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Evidence-Based Practice: Managing Chemotherapy Extravasation

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Abstract:
Chemotherapy administration is a serious procedure. Chemotherapy has the capacity to cure disease, at the same time it is capable of great destruction to normal cells as well. Oncology Nurses trained in Chemotherapy are able to safely undertake this activity. However extravasations of chemotherapeutic agents are occasionally inevitable. It is constant issue which requires monitoring and care. Patients with irritant reactions usually report aches, pain, tightness or related symptoms.
We undertook a review of chemotherapy extravasations from Jan 2014 to July 2015. 12 patients were identified with chemotherapy extravasation symptoms. This paper reviews the causes which lead to extravasation, and discuss treatment approaches, proactive treatment methods and prevent further complications based on current evidence. Furthermore, to provide knowledge and skills that will facilitate nursing staff to, recognize, and successfully treat extravasation injuries in adults.

Introduction:

Chemotherapy extravasations can be avoided with the systematic execution of cautious, standardized, evidence-based administration techniques.

Unrecognized, inadvertent extravasation by vesicant agents may lead to severe and progressive tissue damage if timely and appropriate local therapies are not implemented. Thus oncology and nurses must be knowledgeable about which antineoplastic agents and other noncancerous drugs and solutions can cause tissue damage if administered intravenously. Nurses who administer vesicant agents must demonstrate adequate clinical knowledge, skills and be certified. In addition; nurses must be able to differentiate extravasation from other local reactions (Wickham, 2015).
Furthermore, management recommendations, particularly for surgical interventions, have not been incorporated into current clinical practice. All cases were dealt locally with some local creams and application including Polyfax skin ointment, Hydrocortisone, magnesium sulphate and were watched carefully. Injuries healed spontaneously. This article will discuss differentiation of extravasation from other reactions and examine the evidence for management of vesicant agents (Hadaway, 2007)

Background of the study

The expansion of treatment regimens in oncology and the development of new drugs and combinations require an increasing number of specialists with knowledge and skills for their administration and control of the risks associated (Jones and Coe, 2004). Health care professionals should be able to prevent the occurrence of an adverse advent, or even, use their knowledge and experience to abolish or mitigate its deleterious consequences in case they occur, as it is the case of antineoplastic drug extravasation (Kloth, 2002).
Patients with irritant usually report aching, pain, or tightness; the vein may be erythematous, dark, and accompanied by swelling and loss of blood return (Goodman & Peterson, 1997; Polovich, White, & Kelleher, 2005) When it is formed with vesicant agents, blistering of the skin and tissue damage, the formation of pain and tissue necrosis can develop. When it is formed in terms of exfoliate (Schulmeister, 2007).

CDC guidelines recommend replacement of peripheral intravenous (IV) catheters every 72 to 96 hours which is based on evidence which showed that the longer PVC is in situ the greater the risk of complication. (Health Protection Scotland, 2012)

RCN (2010) and Health Protection Society (HPS) (2012) recommend that PVC sites are checked at least on a daily basis as well as during infusion of drugs and fluids.

If two or more signs indicative of phlebitis are present (Jackson, 1998), or if the PVC is not functioning, it should be removed immediately Document in notes details of date and time of removal of cannula, operator undertaking removal with signature and phlebitis score (RCN, 2012); and it should only be re-sited if the clinical need for PVC remains (HPS, 2012). Document date, reason for insertion, catheter size, operator undertaking insertion and if insertion was high risk with signature (DH, 2011)

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Aim of the study:

- To identify chemotherapeutic agents which causes extravasation
- Develop the knowledge and attitude of nursing staff towards recognition and prevention of signs and symptoms of extravasations

Methods/Methodology:

This study was carried out at in-patient and out patients setting in Dr. Ziauddin Cancer Hospital; Karachi recruited 3078 patients with convenient sampling technique. All patients who were administered Chemotherapy were included in this study. Inclusion criteria was the age 22-80 years, both gender, diagnosed case of all type cancer both oncology and hematological disorders (Benign and/or Malignant). To further validate this study patient's treatment protocol was also utilized. Individual consent was taken from each participant and they have given rights to withdraw from the study.

INTERVENTION

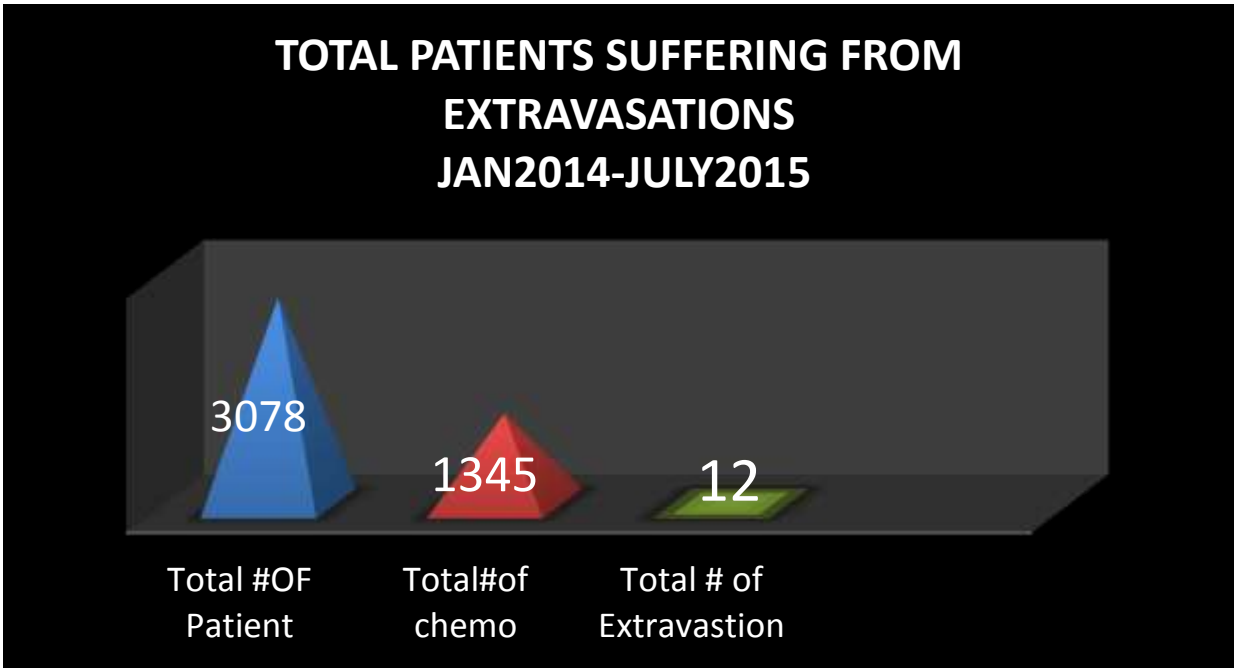
Chemotherapy extravasation is one of the major problems that have been observed in our setup. Major concerned was how we overcome this problem and decrease the incident. Different strategies were implemented in our setup and tried to overcome the problem. The following interventions were applied:

- Firstly we educated our staff and patients along with their family members about signs and symptoms of extravasation
- Develop policy and procedure on administration and management of extravasation
- Strict adherence to policy for change of peripheral catheter
- Developed Extravasation checklist
- Training program in placed for all old and new employees
- Staff has to go physically and check patient intravenous site every two hours per shift while chemotherapy infusion in progress
- Conservative measures, including application of cold or heat and elevating the affected extremity, were introduced, have been used empirically for years (Rudolph & Larson, 1987).
- Only registered and trained nurses are allowed to administered chemotherapy drugs
- IV chemotherapy is administered via infusion pump to maintain infusion rate

Data Sources

Reported case, observations during clinical round, treatment protocols, Journal articles, published case reports

Result:



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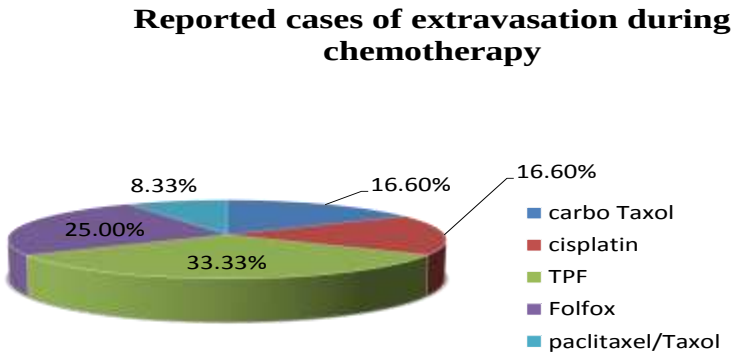

Total 3078 patients were admitted in the hospital including inpatient as well as in day care unit. 1345 chemotherapy treatments were given and 12 patients were reported with extravasation.

Inj Cisplatin (16.66%), Inj Carbo Taxol (16.66%), Inj Folfox (25%), Inj paclitaxel/Taxol (8.33%) and Inj TPF (33.33%) were the most evident drugs caused discomfort and pain. However, patients did not complain of any pain, swelling or discomfort during infusion or hospitalization, but they came with cellulites, complaint of pain, swelling, numbness and burning sensation at follow up clinic after a week or 10 days. In terms of area involvement dorsum of the hand and forearm were the main sites.

Conclusion

In conclusion, extravasation is a serious complication of chemotherapy. The incidence of extravasation decreased remarkably, as a result of taking proactive measures, careful administration of chemotherapy, identification of extravasation injuries at early stage, timely reported as well as insertion of porta catheters and more central infusion sites.

Limitation:

- Lack of awareness of staff and patients
- Limited number of literature

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