

An RCT comparing the effect of the geko™ device and TED stockings on post-operative oedema in Total Hip Replacement patients

Wainwright T W, Immins T, Middleton R G
Bournemouth University

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Introduction

Post-operative oedema affects patients following total hip replacement (THR), and oedema in the thigh may inhibit quadriceps muscle function following hip surgery. Preventing muscle inhibition is important if strengthening exercises are to be completed in order to maximise functional recovery and accelerate rehabilitation. The geko™ device was chosen as it was already being used in our institution as a mechanical method of DVT prophylaxis. It delivers neuromuscular electro-stimulation via the common peroneal nerve and has been found to be effective at increasing venous flow.

Aim

To determine the efficiency of the geko™ device in preventing the formation of oedema as compared to knee high Thrombo Embolic Deterrent Stockings (TEDS) in patients following total hip replacement.

Method

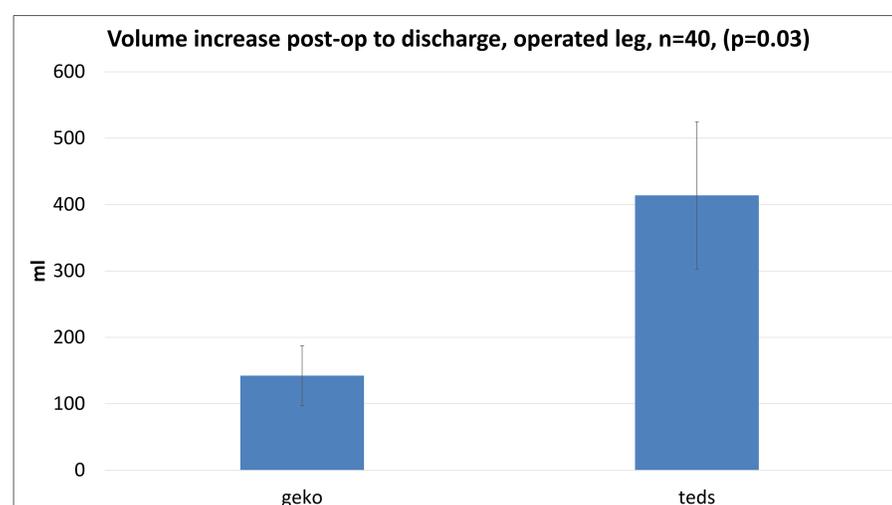
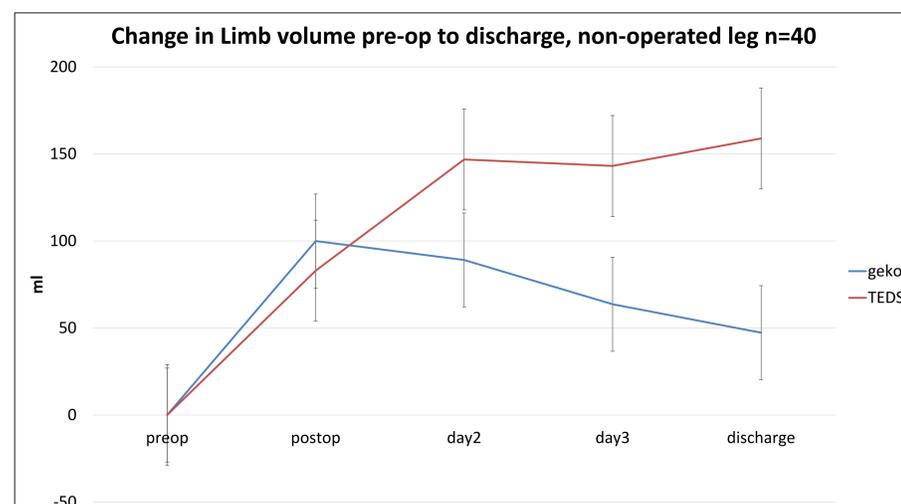
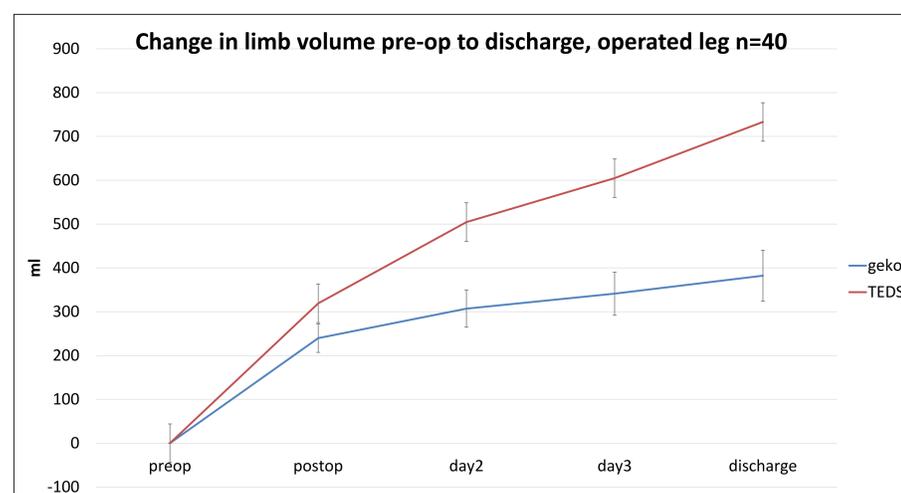
The hospital's enhanced recovery protocol was followed with patients being randomised to either TEDS or the geko™ device prior to surgery. The geko™ device and TEDS were used continually post-surgery until discharge. Circumference measurements of the ankle, knee and thigh were taken with a tape measure pre-operatively, immediately post-operatively and on every day of hospital stay.

Analysis

By considering the leg to be a stack of two truncated conical segments (ankle to knee is one conical segment, and knee to thigh second conical segment), and assuming knee location is half-way between ankle and thigh, the volume of each conical segment was calculated.

Results

Between pre-operation and discharge, at the thigh on the operated leg, geko™ users had a mean change in swelling of +1.5 cm (± 0.3 cm) and TEDS users had a mean change of +2.9 cm (± 0.6 cm). The geko™ device was well tolerated by patients and safe to use.



Conclusion

Results indicate that the geko™ device may be more effective than the TED stockings at reducing oedema post-operatively. This may suggest that hospitals should consider the geko™ device when choosing mechanical DVT prophylaxis modalities as it offers the additional benefit of reducing oedema.