



Association for Radiologic & Imaging Nursing

CLINICAL PRACTICE GUIDELINE

Extravasation of Contrast Media

Overview

Radiology nurses are often closely involved with the selection and accessing of intravenous sites for contrast media injection as well as the assessment, initial treatment and documentation of extravasation incidents when they occur in the imaging environment. Therefore, it is important that radiologic and imaging nurses are aware of patient populations most at risk and understand the steps to take to minimize risk. Additionally, it is crucial to recognize an extravasation and sequelae, and provide patient education following extravasation of contrast media.

Target Audience

Radiology nurses, radiology technologists, radiologists, radiology administrators, radiology residents & fellows, medical students, other healthcare providers.

Nursing Implications

- Identify patient populations at risk for contrast extravasation:
 - Patients who cannot communicate effectively including infants/children, elders or any patient with altered consciousness or mental status.
 - Patients who are severely ill or debilitated.
 - Patients with abnormal circulation including those with peripheral vascular disease, Raynaud's disease, connective tissue disease, diabetic vascular disease, venous thrombosis or insufficiency or prior radiation and/or surgery to the lymphatic or venous system in the limb to be injected.
 - Frequency of extravasation is not related to the injection flow rate and can occur in both hand injected and power injected contrast administration, although dynamic bolus CT extravasations may involve large volumes of contrast media.
- Minimize risk of extravasation occurrence/injury:
 - Intravenous access should be established in "capacious" areas such as antecubital sites and avoided in hand, foot or ankle veins whenever possible.
 - Caution should be used with indwelling peripheral intravenous lines that have been placed for more than 24 hours or when multiple punctures have recently been made into the same vein.
- Recognition/evaluation of extravasation:
 - Most patients will complain of a stinging/burning pain at the injection site, although some may experience little or no discomfort.
 - On physical examination, the site may be edematous, erythematous or tender.
 - Extravasation injuries may become more evident over time; therefore, it is important to follow the area clinically for several hours.
- Treatment:

- There is no clear consensus regarding treatment for contrast medium extravasations. Elevating the extremity and the use of either warm or cold compresses can be quite beneficial as comfort measures, but controlled studies have not demonstrated efficacy of any of these treatments for the prevention of tissue injury.
 - Attempted aspiration of contrast material from the surrounding tissues or the injection of corticosteroids or hyaluronidase has not been shown to be effective in the mitigation of injury.
 - Outpatients should be evaluated by the radiologist before discharge is approved.
- Understanding possible sequelae:
 - Although not common, patients with extravasation of contrast media may develop compartment syndrome, particularly in cases of large volume extravasations or in less capacious areas such as the hand or the ventral or dorsal surfaces of the wrist.
 - Immediate surgical consultation is warranted for increased swelling or pain that develops after 2-4 hours or evidence of altered tissue perfusion – decreased capillary refill, change in sensation of affected limb, or skin ulceration or blistering.
 - Patients may develop local skin reactions ranging from mild blistering to significant skin ulceration and tissue necrosis.
- Providing patient education:
 - The vast majority of extravasations will resolve spontaneously without significant sequelae, although minor discomfort and local inflammation may last 24-48 hours or more.
 - Encourage comfort measures.
 - Patients should watch for symptoms of developing compartment syndrome, (including increased pain, swelling and paresthesia) and be given instructions on how/where to seek medical attention.
 - Patients with venous insufficiency or other pre-existing conditions that would affect circulation in the extremity should be especially vigilant for complications.
- Document:
 - Location, type, and time of IV placement; type and amount of contrast delivered.
 - Initial clinical examination, length of observation and condition of extravasation site to include skin appearance, distal circulation, and changes in sensation.
 - Communication with the radiologist and referring physician.
 - Self-care discharge instructions given.

References

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