

Anticoagulation does not reduce the risk of venous thromboembolism after knee arthroscopy or casting of the lower leg in patients who are at average risk

Question

In people who require knee arthroscopy or lower leg casting, does low-dose anticoagulation with low-molecular-weight heparin decrease the risk of symptomatic venous thromboembolism compared with no anticoagulation?

The study

Who? The study included 1451 people who underwent knee arthroscopy and 1435 people who had lower leg casting in 2 parallel randomized trials.

What? The study compared the risk of symptomatic venous thromboembolism and bleeding in people who received prophylactic dose low-molecular-weight heparin versus those who did not receive any anticoagulation.

Low-molecular-weight heparin	vs	No anticoagulation
Dalteparin (Fragmin), 2500 IU daily for people weighing up to 100 kg (about 220 lb), and 5000 IU daily for people weighing more than 100 kg <i>Or</i> Nadroparin (Fraxiparine), 2850 IU daily for people weighing up to 100 kg, and 5700 IU daily for people weighing more than 100 kg For 8 days starting on the day of knee arthroscopy or for duration of casting of lower leg (minimum of 1 week)		Nothing

What the researchers found

The rate of symptomatic venous thromboembolism and major bleeding did not differ for people who received low-molecular-weight heparin compared with those who received no anticoagulation.

The bottom line

In people who had knee arthroscopy or lower-limb casting, prophylactic dose low-molecular-weight heparin does not decrease the rate of symptomatic venous thromboembolism compared with no anticoagulation.

Summary of findings

Low-molecular-weight heparin vs no anticoagulants in people who undergo knee arthroscopy or lower limb casting

Outcomes at 3 months	Rate of events with low molecular weight heparin	Rate of events with no anticoagulants	Absolute effect of low molecular weight heparin
Symptomatic thromboembolism in people having knee arthroscopy	0.7%	0.4%	No effect*
Symptomatic thromboembolism in people having lower limb casting	1.4%	1.8%	No effect*
Major bleeding in people having knee arthroscopy or lower-limb casting)	0.07%	0.07%	No effect

*Although the rates for the 2 groups look different, the differences were not statistically significant—this means that the difference could simply be due to chance rather than due to the different treatments.

*This Evidence Summary is based on a study by van Adrichem RA, Nemeth B, Algra A, et al. **Thromboprophylaxis after Knee Arthroscopy and Lower-Leg Casting.** N Engl J Med. 2017;376:515-25. PubMed (<https://www.ncbi.nlm.nih.gov/pubmed/27959702?dopt=Abstract>)*

Should patients who have knee arthroscopy or require a cast on their lower leg receive anticoagulant therapy to prevent venous thromboembolism?

Orthopedic surgery on the lower leg is an important risk factor for the development of venous thromboembolism (VTE). There is strong evidence that anticoagulants reduce the risk of VTE after knee and hip replacement surgery. However, there has been uncertainty whether the same is true for less invasive surgeries such as knee arthroscopy or lower leg casting.

In this Dutch trial performed with broad inclusion criteria, the risk of symptomatic VTE was low (less than 1% for knee arthroscopy patients and less than 2% for patients with a lower leg cast). Importantly, prophylactic dose anticoagulation did not reduce this risk. These findings suggest that the current practice of not routinely offering anticoagulant prophylaxis to all patients in these two categories is justified.

The main methodological limitation of the study was the lack of a placebo group. Patients assigned to the control group may have taken measures to reduce their risk of VTE (e.g., increased their mobility, took aspirin) because they knew they weren't receiving anticoagulant therapy. Furthermore, investigators may have used a lower threshold to pursue a diagnostic workup for VTE in the control group compared to those who received anticoagulation. The small number of outcome events in the study is also important to note and suggests that patients enrolled in the study were generally at low risk for VTE. For this reason, the results of this study may not apply to patients who have a higher baseline risk of VTE (e.g., higher BMI, older age, family history of VTE).

Doctor, should I take blood thinners after arthroscopic knee surgery or if I have a cast on my lower leg?

For most people, it is not necessary to take blood thinners after arthroscopic knee surgery or with a leg cast because the risk of developing a blood clot is low. However, if you have conditions that increase your risk for forming blood clots, such as a personal or family history of blood clots, your doctor may recommend blood thinners for you.

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