

A clinical comparison of pneumatic compression devices: The basis for selection

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An independent study undertaken by the Department of Surgery, University of Michigan, USA.

Abstract

- This was a prospective observational cohort study designed to evaluate the performance of five commonly available pneumatic compression devices (PCD's).
- Five evaluation criteria were selected:-
 - Rate of deep vein thrombosis (DVT)
 - Compliance
 - Patient acceptance
 - Nursing acceptance
 - Cost
- Each device was evaluated exclusively for 30 days and counters were affixed to each pump to monitor running times.
- Patients underwent venous ultrasound duplex imaging before and after use of the PCD.
- Patients and staff completed questionnaires regarding satisfaction. Devices were ranked on each criterion and data were compared on a matrix.
- Device W (FLOWTRON® Excel calf device; ArjoHuntleigh) had the best overall ranking of all the products tested.

Main outcomes

1. There was little difference in incidence of DVT between thigh length (3.4%) and calf length (3.6%) garments.
2. In those patients who developed DVT, there was a significantly higher incidence of proximal DVT (71%) in thigh length as opposed to calf length garments (52%).
3. The ArjoHuntleigh product (device W) had a comparable DVT rate to the two sequential systems tested (devices X and Y).
4. The rapid gradient sequential system (device V) had the highest rate of DVT (9.8%).
5. Patients were questioned regarding comfort, mobility, sleep interference and noise. ArjoHuntleigh products received the best ranking.
6. Nurses answered 8 questions about ease of use, alarms, patient complaints and mobilisation. ArjoHuntleigh products ranked equal first.
7. Overall, ArjoHuntleigh products were ranked best with a score of 7; the nearest competitors scored 12 and 14. ArjoHuntleigh products were also the most cost effective.
8. The FLOWTRON Excel calf device had the lowest DVT rate (1.1%).