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HYDATIC COMPRESSION REDUCES VENOUS CALibre AND CALF VOLUME
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Introduction: Venous compression is rarely achieved unless very high pressure medical compression stockings or bandages are used. This is because venous hydrostatic pressure is also high, and there is only fat for the veins to be compressed against. Taping appears to compress veins but, in reality, they just submerge deeper into the fat. Anecdotal evidence suggests that hydraulic or water compression may reduce venous diameter but this has not been proven.

Method: Twelve legs (C0 ≥ C6) of 6 volunteers had their deep and superficial veins assessed with ultrasound while standing. Out and then in water (34°C) at a depth of 1.1 meters. Strain gauge plethysmography was used to record the percentage changes in a calf volume slice. All measuring points were marked on the skin to ensure that the same part of each vein was insonated.

Result: Hydatic compression significantly reduced the diameter of the femoral (p = .004), popliteal (p = .006), upper great saphenous (p = .045) and superficial knees (p = .012) veins by a median (mm) of 0.9, 1.6, 0.6 and 0.5, respectively. The calf volume reduction in water was 5 (3-6)%, p = .002, with a further reduction after 10 walking steps to 5.2 (3.7-6.7)% p = .012.

Conclusion: Hydatic compression significantly reduces deep and superficial venous diameters and calf volume in normal legs. Furthermore, this type of compression is comfortable. Further work is required to determine the effect of hydatic compression in patients with chronic venous insufficiency and its effect on reflux.

Take-home message: The clinical relevance of exploring the properties of tension-free hydatic compression may lead to a wearable prototype which can exert high compression whilst remaining comfortable. Examples include a jelly stocking or other wearable device where the outer tension interface is separated from the skin by a hydatic interface.

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POLYPHARMACY IN OLDER VASCULAR SURGERY INPATIENTS
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Introduction: Polypharmacy is common in older people and is associated with mortality and hospital readmission. The prevalence of polypharmacy in vascular patients is not well described.

Method: Retrospective audit of all patients aged >65 years admitted to a single vascular surgery unit for >24 hours during a 10-week study period (20/4/17 – 28/6/17). Data collected included age, gender, admission type, diagnosis, medications and length of stay (LoS).

Result: 87 admissions were included. Mean age was 78 [±7.6], 67 [77.0%] patients were male, 63 [72.4%] had unplanned admissions and 40 [46.0%] were admitted with severe limb ischaemia. Median number of medications on admission was 8 [IQR:6-10]. Excessive polypharmacy (defined as ≥10 medications) was present in 27 [31.0%] patients and was not associated with age, gender, admission type or diagnosis (binary logistic regression analysis). Overall, median LoS was 6 days [IQR:3-11.5] and was similar in patients with and without excessive polypharmacy (7 days [IQR:2.5-11.5] vs 6 days [IQR:3-11.25] respectively). 40 [46.0%] patients were discharged on ≥1 more medications than admission; only 9 [10.3%] patients were discharged on ≥1 fewer medications. 33 [37.9%] patients were discharged on more than three high-risk medications, with the only associated patient factor being number of high-risk medications on admission [OR = 15.80, 95%CI = 3.03-34.80, p < .001] (ordinal logistic regression analysis).

Conclusion: Polypharmacy, including prescription of multiple high-risk medications, is highly prevalent amongst older vascular surgery inpatients. Further research is needed to understand the association of polypharmacy on outcomes and determine strategies to reduce the prescribing of unnecessary medications.

Take-home message: Polypharmacy is common amongst older vascular surgery inpatients although more research is needed to understand its associations with outcomes from vascular surgery.

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SIDE STREAM DARK FIELD (SDF) IMAGING OF ORAL MICROCIRCULATION IN THE ASSESSMENT OF FIBROTIC CONDITIONS
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Introduction: Systemic Sclerosis (SSc) is a multisystem disease characterised by abnormalities in small blood vessels and fibrosis of skin and organs. SSc is assessed by generalised skin thickening scores, autoantibodies and nailfold capillaroscopy scores. Side Stream Dark field imaging (SDF) is a non-invasive imaging tool to assess microcirculation. This study aims to investigate the potential of using SDF as a diagnostic tool in SSc.

Method: SDF was used to assess the oral microcirculation of 20 patients with SSc and compared to 20 age and gender matched controls. Assessment was performed at sublingual, buccal and incisor regions. Volunteers were female averaging 48.0 (24-64) years old. Using imaging software, vessel density was assessed by calculating the De Backer score and Functional Capillary Density (FCD).

Result: The De Backer score of SSc patients was significantly lower compared to controls in all regions of the mouth (SSc 3.484 ± 0.1361/mm vs Control 5.184 ± 0.1896/mm, unpaired t test, p < 0.0001). The FCD of SSc patients was significantly lower compared to controls at all areas (SSc 19.65 ± 9.445% vs Control 29.45 ± 1.681%, unpaired t test, p < 0.0001). The incisor showed significantly higher De Backer and FCD scores than the buccal and sublingual regions in both control and SSc patients (one way anova, p < 0.05). There was significant correlation between De Backer Score/FCD and Rodnan Skin Score in patients with SSc (pearson correlation, p < 0.05).

Conclusion: SSc patients showed decreased oral vasculature compared to controls. SDF imaging has shown the ability to be a useful diagnostic tool in the assessment of SSc.

Take-home message: SDF Imaging can assess vascularity at several mucosal surfaces and has strong potential in the diagnosis and prognosis of fibrotic conditions.

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VARIATIONS IN ARTERIAL PEDAL CIRCULATION IN IDIOPATHIC CONGENITAL TALIPES EQUINOVARUS (CTEV): A SYSTEMATIC REVIEW
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Introduction: Variations in pedal circulation in CTEV are well documented. The aim of this review was to identify the most common aberrancies in arterial pedal circulation in CTEV to determine the relevance for clinical practice.

Method: The review was registered on PROSPERO and was carried out according to PRISMA guidelines by two independent reviewers. Studies were identified that reported variations in pedal circulation in idiopathic CTEV. Papers that studied non-idiopathic CTEV and those not published in English were excluded. Data extracted included patient demographics, imaging modalities and findings.