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**Title: Case series evaluating thigh administered Intermittent Pneumatic Compression (IPC) as an adjunct therapy for patients with hard to heal mixed/venous leg ulcers**

**Aim:** To evaluate the effectiveness and acceptability of thigh administered IPC on lower limb, hard to heal wounds of mixed or venous aetiology.

**Methods:** Twenty-seven patients with hard to heal, non-infected, lower limb wounds of mixed or venous aetiology were recruited across six English and Welsh evaluation sites. Hard to heal was defined as 'wounds failing to progress over the preceding 8-week period'. Participants continued to receive their standard wound care throughout the 16 week evaluation but were also provided with an IPC device to be used for 2 hours daily. The device consists of a circumferential three-chamber thigh garment and an electronic pneumatic compression pump operating over a repeated 4-minute cycle. Bi-weekly reviews were undertaken during the evaluation period; assessments included wound photographs, tracings and measurements (cm<sup>2</sup>), and reported wound-related pain. Participants provided their perspective of the IPC device at the end of the evaluation.

**Results:**

Wales (n=11): 8 patients completed the 16 week evaluation, of these 100% progressed towards healing, with a mean surface area reduction of -63% (range: -16% to -100%). 25% (n=2) achieved complete re-epithelialisation and reported pain reduced in 80% (n=6) of the patients. Mean duration of wounds prior to inclusion in the evaluations was 48 months. Clinicians and patients reported that the thigh garment was tolerated well.

England (n=16): 13 patients completed the 16 week evaluation, of these 92% (n=12) progressed towards healing, with a mean surface area reduction of -66% (range: -10% to -100%). 41% (n=5) achieved completed re-epithelialisation. Mean duration of wounds prior to inclusion in the evaluations was 44 months.

**Discussion:** IPC garments are typically worn over wound sites which may produce discomfort or interfere with treatments; the novel thigh garment utilised in these evaluations aims to address this issue. Existing research has demonstrated that thigh administered IPC has positive effects on venous and arterial blood flow distal to the compression site but proximal to the wound site (Morris et al. 2020).

**Conclusion:** Recalcitrant lower limb wounds progressed towards healing following the addition of thigh IPC to standard wound care within these case series evaluations. A multi-centred RCT is planned to further evaluate this novel method of IPC.