

## Compartment syndrome

### Q Is there an association between use of intermittent pneumatic compression and patients developing compartment syndrome?

A Compartment syndrome (CS) is most commonly associated with trauma or surgery to the limbs, although the actual incidence is relatively low (Raza 2004). Rare anecdotal reports have postulated, in the absence of evidence, that intermittent pneumatic compression (IPC) may have been one contributory factor to the development of CS. However, Gilbert et al (1995) demonstrated that the periods of pressure elevation produced by IPC were insufficiently long to produce any adverse effects. Where CS has occurred, it has been in association with prolonged lithotomy or Lloyd Davies positions and multiple risk factors, hence the causative factors are difficult to determine.

Pfeffer et al (2001) looked at the effects of IPC on directly measured intracompartmental pressure in the lower limb in 25 healthy volunteers with the leg in 3 different lithotomy positions. The findings suggested that support near the ankle resulted in lower compartment pressures while the application of IPC in this study was associated with a general decrease in intracompartmental pressures. The FLOWTRON® system does not apply high enough pressures to cause damage to the muscle, tissue or vasculature within the limb and evidence of any association between IPC and CS is lacking.

However, as a precautionary measure and part of good practice, we recommend regular repositioning of a limb when using IPC in the lithotomy position or modifying the position to extend the limb laterally. Use of a foot garment may be an alternative solution particularly for prolonged procedures in those patients with a large body mass index.

#### References:

Gilbart MK, Oglivie-Harris D, Broadhurst C and Clarfield M (1995). Anterior tibial compartment pressures during intermittent sequential pneumatic compression therapy. *The American Journal of Sports Medicine*; 23 (6): 769-772.

Pfeffer SD, Halliwell JR, Warner MA (2001). Effects of lithotomy position and external compression on lower leg muscle compartment pressure. *Anesthesiology*; 95: 632-636.

Raza A, Byrne D and Townell N (2004). Lower leg (well leg) compartment syndrome after urological pelvic surgery. *The Journal of Urology*; 171 (1): 5-11.

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