

Extravasation Injuries & Accidental Intra-arterial Injection in Perioperative Settings - Summary Clinical Guideline

Reference no.: CG-ANAES/2021/020 v1.0.0

Extravasation is the accidental leakage of any liquid from a vein into the surrounding tissues. Exact incidence of extravasation in perioperative settings is unknown but it would be expected that anaesthetists would see this complication relatively frequently, given the large number of i.v. drugs used in anaesthetic and critical care settings.

Anaesthetic drugs are either vesicants or irritants. Most of the commonly used i.v. fluids are non-tissue damaging. Most extravasations have only minor sequelae but some drugs can cause serious injury and physical and psychological morbidity.

The extent of injury is determined by the following factors;

- The type of drug which extravasates
- The concentration and volume of drug in tissue
- The location of extravasation
- The co-morbidities and other patient factors

However this is a complex subject where there is limited evidence due to lack of research and a low incidence of reporting.

The pathophysiology of tissue damage due to extravasation includes vasoconstriction & ischaemic necrosis, direct toxicity, osmotic damage, extrinsic mechanical compression by large volume or superimposed infection.

Management of extravasation includes minimising the risk of its occurrence, and early initiation of treatment to reduce tissue damage and necrosis.

Prevention of extravasation includes, anaesthetists siting the cannulae themselves, carefully selecting the size of cannulae & its insertion, checking its patency and using clear & secure dressings.

The treatment of extravasation may include several steps. Most important steps include;

- Recognise extravasation and identify the agent extravasated.
- Stop and discontinue infusion
- Reassure & inform the patient what is happening
- Aspirate as much extravasated solution as possible
- Mark the area of extravasation and take digital image if possible.

- Early consultation with vascular & plastic surgeons may be required
- Events and their management must be clearly documented in the patient's notes, with photographs if possible
- If conservative management is used, patients must have follow-up arrangements in place and be advised to report any tissue changes immediately.
- Report significant incident in Datix.

There is no universally accepted treatment protocol for managing intra-arterial drug injection. The aim of intervention and management is to maintain perfusion distal to the affected extremity. General measures of management include the following;

- Stop injection immediately
- Elevate the affected arm to improve venous and lymphatic drainage
- Reassure and explain to patient
- Analgesia
- Documentation & entry Datix entry

A number of specific measures can be considered which include extremity sympathectomy, anticoagulation, vasodilators, thrombolysis and use of steroids & prostaglandins. Before employing specific measures, an urgent advice must be sought from vascular surgeon.