned a total of 527 adults to low molecular weight heparin (LMWH) or no intervention or placebo. The mean age of participants ranged from 31 to 44 years and nearly three quarters were male. The relative risk (RR) of thrombotic events was 0.16 (range 0.05 to 0.52). The number needed to treat to prevent one thrombotic event was 17. All the blood clots were distal and were mainly diagnosed by sonogram. Adverse events were most common in the intervention group. The most common complication was minor bleeding with a RR of 2.23 (range 0.99 to 4.99). The number needed to harm was 20. No completed studies were found that looked at mechanical devices such as graduated elastic stockings or intermittent pneumatic compression, for patients immobilized in bed.