EXTRAVASATION MANAGEMENT IN ONCOLOGY SETUP

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Abstract

Administration of chemo medicines carries safety measures to both patients and medical team. From these points of view extravasation of chemotherapy generated. Extravasation is defined as accidental infiltration of chemotherapy into subcutaneous or subdermal tissue from the injection site and it will lead to tissue necrosis. The incident rate varies from 0.1% to 6% through peripheral intravenous access and from 0.26% to 4.7% through central venous access device (CVAD). To avoid chemo therapy adverse effects, all the oncology team members should ensure safe administration Extravasation can be classified into five categories according to their damage potential: Vesicant, Exfoliants, Irritants, Inflammitants, and Neutrals. ***Conclusion*** *- The safe administration of chemotherapy and the prevention of extravasation are the shared responsibility of the members of the medical team. Educating patients and their family members about the risks and manifestations is essential. The prevention of chemotherapy extravasation is an important quality indicator for the certification of chemotherapy infusion centers.*

Keywords: Chemotherapy, Extravasation, Vesicant, Tissue damage, Dimethyl sulfoxide, Dexrazoxane.

INTRODUCTION –

Administration of chemo medicines carries safety measures to both patients and medical team. From these points of view extravasation of chemotherapy generated. Extravasation is defined as accidental infiltration of chemotherapy into subcutaneous or subdermal tissue from the injection site and it will lead to tissue necrosis. The incident rate varies from 0.1% to 6% through peripheral intravenous access and from 0.26% to 4.7% through central venous access device (CVAD). To avoid chemo therapy adverse effects, all the oncology team members should ensure safe administration.

Extravasation is the leakage of a fluid out of its container into the surrounding area, especially blood or blood cells from vessels. In the case of inflammation, it refers to the movement of white blood cells from the capillaries to the tissues surrounding them (leukocyte extravasation, also known as diapedesis) (1).

CLASSIFICATION

Extravasation can be classified into five categories according to their damage potential: Vesicant, Exfoliants, Irritants, Inflammitants, and Neutrals (2).

1. **Vesicants** - Drugs like Actinomycin, Dactinomycin, Daunorubicin, Doxorubicin, Mitomycin C Vinblastine, Vincristine can result in tissue necrosis when accidently infused in to tissue surrounding from a vein.
2. **Irritants:** Carbo platin etoposide. Irinotecan. Etoposide. Liposomal Doxorubicin Inflammable: flurocail. Methotrexate.
3. **Neutral**: Asparaginase. Bevasizumab Bleomycin. Bortuzumab Inflames; drugs which are capable of causing mild to moderate inflammation and flora on local tissues. Neutrals: neutrals components that do not cause inflammation or damage
4. **Exfoliants** (may have low vesicant potential): Exfoliants (may have little vesicative potential): Drugs that can cause inflammation and peeling of the skin without causing the underlying tissue death. Drugs can

cause superficial tissue damage, blisters and flaking. These include aclacinomycin, cisplatin, docetaxel, liposomal doxorubicin, mitoxantrone, oxaliplatin, and paclitaxel.

5. **Inflammitants:** Inflammatory substances: Drugs that cause mild to moderate inflammation, painless reddening of the skin and elevations (flare reaction) at the extravasation site. These include bortezomib, 5-fluorouracil, methotrexate, and raltitrexed (3).

Risk Factors:

- Small fragile veins
- Multiple treatments
- Generalized vascular disease including Raynaud's disease
- Peripheral neurosis. Peripheral vascular disease
- Age; at youngerly or elderly or more risk
- Restlessness or confusions
- Impaired lymph flow venous circulation
- Svc {superior venacava obstruction}
- Cerebral vascular accident [CVA]
- Poor Skill Staff
- Poor technique
- Irritant and Vesicant Drugs
- Previous vencaa alkaloids
- Signs and symptoms:
- Burning stinging pain
- Acute change in injection site
- Induration
- Erythema
- Venous discoloration
- Swelling observed at the site
- Alteration in flow
- Increases resistance during administration of fluids
- No blood returns
- Leakage of fluids from the site
- Bled formation
- Flare symptoms:
- Immediate red blotches or steak among veins
- Local wheals among the veins
- Irritation near the site of injection
- Itching among the veins
- Localized warmth and tenderness
- Localized edema and erythema
- Blood return still occurs with flare reactions
- Guidelines to prevent extra vacation and management:
- Avoid site on joint or bony prominences
- Do not give vesicants into the cubital fossa via peripheral cannula
- Frequently assess cannulation site
- Do not infuse agents in area of poor veins flow and poor lymphatic drainage
- If vein puncture is unsuccessful make a second attempt in the opposite site arm if the same arm must used
- Choose site proximal to the first vein puncture and make sure it is not same veins
- Cannula:
- Select the small size cannula {21 gaze]
- Ensure iv cannula clearly visualized
- Site and secure the cannula site
- Do not use butterfly needle with vesicant drugs

Procedure:

- Administer vesicant drugs on at time through the side arm or y connector of iv line
- When administering more than one agent administer vesicant drugs
- Do not use infusion pump for vesicants unless through a picc line or chemo port
- Infuse at least 20 ml of solution after drug administration

- ❖ Instruct the patient to report immediately any changes in sensation partially pain and burning sensation

Management of extravasation:

- ❖ Stop the infusion /injection immediately
- ❖ Do not remove the cannula
- ❖ Disconnect the infusion
- ❖ Connect 10 ml syringe attettemptto aspirate residual medication from cvad cannula
- ❖ Do not excrete pressure on the extravasation area
- ❖ Elevate limb and immediately and immobilize
- ❖ Follow the instructions as per doctor order
- ❖ Access the extravasation kit
- ❖ Foe all drugs except vinca alkaloids during first 22to 48 hrs. applet ice for 15 to 20 minutes at least 4 times
- ❖ For venca alkaloid apply consider an anti-dote
- ❖ If there is no anti dote remove the cannula or de access the cvad
- ❖ Administer pain relief medications as per protocols
- ❖ Document the incident mark effected area or photography the effect site
- ❖ Follow the patients closely 2 weeks carefully observe the site includes early consultation while plastic surgeon and if any symptoms present.

Extravasation Kit

1. Hyaluronidase 15002 IU (1 ampule)
2. Hydrocortisone 1 % cream – Labelled with direction for use
3. Sterile water for injection
4. Dimethyl sulphoxide (DMSO) 99 % solution 1*10 ml bottle with applicator (swabsticks0
5. 25 G needle
6. Hot pack cold pack
7. Spare gloves/ Alcohol wipes
8. Cytotoxic drug extravasation document form
9. Patients information leaflet.

CONCLUSION

The safe administration of chemotherapy and the prevention of extravasation are the shared responsibility of the members of the medical team. Educating patients and their family members about the risks and manifestations is essential. The prevention of chemotherapy extravasation is an important quality indicator for the certification of chemotherapy infusion centre. Most of healthcare centre develop their own policies and guidelines for extravasation prevention and management, there is a need for education, training and guidelines for local facilities. All facilities that deliver intravenous chemotherapy should have known antidotes. Despite efforts to prevent this from happening, accidental extravasation still occurs and more research is needed into antidotes for many drugs.

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