3 THE SEVERITY OF ACUTE LIMB ISCHAEMIA

The first-line treatment for acute limb ischaemia, unless the patient needs palliative care only, is anticoagulation, intravenous (IV) fluids and supplemental oxygen.[26] Analgesia is also essential, with involvement of the acute pain team as needed.[27]

Once a diagnosis has been made, the urgency of treatment is determined by whether there is newly altered sensation and/or movement in an acutely painful limb. This simple assessment can be carried out by all healthcare professionals, including nurses and allied health professionals.

To understand the urgency and quantify the severity of a patient's condition to facilitate communication between healthcare professionals the Rutherford classification is used (T3.1).[27,28]

Table 3.1 The European Society for Vascular Surgery (ESVS) modification of the categories of ALI according to Rutherford's clinical findings

Grade	Category	Sensory loss	Motor deficit	Prognosis
I	Viable	None	None	No immediate threat
IIa	Marginally threatened	None or minimal (toes)	None	Salvageable if promptly treated
IIb	Immediately threatened	More than toes	Mild/ moderate	Salvageable if promptly revascularised
III	Irreversible	Profound, anaesthetic	Profound, paralysis	Major tissue loss amputation. Permanent nerve damage inevitable

The ESVS 2020 ALI guideline made some minor modifications to the original Rutherford classification. [28] The full classification includes the use of handheld arterial and venous Doppler, an assessment tool generally only used by vascular specialists.

Distinguishing between the classifications of Rutherford IIa and IIb, and between IIb and III, can sometimes be challenging.[1] Not all patients with ALI require revascularisation or amputation. Some will be appropriately treated with anticoagulation alone (primarily those with ALI, Rutherford I).

The Rutherford category may deteriorate, particularly with delays to treatment, as the lack of blood supply causes tissue and nerve damage. Without treatment Rutherford IIa ALI will usually progress to IIb and then III. Patients with ALI categorised as Rutherford IIb the accepted plan is that patients require revascularisation as soon as possible and ideally within six hours for fully functional limb salvage.

Compartment syndrome where swollen muscles compress the arterial supply and venous drainage is related to the severity and duration of ALI.[29] It may be aggravated by revascularisation and increases the risks of amputation, muscle necrosis and nerve damage. Performing a fasciotomy can relieve the compartment pressure[30] but should be performed within two hours;[1] waiting longer than six hours is not acceptable practice[28] as fasciotomies are not without risk and compilations can include infection, and the need for skin grafts.[31]