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Examination of venous thromboembolism prophylaxis in patients undergoing total knee arthroplasty

William Kucera
University of North Dakota

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Elective total knee arthroplasty (TKA) is the most frequently performed surgical procedure in the United States. The Bone & Joint Journal, Stewart et al. (2013) evaluated the suitability of aspirin in prevention of VTE in patients undergoing TKA or THA. The researchers concluded that aspirin used both alone and in combination for VTE prophylaxis resulted in a low rate of VTE and major bleeding complications. The researchers also decided that aspirin use was safe and effective for VTE prophylaxis in postoperative TKA patients. The study outcomes included VTE incidence of 1.3% for aspirin and 0.7% for combination therapy versus 2.3% for placebo. The rate of major bleeding was 0.2%, and the pooled rate of minor bleeding was 0.5% for both aspirin and combination therapy. The study demonstrated that aspirin can be used as a sole means of VTE prophylaxis in postoperative TKA patients.

The researchers concluded that rivaroxaban was associated with a cost savings of $465.74 per patient and prevented an average of 0.093 symptomatic VTE events per patient. Sensitivity analysis demonstrated a cost savings ranging from $293.03 to $488.68. Most studies have found that aspirin is a safe and effective option for VTE prophylaxis in high-risk patients undergoing TKA, or hip fracture surgery. They concluded that aspirin use was safe and effective for VTE prophylaxis. The researchers also concluded that rivaroxaban was more cost effective than aspirin in major VTE events in patients undergoing TKA. In patients with high probability of VTE and a low probability of bleeding, however, warfarin was more cost effective.

Several studies, as discussed above, have demonstrated the superiority of aspirin and factor Xa inhibitors over LMWH and warfarin in terms of efficacy of DVT prevention. Factor Xa inhibitors are cost-effective and demonstrate an increased bleeding risk compared to aspirin. Neither drug requires laboratory monitoring, and one is more easily able to recommend a once daily dosing option for both drugs.

After extensive review of the literature, this author’s opinion is that, in low-risk patients undergoing TKA, aspirin is a safe and effective thromboprophylaxis agent. Aspirin has a limited risk profile, is cost effective and available over the counter, and does not require laboratory monitoring. The dosing regimen is simple and consists of 81 mg tablet daily for six weeks postoperatively. Further, in the case of overdose, a reversal agent is available. Clinicians must be prudent in analysing each patient’s DVT risk profile to optimise the most superior prophylaxis agent based on the patient’s history and anticipated period of immobilisation.


References


• Sietsema, W. K. (2014). Review of the current safety and efficacy of aspirin, LMWH, factor Xa inhibitors, and vitamin K antagonists for VTE prophylaxis following TKA. The researchers concluded that aspirin use was safe and effective for VTE prophylaxis. The researchers also concluded that rivaroxaban was more cost effective than aspirin in major VTE events in patients undergoing TKA. In patients with high probability of VTE and a low probability of bleeding, however, warfarin was more cost effective.


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