A Clinical Case of Chemotherapy Extravasation

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Disclosures

I have no financial conflicts to disclose
Introduction

1- Fortunately, it is an infrequent complication
2- Identification of risk factors and preventive measures are crucial
3- Most recommendations are based on clinical observations or series of cases
4- Treatments: some of the recommended therapies were approved decades ago
Case report

- 76 year old woman
- Body mass index=33
- Diabetes type II
- Atrial fibrillation treated with oral digoxine
- In April 1998, she noticed multiple lymph nodes in cervical and supraclavicular regions.
• A diagnosis of a Diffuse Large Cell Lymphoma in stage IV-B was made.

• Combination chemotherapy was started with HyperCVAD:
  – Cyclophosphamide 150 mg/m2 i.v. in a 3-hour infusion days 1-3 (*dose reduced due to age*)
  – Mesna 400 mg/m2 in continuous infusion days 1-3
  – Doxorubicin 50mg/m2 in 20-30 minutes infusion day 4
  – Vincristine 2 mg i.v. Day 4
  – Dexamethasone 40 mg i.v. days 1-4
Question 1

Which of the following is not considered a risk factor for chemotherapy extravasation in this patient?

1- Atrial fibrillation
2- Elderly
3- Obesity
4- Diabetes
Question 2

Which of the drugs administered to this patient is considered vesicant?

1- Cyclophosphamide
2- Vincristine
3- Doxorubicin
4- Vincristine and Doxorubicin
On 27th February 1999 she was admitted to the hospital to receive the 5th course of HyperCVAD

After multiple attempts cannulation of a vein located at elbow flexure was not successful

A cannula was finally placed in a distal vein near the wrist

Infusion of cyclophosphamide was initiated
Question 3

In relation to the procedure of cannulation, which of the following is incorrect?

1- Difficulty in cannulation in previous cycles should lead to recommend a central venous device insertion

2- Multiple attempts at cannulation may increase the risk of extravasation

3- If elbow flexure access is not possible cannulation of a vein near the wrist is a valuable option

4- Cannulation procedure must be performed by highly trained nursery staff
• On Day 4 intravenous analgesia was administered due to a severe pain in her knee.

• Some minutes later doxorubicin infusion was started.

• Shortly thereafter the patient felt a mild pain in her forearm but she did not pay much attention to it.

• The nurse was not alarmed at that point.
• One hour later, the patient informed the nurse that she had severe pain and redness in the area surrounding the cannula insertion.
• Estimated time elapse from onset of symptoms was at least 45 minutes
• Despite symptoms of extravasation the whole infusion had been administered
• A local extravasation protocol was then initiated.
Question 4

Which of the following is correct?

1- The delay of 45 minutes in initiating measures was in this case irrelevant

2- It is crucial to inform patients about the risk of extravasation and the symptoms to detect it

3- Extravasation kit must be available only in the pharmacy department of each institution

4- When symptoms appear infusion of CT must be stopped and needle immediately withdrawn
• Actions:
  – Cannula was left in place and aspiration with a syringe was performed → 50 ml of extravasated drug was extracted
  – Cold dry compresses were applied for 20 minutes
  – DMSO topical every 12 hours (covering twice the affected area)
• Surgeon was contacted → option of surgical treatment was initially discarded.
• Pain was controlled with analgesics
• Patient was discharged. DMSO treatment was maintained for 14 days.

• Follow-up: → every 2 days during the first week and then weekly

• Despite an initial stability of symptoms at day +4 after extravasation a skin ulcer appeared
Question 5

Which of the following is **not** recommended in the treatment of an extravasation due to anthracyclines?

1- **DMSO**
2- **Dexrazoxane intravenous**
3- **Surgical debridement in severe cases**
4- **Topical corticosteroids**
Surgeon recommended not to operate and to treat with topical antibiotics (neomycin)

Two months later the affected area was fully covered with healthy skin. A surgical procedure was ultimately not needed.