

## Thromboembolism in Patients Undergoing Total Knee Arthroplasty with Epidural Analgesia

Brooks PJ, Keramati M, Wickline A (2007). *Journal of Arthroplasty*; 22(5): 641-643

### Overview

A retrospective chart review was undertaken of 381 consecutive patients who underwent primary unilateral or bilateral total knee arthroplasty (TKA) with regional anaesthesia between 1995 and 2002.

### Design and methodology

All patients in the study received calf length intermittent pneumatic compression (IPC) garments for deep vein thrombosis (DVT) prophylaxis. IPC was used on the contralateral leg pre-operatively for unilateral cases and in the recovery room for the ipsilateral leg and bilateral cases. Two hundred and twenty four patients had spinal anaesthesia together with low molecular weight heparin (LMWH) (Enoxaparin 30 mg BD for 7 days) and 157 had epidural anaesthesia with no chemical prophylaxis (to avoid the possibility of epidural haematomas). For patients receiving spinal anaesthesia the LMWH was administered, on average, 17 hours post-surgery (range 6 – 32 hours).

### Measurements recorded

All patients had an early post-operative lower extremity ultrasound 3-4 days post-op.

### Results

Of the 157 patients who had epidural anaesthesia (+ IPC only), 6 (3.8%) had DVT; all had had bilateral knee arthroplasty. Of the 224 spinal anaesthetic patients (IPC + LMWH), 5 (2.2%) had a DVT. There were no PE's in either group. Results were analysed in 2 groups: unilateral and bilateral and demonstrated that there was no relationship between the DVT rate and anaesthetic/ chemoprophylaxis technique.

### Discussion

Epidural anaesthesia is advantageous as it can reduce the rate of DVT as well as reducing pain for the 24 hour period immediately post-op. However, chemical prophylaxis is contra-indicated in such patients due to risk of epidural haematoma. The recommendation from the American College of Chest Physicians (ACCP) regarding venous thromboembolism prophylaxis<sup>1</sup> in TKA patients is to provide either LMWH or adjusted dose warfarin or alternatively, optimal use of an IPC device, however, they did not take into account differing anaesthetic regimens when they recommend use of chemical prophylaxis following elective TKA.

### Conclusion

The data from this study suggests that epidural anaesthesia with IPC not only helps prevent VTE but also provides additional benefits to the patient including; improved pain control, early range of motion; greater patient satisfaction. Despite the absence of pharmacological prophylaxis (LMWH or warfarin) there was no increase in VTE incidence.

1. Geerts W, Pineo GF, Heit JA et al (2004). Prevention of venous thromboembolism: the seventh ACCP conference on antithrombotic and thrombolytic therapy. *CHEST*; 126: 338S-400S.