
به نام خداوند بخشنده مهربان

Extravasation

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Extravasation

- **General principles for the treatment of extravasation**
- When extravasation occurs, prompt action is required to prevent any further infiltration and minimise tissue damage.
- The extravasation kit contains the equipment and information necessary to manage a suspected or actual extravasation but medical staff should be immediately informed.
- Leaving the cannula / central line in place allows residual drug in the tissues to be aspirated.
- Consideration should always be given to the prescription of analgesia.

Extravasation

- **General principles for the treatment of extravasation**
- **Peripheral lines**
- The extravasated area should be marked with a soft tipped pen to enable the size of the area to be evaluated at follow up visits.
- The limb is elevated to minimise swelling.
- Gentle movement of the affected limb should be encouraged to maintain mobility.
- Photographs are generally taken with extravasation of all vesicants and may be taken with other agents depending on the volume of fluid infiltrated and the severity of the skin reaction.

Extravasation

- **General principles for the treatment of extravasation**
- **Central lines**
- Early referral to medical staff is essential. Although the incidence of extravasation from central lines is lower than that from peripheral lines, the severity of the injury may be greater. This is due to later detection and possible leakage of larger volumes of fluid.
- X-Rays are taken to determine the position of the central
- line tip.
- Photographs should always be taken.

Extravasation

- **General principles for the treatment of extravasation**
- **Central lines**
- Treatment depends on whether extravasation was in superficial or deeper tissues and should be decided upon by a specialist on an individual patient basis.
- In general, an extravasation in the superficial tunnelled section should be managed in the same way as a peripheral extravasation. An extravasation in the deep tissues may require to be surgically managed.

Extravasation

- **General principles for the treatment of extravasation**

Application of heat or cold to the area

For each drug, there is a recommendation to either apply heat or cold to the extravasation site.

The logic behind these recommendations is as follows:

Heat

This will cause vasodilation, increasing drug distribution and absorption and thus aiding in the dispersal of the drug from the injury site.

Heat is used in non-DNA binding drug extravasations.

Cold

This will cause vasoconstriction and minimise the spread of the drug from the initial injury allowing time for local vascular and lymphatic systems to disperse the agent.

Cold is used in DNA binding drug extravasations.

Extravasation

- **General principles for the treatment of extravasation**
- **Flush-out technique**
- This treatment can be carried out either under local or general anaesthetic.

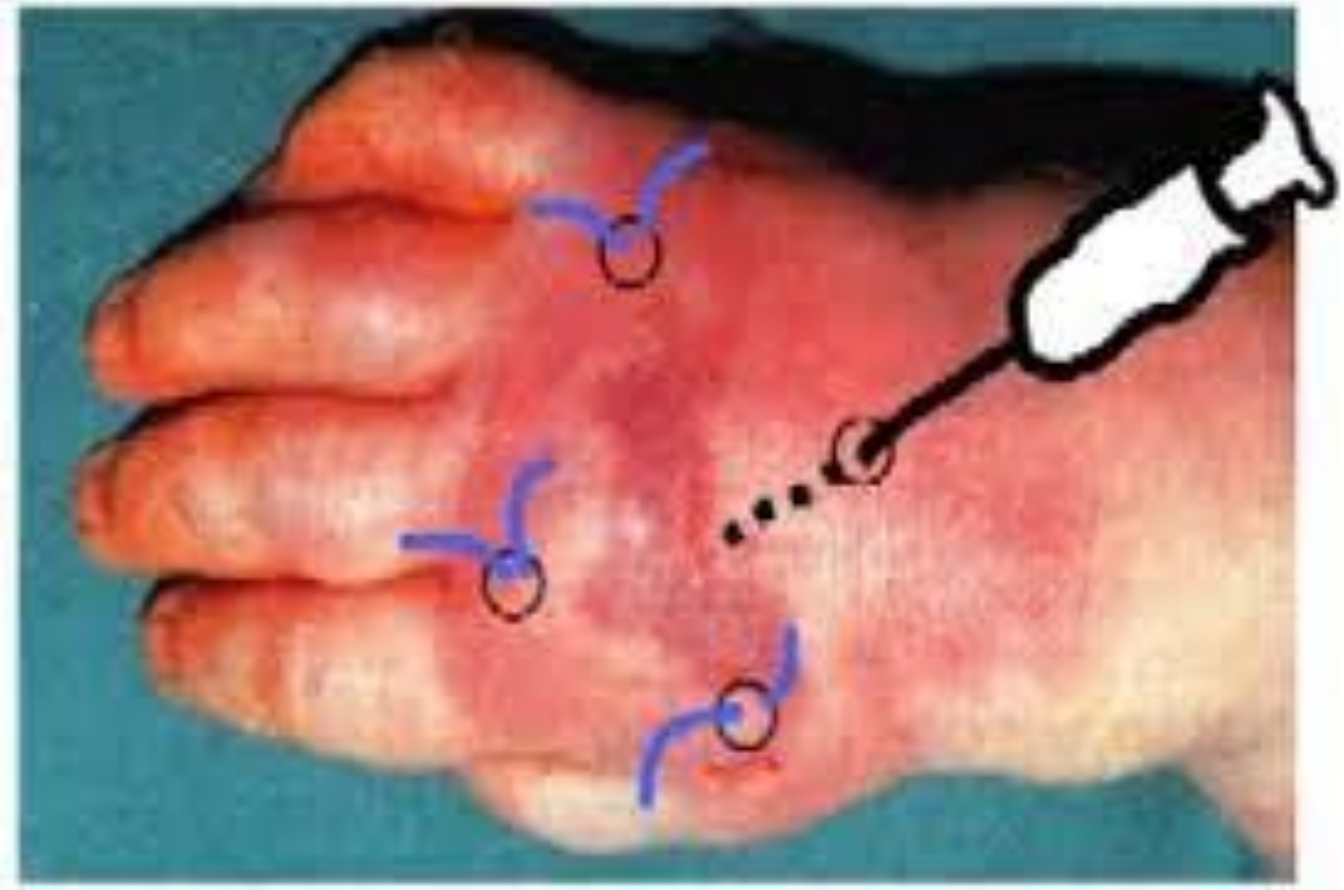
If the treatment is to be carried out under local anaesthetic, 5-10mls of 1% lidocaine should be injected into the subcutaneous space both beneath the area of extravasation and around it.

Extravasation

- **General principles for the treatment of extravasation**
- **Flush-out technique**
- Once anaesthetised, five or six small stab incisions around the area of extravasation injury are made.

This provides sufficient access to the affected subcutaneous tissue.

The subcutaneous tissue containing the extravasated drug is then flushed out using an infiltration cannula , commonly used in liposuction, and 500mls of saline or compound sodium lactate (Hartmann's solution), injecting 20-30mls at a time, through each incision, and allowing it to drain out of the other incisions



Extravasation

- **General principles for the treatment of extravasation**
- **Flush-out technique**

After the flush out a layer of Jelonet and Betadine soaked gauze is applied to the wound and the limb wrapped in a padded bandage and elevated for twenty-four hours.
The stab incisions are allowed to close spontaneously.
In seriously debilitated patients, for example those with neutropenia, a short course of prophylactic antibiotics is recommended

Extravasation

- **General principles for the treatment of extravasation**
- **Flush-out technique**
- Patients requiring flush-out should be referred to a plastic surgeon.

The flush-out technique should be performed as soon as possible after the extravasation has occurred and ideally within 6 hours of the incident.

There may be benefit in the flush-out technique up to 24 hours after the extravasation but it is expected that efficacy reduces over time.

Extravasation

- **Pharmacological management of extravasation**
- **Corticosteroids**
- The local injection of dexamethasone or hydrocortisone in the treatment of extravasation is controversial.
- It is argued that inflammation is not prominent in the aetiology of tissue necrosis, that subcutaneous and intradermal steroids may induce ulcers in high doses and their effectiveness is not proven.

Alternatively it is suggested that steroids would suppress the local inflammation caused by tissue trauma that occurs during the treatment process.

This guideline does not advocate the use of subcutaneous steroids.

Topical hydrocortisone 1% may reduce non-specific inflammation with minimum damage to the infiltrated area and surrounding tissue.

Extravasation

- **Pharmacological management of extravasation**

Antidotes

The reported benefits of the use of antidotes are conflicting and no antidote has clear validation in clinical trials.

Only three antidotes are advocated in this policy.

They are used only in vesicant or large volume extravasations.

The use of an antidote requires a doctor's prescription.

Extravasation

- **Pharmacological management of extravasation**

Antidotes

Hyaluronidase is an enzyme responsible for degrading hyaluronic acid and by this mechanism enhances the systemic uptake of the infiltrated cytotoxic.

It is routinely used with vinca-alkaloids and its use has been advocated with other agents such as paclitaxel.

It is unlikely to cause harm to surrounding tissue.

Its use in extravasation injuries is unlicensed.

Extravasation

- آنتی دوت ها
- 2 - آمپول هیالورونیداز :
- هیالورونیداز آنزیمی است که بطور موقت موجب کاهش ویسکوزیتی اسید هیالورونیک بافتی واسید هیالورونیک داخل سلولی می شود.
- تزریق زیرجلدی هیالورونیداز قابلیت جذب داخل سلولی بافت راافزایش میدهد وباعث اینفیلتره وپخش دارووومایع اکستراوزیت به بافتهای اطراف می شود.
- باعث دیلاتاسیون عروق بافتی وکاهش آسیب بافت درمحل میشود .
- این آنزیم معمولا ابتدا حمله به بافت میکند وطی 24تا 48 ساعت تاثیر آن ادامه می یابد

Extravasation

- آنتی دوت ها
- 2 - آمپول هیالورونیداز :
- دارو باید فورا استفاده شود وتا 60دقیقه تاثیر دارد وآسیب بافتی را به حداقل میرساند .
- واکنش آلرژیک مانند خارش دارد ولی بندرت ظاهر میشود .
- فاقد اثر سمی است
- این دارو درموارد عفونت بافتی درمحل ویا وجود توده سرطانی منع مصرف دارد وموجب منتشر شدن عفونت والتهاب بیشتر ومتاستاز تومورهای نئوپلاسم به اطراف میشود .

Extravasation

- آنتی دوت ها
- 2 - آمپول هیالورونیداز :
- مصرف دارو :
- دارو 1500واحد در 1سی سی آب مقطر یا نرمال سالین 0/9%حل میشود
- بعداز ضدعفونی وشستشوی محل 0/2میلی لیتر از آمپول رقیق شده درپنج منطقه اطراف محل تزریق بصورت ساعت وزیرجلدی یا داخل جلدی تزریق میشود ونیز می توان علامت گذاری کرد وسپس تزریق کرد
- بعداز هربارتزریق سرسوزن تعویض گردد.
- در نوزادان با صلاحدید تیم جراحی پلاستیک انجام گردد .

Extravasation

- آنتی دوت ها
- 2 - آمپول هیالورونیداز :

مصرف دارو :

هیالورونیداز باید فورا تزریق شود ولی حد اکثر تا شش ساعت قابلیت تزریق دارد .

ادم بعداز 15تا 30دقیقه بعداز تزریق دارو کاهش میابد .

هیالورونیداز از آسیب بافت پیشگیری و با ایجاد وضعیت هیپراسموتیک دربافت باعث پخش شدن دارو به اطراف می شود .

مناسب جهت اکستراوزیشن با فنی توئین است .

Extravasation

- **Pharmacological management of extravasation**

Antidotes

Dimethylsulfoxide (DMSO) enhances skin permeability thus facilitating the systemic absorption of the vesicant drug.

It has also free radical scavenging properties.

Topical DMSO has been shown in prospective studies to limit the course of anthracycline extravasation injuries.

It should be applied with a cotton bud to the extravasated area.

Air-drying is required as DMSO may cause blisters if occluded.

Care should be taken to avoid contact with undamaged tissue.

The optimal scheduling and duration for the use of DMSO is unclear and recommendations have been made on available evidence.

DMSO use in the treatment of extravasation is unlicensed.


canvax
REF BR0215
Dimethyl Sulfoxide (DMSO)
Molecular Biology Grade
100 mL
MW 78.13 g/mol
2019-08
15-30°C
For R&D use only
www.canvaxbiotech.com

Extravasation

- آنتی دوت ها
- آنتی دوتها براساس اندیکاسیون مصرف وشواهد بالینی وروایی آن تعیین می گردد
- 1 - محلول دی متیل سولفوکساید 99%
- DMSO قابلیت نفوذ پوست را بالا میبرد وموجب جذب سیستمیک دارو میشود.
- موجب آزاد شدن رادیکالهای تمیز کننده نیز میشود
- ونیز اثر ضدالتهاب وضدمیکروبی وضددرد وموجب انبساط عروق میشود.
- درآینده براساس مطالعات بیشتر ممکن است مناسب جهت آسیب با آنتراسیکلین باشد.
- درمعرض هوا خشک گردد.
- تا چهاربارداروز انجام میشود وتا 7تا 14روز میتوان ادامه داد .

Extravasation

- **Pharmacological management of extravasation**

Antidotes

Sodium thiosulphate is thought to have a direct inactivation

effect on chlormethine (mustine).

It has few side effects but requires to be administered by subcutaneous injection in a 'pin cushion' fashion.

Its use is unlicensed.

Extravasation

- آنتی دوت ها
- سدیم تیوسولفات 0/25% :
- سدیم تیوسولفات به نظر میرسد به اثر کلرومتین ویا(مکلروتامین ویا ماستین)غیرفعال ویا خنثی میکند
- ونیز سیس پلاتین راغیر فعال میکند
- بصورت آمپول 10میلی لیتر است
- 1/6میلی از آمپول با 18.4میلی آب مقطر یا نرمال سالین آماده میشود
- 2میلی لیتر از محلول برای 100میلی گرم سیس پلاتین اکستراوزیت تزریق میشود
- چند ساعت بعد نیز میتوان تکرار گردد

Extravasation

- **Pharmacological management of extravasation**

Antidotes

The drug dexrazoxane (Savene®) is licensed for use in anthracycline extravasations.

It has not been included in this guideline as it has not been approved for use in Scotland by the Scottish Medicines Consortium.

There is currently insufficient evidence to compare its efficacy against the flush out technique

Extravasation

- آنتی دوت ها
- دکسرازوکسان 500میلی گرم (کاردیوکسان :)
- دکسرازوکسان غیر فعال کننده آنتراسیکلین ومهار کننده توپیزومراز IIمیباشد.
- اگر با دی متیل سولفوکساید استفاده شود خطر توکسیستی وآسیب بافتی دارد .
- راهنما:
- بصورت ویال 500میلی گرم
- بعداز برداشتن کمپرس سرد بمدت 15دقیقه دکسرازوکسان تزریق میشود
- ترومبوسیتوپنی ونوتروپنی باید مانیتور شود
- با دستور تیم جراح پلاستیک ودپارتمان داروشناسی صورت گیرد

Extravasation

Summary of management of peripheral extravasation

The following recommendations also apply to extravasations resulting from the tunnelled section of a central line

General treatment instructions

1-Stop infusion and disconnect the drip.

2-Try to aspirate the extravasated drug by connecting a clean syringe to the venflon/cannula and drawing back.

3- Collect extravasation kit and inform doctor of extravasation

4 Mark the extravasated area with a pen and remove cannula

5-Follow drug specific management recommendations

6- Elevate limb and administer pain relief if required

7-Give patient information sheet and arrange follow up

Extravasation

Neutrals

Alemtuzumab,Bevacizumab,Bleomycin,Cetuximab,Cladribine,

Clofarabine,Crisantaspase,Cyclophosphamide,Cytarabine,Fludarabine,

Gemcitabine,Ifosfamide,Melphalan,Nelarabine,Pemetrexed,Pentostatin,
Rituximab,Thiotepa,Trastuzumab

Extravasation

Neutrals

1-Follow general treatment instructions.

2- Firmly apply a heat pack to the extravasated area for 20 minutes every 6 hours for the first 24 hours.

In large volume extravasations where the patient is

experiencing discomfort due to swelling, the following

may be considered:

a: Dispersal of the drug can be facilitated by the use of subcutaneous hyaluronidase (1500 units in 1ml water for injection), injected around the area of the injury.

B: Gently massage the area to facilitate dispersion. Apply heat and compression to assist natural dispersal of the drug.

Extravasation

Inflammitants

Azacitidine,Bortezomib,Fluorouracil,Methotrexate,Raltitrexed

1 Follow general treatment instructions.

2 Firmly apply a cold pack to the extravasated area for 30 minutes every 4 hours for the first 24 hours.

3 When the initial inflammatory reaction has subsided, a warm compression may be used to aid the dispersal of any residual fluid.

4 Apply topical hydrocortisone cream 1% every 6 hours for

up to 7 days or as long as erythema continues.

Extravasation

Irritants

Arsenic trioxide, Carboplatin, Etoposide, Irinotecan, Teniposide

1 Follow general treatment instructions.

2 Firmly apply a cold pack to the extravasated area for 30 minutes every 4 hours for the first 24 hours.

3 Apply topical hydrocortisone cream 1% every 6 hours for up to 7 days or as long as erythema continues

For Carboplatin extravasations, when the initial inflammatory reaction has subsided, a warm compression may be used to aid the dispersal of any residual fluid.

Extravasation

Exfoliants

Cisplatin, Docetaxel, Oxaliplatin

1 Follow general treatment instructions

2 Firmly apply a heat pack to the extravasated area for 20 minutes every 6 hours for the first 24 hours

3 Apply topical hydrocortisone cream 1% every 6 hours for 7 days or as long as erythema continues.

In large volume extravasations where the patient is experiencing discomfort due to swelling, dispersal of the drug can be facilitated by the use of subcutaneous hyaluronidase (1500 units in 1ml water for injection) injected around the area of injury. Gently massage the area to facilitate dispersal.

Extravasation

Topotecan

1 Follow general treatment instructions

2 Firmly apply a cold pack to the extravasated area for 30 minutes every 4 hours for the first 24 hours.

3 Apply topical hydrocortisone cream 1% every 6 hours for 7 days or as long as erythema continues.

Extravasation

Exfoliants

Daunorubicin , Liposomal Doxorubicin – Liposomal Mitoxantrone

1 Follow general treatment instructions

2 Firmly apply a cold pack to the extravasated area for 30 minutes every 4 hours for the first 24 hours

For extravasations of <5ml, apply topical hydrocortisone cream 1% every 6 hours for up to 7 days or as long as erythema continues

Extravasation

Exfoliants

Daunorubicin , Liposomal Doxorubicin – Liposomal Mitoxantrone

For extravasations of >5ml

a Daunorubicin – Liposomal and Doxorubicin – Liposomal

– alternate topical DMSO and 1% hydrocortisone cream every 2 hours in the first 24 hours, starting 8 hours after the extravasation, and then four times daily thereafter forup to 14 days.

DMSO should be applied with a cotton bud or gauze swap and left to air-dry.

The skin should not be covered to prevent blistering occurring.

b Mitoxantrone – alternate topical DMSO and 1% Hydrocortisone cream every 3 hours for 5 to 7 days.

DMSO should be applied with a cotton bud or gauze swap and left to air-dry.

The skin should not be covered to prevent blistering occurring.

Extravasation

Vesicants

Amsacrine, Dacarbazine, Dactinomycin, Daunorubicin, Doxorubicin, Epirubicin, Idarubicin, Mitomycin

1 Follow general treatment instructions.

2 Firmly apply a cold pack to the extravasated area for 30 minutes every 4 hours for the first 24 hours.

For extravasations of <5ml, alternate topical DMSO and 1% hydrocortisone cream every 2 hours in the first 24 hours then every 3 hours for the next 7-10 days.

DMSO should be applied with a cotton bud or gauze swap and left to air-dry.

The skin should not be covered to prevent blistering occurring.

For extravasations of >5ml use the flush-out technique according to local procedure

Extravasation

Vesicants

Paclitaxel,Vinblastine,Vincristine,Vindesine,Vinorelbine

1 Follow general treatment instructions.

2 Firmly apply a heat pack to the extravasated area for 20 minutes every 6 hours for the first 24 hours.

For extravasations of <5ml, infiltrate the site with 1500 units of hyaluronidase in 1ml water for injection.

Inject subcutaneously at several areas around site.

Gently massage area to facilitate dispersion.

For Paclitaxel extravasations, follow this with application of 1% hydrocortisone cream every 6 hours for 7 days.

For extravasations of >5ml refer for flush-out technique according to local procedure

Extravasation

Busulfan,Carmustine,Treosulfan

1 Follow general treatment instructions.

2 Firmly apply a cold pack to the extravasated area for 30 minutes every 4 hours for the first 24 hours.

For extravasations of <5ml, apply topical 1% hydrocortisone cream every 6 hours for up to 7 days or as long as erythema continues.

For extravasations of >5ml refer for flush-out technique according to local procedure

Extravasation

Chlormethine (Mustine)

1 Follow general treatment instructions.

2 Firmly apply a cold pack to the extravasated area every 4 hours for the first

24 hours.

For extravasations of <5ml, infiltrate the area subcutaneously with 1-3ml sodium thiosulphate 3%.

Apply topical hydrocortisone cream 1% every 6 hours for up to 7 days or as long as erythema continues.

(A 3% solution of sodium thiosulphate can be prepared

from the commercially available 50% solution by following

these directions:

Dilute 1.2ml of 50% sodium thiosulphate to 20ml with water for injection.)

For extravasations of >5ml refer for flush-out technique according to local procedure.

Extravasation

Non-pharmacological management of extravasation

Heat application

Application of heat causes vasodilation, increases drug distribution and absorption and decreases local drug concentrations.

It aids the dispersal of vinca-alkaloids and other non-vesicant induced injuries where “spread and dilute” treatment is required.

Heat should never be used for doxorubicin-induced injury.

This increases the cellular uptake of doxorubicin, increasing cytotoxicity.

Where heat is advocated, it is recommended to use a heat pack on the extravasated area for 20 minutes every 6 hours.

Extravasation

Non-pharmacological management of extravasation

Topical cooling

Topical cooling diminishes pain and discomfort at the extravasation site and causes vasoconstriction, localising the extravasated vesicant and allowing time for the agent to be dispersed by local vascular and lymphatic systems. Decreasing the blood supply decreases the metabolic demand of the affected and at risk tissue slowing drug uptake.

It also changes the fluidity of the cellular membrane making the cells less sensitive to the damaging effects of the drug.

This approach should not be used for vinca-alkaloid induced injuries as it is shown to increase ulcer formation.

Where cooling is advocated, it is recommended to use a cold pack on the extravasated area for 30 minutes every 4 hours.

Heat and cold sources should not be applied directly to the skin.

A piece of dry gauze should be placed as a protective barrier between the skin and heat / cold source.

Extravasation

Non-pharmacological management of extravasation

Surgery

Referral to a plastic surgeon is indicated when, despite conservative treatment, the extravasation injury progresses to ulceration.

Wide excision with use of grafts may be indicated.

Earlier surgical intervention (flush out technique) is recommended for large volume vesicant extravasations

Extravasation

Extravasation kit

Location

Extravasation kits are available in areas designated for the administration of cytotoxic chemotherapy.

Should chemotherapy be administered out with these areas

(in exceptional cases only and after full assessment of clinical risk involved), an extravasation kit should be made available

Extravasation

Extravasation kit

Contents

1x10	Hyaluronidase 1500iu injection
1x15g	Hydrocortisone 1% Cream
5x10ml	Sodium Chloride 0.9% injection
5x10ml	Sterile water for Injection
1x100ml	Dimethylsulfoxide (DMSO) 50% or 97%
	Needles 25G & 21G
	Syringes 5ml &10ml
	Alcowipes
	Cotton wool balls, cotton buds
	Sterile gauze
	Soft tipped pen

Extravasation

Extravasation kit

In addition, if chlormethine (mustine) is used, the kit should contain sodium thiosulphate injection.

> A cold source (crushed ice, flexible cold pack) should be available on the ward.

> A heat source (hot water bottle, flexible hot pack) should be available on the ward.

> Classification of cytotoxic drugs and extravasation algorithms.

> Green card.

> Extravasastion / Infiltration Report Form

Extravasation

Maintenance

> The extravasation kits are maintained by the pharmacy department.

> Nursing staff are responsible for the monthly checking of the trays.

> Expired and used kits should be returned to pharmacy for replacement.

Extravasation

Documentation and information

Patient information

> In the event of an extravasation the patient should be counselled appropriately.

> The patients should be provided with the WOSCAN patient

information sheet on extravasation to reinforce home management of the extravasation site

> Patient should be clear on dates of return visits for review of the injury

Extravasation

Documentation and information

Documentation

It is important that a complete and accurate history of the extravasation and the follow up visits is documented.

This aids both the management of the injury and the regular audit of administration practice.

The Green Card Scheme is a national, anonymised and confidential scheme designed to collate data and statistics on the number of incidents according to drug category, treatment methods, antidotes used and outcome of events.

It also provides information on the efficacy of certain treatments.

Extravasation

Documentation and information

Documentation

The incident should be documented using the Extravasation Report Form.

Photographs of the affected area should be included if appropriate, this aids management and follow up.

The form should be filed in the patient's notes.

The audit form in the extravasation pack should be completed to keep a record of all extravasations and their outcomes.

Other incident reporting procedures should be followed according to local policy.

Fill in appropriate details on Green Card

Extravasation

Follow-up and long term management

> Patients' progress should be closely followed after suspected extravasation to allow appropriate further action to be taken.

- Generally, observation and documentation (clinical notes, report form, green card) of the injury should be on a daily basis for the first few days and then extended to a weekly follow up on a planned basis. Patients should be assessed for pain, erythema, mobility, skin changes and necrosis.
- For extravasations of drugs in lower categories (i.e Neutrals), after initial review the patients can be assessed as deemed appropriate depending on the volume of fluid infiltrated and the severity of the reaction.
- > DNA binding vesicants may recycle locally and produce progressive necrosis and slough.
- Areas of extensive blistering or ulceration, progressive induration and erythema or persistent, severe pain are indications for surgical assessment and possible excision of injured tissue.
- Surgical intervention should not be delayed

Extravasation

Follow-up and long term management

Sterile dressings should be applied to sites that are blistered or necrotic to prevent infection.

> Ulcerated sites require specialist referral.

> Appropriate analgesia should be prescribed.

- Patients who have experienced an extravasation injury and still require further courses of chemotherapy should be monitored closely for recall reactions.
- Incomplete cellular repair after the first injury combined with

additional damage during the subsequent injections may see a reactivation of skin toxicity and an exacerbation of

the initial tissue damage.

This phenomenon is said to be more common with anthracyclines but has been observed with paclitaxel and mitomycin.

Extravasation

- **اقدامات اولیه درمدیریت extravasation**

اقدام اولیه در stage اول :

توقف سرم

بررسی رگ ومحل تزریق

بررسی درد بیمار وبرطرف کردن درد

خارج کردن آنژیوکت و درصورت نیاز تعویض محل آن

کمپرس موضعی سرد یا گرم

در نوزادان هرگز نباید کمپرس انجام شود

Extravasation

- **اقدامات اولیه درمدیریت extravasation**

اقدام اولیه در stage اول :

بالا نگهداشتن اندام مبتلا

گزارش به پرستار مسئول شیفت

اطلاع به خانواده بیمار

درج گزارش دقیق درپرونده وفرم مخصوص

چک کردن محل هر یک ساعت توسط پرستار

Extravasation

- **اقدامات اولیه درمدیریت extravasation**

اقدام اولیه در stage دوم :

توقف سرم

بررسی آنژیوکت واطراف آن

بررسی بیمار وبرطرف کردن درد

خارج کردن آنژیوکت و رگ گیری مجدد از محلی دیگر

کمپرس سرد یا گرم

عدم کمپرس درنوزادان

Extravasation

- **اقدامات اولیه درمدیریت extravasation**

اقدام اولیه در stage دوم :

با لا نگه داشتن اندام

گزارش به مسئول شیفت

رگ گیری مجدد در محلی دیگر

اطلاع به خانواده

درج گزارش دقیق درپرونده وفرم مخصوص

کنترل محل هر یک ساعت توسط پرستار

Extravasation

- **اقدامات اولیه درمدیریت extravasation**

اقدام اولیه در stage سوم :

توقف تزریق وعدم شستشوی رگ ویا خارج کردن رگ وانجام مشاوره جراحی پلاستیک.

بهتراست قبل از خارج کردن رگ اقدام به آسپیره کردن وخارج کردن مایع ازداخل آنژیوکت کرد وبعد آنژیوکت را خارج کرد .

ارزیابی محل تزریق

گزارش به مسئول شیفت

Extravasation

- **اقدامات اولیه درمدیریت extravasation**

اقدام اولیه در stage سوم :

دردسترس بودن کیت مخصوص extravasation وداروها

بررسی درد بیمار واقدام به برطرف کردن آن

انجام کمپرس سرد یا گرم بجز درنوزادان

بالاقراردادن اندام یا محل

خارج کردن آنژیوکت بعدازاقدامات ضروری

گرفتن عکس از محل extravasation

انجام پانسمان مناسب طبق دستور جراح پلاستیک

اطلاع به خانواده ویا والدین بیمار

Extravasation

- **اقدامات اولیه درمدیریت extravasation**

اقدام اولیه در stage سوم :

مشاهده وبررسی محل توسط پرستار هر یک ساعت

درج گزارش در پرونده بیمار

Extravasation

- **اقدامات اولیه درمدیریت extravasation**

اقدام اولیه در stage چهارم :

توقف تزریق وقبل از خروج آنژیوکت ویا شستشوی آنژیوکت اقدام به

مشاوره جراح پلاستیک

دوجنبه وجوددارد خروج آنژیوکت سریعا وبهتراست تاحد ممکن آسپیره گردد تا فشار به محل تزریق کمتر گردد .

بدقت محل ارزیابی شود

مشاوره جراحی پلاستیک واطلاع به مسئول شیفت

فراهم کردن کیت extravasationوداروها

بررسی درد بیمار واقدامات لازم جهت تسکین درد

Extravasation

- **اقدامات اولیه درمدیریت extravasation**

اقدام اولیه در stage چهارم :

بجز درنوزادان

الویشن اندام براساس جدول

خروج آنژیوکت بیمار

گرفتن عکس از محل

پانسمان مناسب طبق دستور جراح پلاستیک

اطلاع به خانواده بیمار

درج گزارش دراسناد بیمار

بررسی ومشاهده پرستار هر یک ساعت

Extravasation

- **کمپرس سرد :**

کیسه حاوی آب دوساعت درفریزر قرارداده شود.

قبل ازاستفاده درون حوله نخی قرارداده شود ومستقیم روی پوست قرارنگیرد

کیسه باید از نظر پارگی چک شود وواترپروف وخشک باشد

Extravasation

- **کمپرس گرم :**
- آب بمدت 10-5 دقیقه گرم بشود
- درمایکرویو بمدت 20ثانیه کافی است
- احتیاط :در ماکرویو درحین گرم کردن درصورت برجسته شدن کیسه گرم کردن متوقف گردد

Extravasation

- **کمپرس گرم :**
- کیسه درون حوله نخی پیچیده وروی عضو قرارگیرد ومستقیم روی پوست قرارنگیرد
- کیسه باید ضدآب وسالم باشد ونشتی نداشته باشد
- کمپرس سرد یا گرم نباید بیشتراز 15تا 20دقیقه روی پوست باشد وبطورمتناوب 4باردرروز تا 48ساعت ادامه یابد.
- درهنگام گذاشتن کمپرس، پوست بیمار ازنظر افزایش قرمزی والتهاب وادم ودرد باید کنترل گردد.
- حوله یا پارچه نباید مستقیم درمایکروویو قرار گیرد

Extravasation

- ثبت اکستراوزیشن :
- گزارش بالینی باید شامل موارد زیر باشد :
- تاریخ وزمان حادثه
- محل آناتومیکی تزریق
- دارو ویاسرمی که استفاده شده
- سرعت وحجم تزریق
- مشخص کردن داروهای تزریقی نزدیک اکستراوزیشن
- علائم ظاهری پوست ووضعیت اندام

Extravasation

- ثبت اکستراوزیشن :
- اندازه گیری منطقه آسیب دیده بوسیله سانتی متر
- ثبت اقدامات انجام شده اولیه برای بیمار
- اطلاع به خانواده
- امضای پرستار مسئول ومسئول شیفت
- امضای پزشک مسئول
- ثبت عکس در گرید 3و 4 درپرونده بالینی

Extravasation

- ثبت اکستراوزیشن :
- گزارش بالینی باید شامل موارد زیر باشد :
- نام ونام خانوادگی بیمار –زمان وتاریخ اتفاق –نوع دارو –محل اکستراوزیشن – توصیف وضعیت پوست وبررسی وضعیت بیمار در گزارش قید گردد
- دارووویا سرم تزریقی بیمار مشخص شود
- اولین اقدام بعداز اتفاق درج گردد
- درج اطلاع به خانواده بصورت **بله** و **خیر**

Extravasation

- برنامه درمانی :
- درهرشیفت جهت بیماران بستری یک پرستار اختصاص داده شود وآسیب کنترل گردد
- گردش خون وسیرکولیشن بافت درهر شیفت کنترل گردد
- طبق جدول ادامه کمپرس سرد یا گرم تا 48ساعت
- ادامه بالا نگهداشتن عضو تا برطرف شدن ادم وبرگشت سیرکولیشن اندام
- ترخیص بیمار بعداز 48 تا 72ساعت وادامه پیگیری وضعیت بیمار
- ترخیص با صلاحدید جراح پلاستیک وپزشک مربوطه تعیین می گردد
- پیگیری بعداز ترخیص توسط گروهی مانند پزشک عمومی وپرستار انجام گردد
- آموزش خانواده بیمار جهت گزارش دهی به تیم وپیگیری