Arterial Leg Ulcers

promoting healthy skin

Champions for Skin Integrity

This guidelines summary has been developed for health professionals caring for clients with arterial leg ulcers. Diagnosis of the aetiology of a leg ulcer should be undertaken by health professionals with expertise in the area.

GUIDELINES SUMMARY

For this summary, all recommendations have had their levels of evidence classified as follows:

Level I	Evidence from a systematic review or meta-analysis of at least two level II studies
Level II	Evidence from a well designed randomised controlled trial (for interventions), or a prospective cohort study (for prognostic studies)
Level III	Evidence from non-randomised studies with some control or comparison group (pseudo-randomised controlled trial; non-randomised experimental trial, cohort study, case-control study, time series studies with a control group; historical control study, retrospective cohort study)
Level IV	Evidence from studies with no control or comparison group
EO	Consensus statements provided by a National or International Panel of experts in the area.

This is a summary of recommendations from the following sources, which should be accessed for further details as required:

1. Wounds UK, Best Practice Statement: Ankle Brachial Pressure Index (ABPI) in Practice. 2019, London: Wounds UK.
2. Bonham P, Flemister B, Droste L et al. 2014 Guideline for management of wounds in patients with lower-extremity arterial disease. J Wound Ostomy Continence Nursing. 2016;43:23-31.
3. Federman DG, Ladiiznski B, Dardik A et al. Wound Healing Society 2014 update on guidelines for arterial ulcers. Wound Repair & Regeneration. 2016;24:127-135.
4. National Clinical Guideline Centre. Lower limb peripheral arterial disease. Diagnosis and management. NICE Clinical Guidelines, 2012. 147.
5. Crawford F, Welch K, Andras A et al. Ankle brachial index for the diagnosis of lower limb peripheral arterial disease. Cochrane Database of Systematic Reviews. 2016.
6. Forster R, Pagnamenta F. Dressings and topical agents for arterial leg ulcers. Cochrane Database of Systematic Reviews. 2015.
7. Lane R, Harwood A, Watson L et al. Exercise for intermittent claudication. Cochrane Database of Systematic Reviews. 2017;12:CD000990.
8. Hopf H, Ueno C, Aslam R et al. Guidelines for the prevention of lower extremity arterial ulcers. Wound Repair and Regeneration. 2008;16:175-188.

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Assessment

1. All clients with a leg ulcer should be screened for arterial disease [1], including:
   - examining pedal pulses [2,3] (III)
   - assessing medical history and signs and symptoms of peripheral arterial disease [4] (EO)
   - a Doppler Ankle Brachial Pressure Index (ABPI) [2] (III)

   An ABPI less than 0.8 is indicative of arterial disease [5]
   An ABPI over 1.3 is unreliable and indicates further investigation is necessary [2] (EO)
2. Assessment of leg ulcers and Doppler ABPI assessments should be undertaken by health professionals with training in this area [5] (IV)
3. Signs of peripheral arterial disease (PAD) include loss of hair, shiny or dry skin, thin or atrophied skin, purpura, devitalised soft tissue with dry or wet crust, thickened toe nails, purple colour of limb in dependent position, or cool skin [2,4] (EO)
4. Referral to a specialist is needed for:
   - complex wounds e.g. multiple aetiologies
   - ABPI less than 0.5, over 1.3, or toe pressure < 30 mmHg
   - an ABPI < 0.9 in combination with either: no progress in wound healing within two to four weeks of treatment, severe ischemic pain, intermittent claudication
   - unrelieved pain
   - clinical signs of infection, cellulitis, or osteomyelitis
   - absence of both pedal and posterior tibial pulses
   - symptoms of acute limb ischemia, ABPI < 0.40, and/or gangrene [2] (EO)

Management

5. Restoration of blood flow by revascularisation is the intervention most likely to heal arterial leg ulcers. However, surgery must be considered in light of a patient's co-morbidities [3] (III)
6. Develop an appropriate pain management plan, considering individual needs, and specialist intervention as required [2] (EO)
7. Removal of necrotic and/or devitalised tissue should be undertaken through mechanical, autolytic, sharp, enzymes or biological debridement [3] (II)
   *Sharp debridement should only be undertaken by health professionals with expertise in the area
   *If stable, dry gangrene or eschar is present, however, debridement should not be undertaken until arterial flow has been re-established [2] (IV)
8. Treat with topical antimicrobial dressings if there are signs of infection, (e.g. failure to heal, increased pain) [3] (III)
9. Dressings should be simple, low-adherent, maintain a moist wound bed environment, protect the surrounding skin, and appropriate to the clinical situation [3] (III)
10. There is insufficient evidence that the choice of any topical agent or wound dressing material influences healing of arterial leg ulcers [6] (II)
11. Intermittent pneumatic leg compression as an adjunct treatment may improve healing outcomes [3] (III)
12. Hyperbaric oxygen therapy (HBOT) should be considered as an adjuvant or alternative therapy for hypoxic ulcers responsive to HBOT [3] (III)

Management (continued)

13. There is inadequate evidence that the application of ultrasound therapy (III), topical negative pressure (III), spinal cord stimulation (II), cilostazol (III), or topical oxygen therapy (III) speeds healing of arterial leg ulcers [3]
14. There is no evidence supporting use of prostaglandins (II) or pentoxifylline (I) for healing of arterial leg ulcers [3]
15. Educate clients on wound management and aetiology [2] (EO)

Prevention

16. Educate clients on reducing risk of peripheral arterial disease, e.g. controlling diabetes, hypertension, cholesterol, ceasing smoking [2] (EO)
17. Exercise programmes improve pain levels and walking distance in clients with PAD, however there is inadequate evidence on arterial leg ulcer outcomes [7] (I)
18. Lower extremity protection is important for all clients with known or suspected peripheral arterial disease [8], including:
    - foot protection with soft, conforming, proper fitting shoes, orthotics and offloading as necessary (II)
    - leg protection to avoid injury (II)
    - protection of digits and heels in clients with decreased mobility with effective pressure relief devices e.g. foam or air cushion boots (II)
    - extreme care is needed when cutting toenails, preferably undertaken by a podiatrist (II)
19. Passive warming of the extremity improves perfusion and may be of benefit in preventing arterial ulcers (e.g. warm socks, rugs, warm environment) [8] (IV)
20. Poor psychosocial status is associated with a higher risk of arterial ulcers and should be addressed with a multidisciplinary care team [8] (III)

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