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Chemotherapy –

Safe preparation and administration

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Merja Stenvall
EBMT NG, Account Officer
HUCH, Children's Clinic
Helsinki, Finland

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Chemotherapy

- Cytotoxic drugs (antineoplastic, anticancer or cancer chemotherapy drugs) include a wide range of chemical compounds.
- Because of their ability to kill tumor cells by interfering with cell division, they are extensively used to treat cancer, and some have other medical applications.
- However, their actions are not specific to tumor cells and normal cells may also be damaged.

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Safety

Be alert

- Drug preparation
- Drug administration
- Handling patient waste
- Transport and waste disposal
- Cleaning spills.

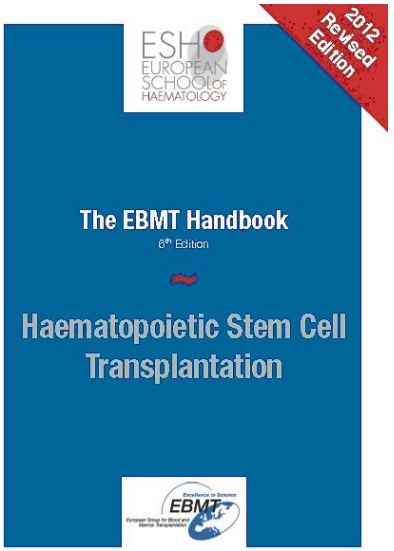
http://www.hse.gov.uk/healthservices/safe-use-cytotoxic-drugs.htm

- The toxicity of cytotoxic drugs means, that they can present significant risks to those who handle them
- Occupational exposure can occur when control measures are inadequate
- Exposure may be through skin contact, skin absorption, inhalation of aerosols and drug particles, ingestion and needle stick injuries

http://www.hse.gov.uk/healthservices/safe-use-cytotoxic-drugs.htm

Education

Employees handling cytotoxic drugs must be given suitable and sufficient information, instruction and training that is relevant to their work



- Use good hygiene practices
- Provide suitable welfare facilities, eg prohibiting eating, drinking and smoking in areas where drugs are handled
- Provide washing facilities
- Provide training to all staff members who may be involved in handling cytotoxic drugs or cleaning areas likely to be contaminated

Effective protection will only be obtained if the personal protective equipment (PPE) chosen is:

- suitable for the task
- suited to the wearer and environment
- compatible with other PPE in use
- in good condition
- worn correctly.

First aid

- First aid equipment at hand (eye wash)
- Spill kit for cleaning

Waste disposal

- Suitable containers, clearly labelled and reserved only for the use of cytotoxic drug waste, should be available. Sharps containers should be used for the safe disposal of needles etc.

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Preparation & Administration

Quality

- Each institution administering high dose CT in the context of HSCT must establish a quality management system for administration of this therapy.
- Such a system must be established in close cooperation with the institutional pharmacy and the nursing team.
- Conditioning has to be based on pre-printed orders.
- Regular check points at different levels and immediately prior to administration have to safeguard that the right patient is given the specified drugs at the correct dose and appropriate timing.

Jacie standards Version 6

European Agency for Safety and Health at Work

- All check points include the “4 eyes” principle

→ at least two people must witness or approve a certain activity

www.ehealthinnovation.org

- Two patient identifiers
- Drug names
- Drug dose
- Drug volume
- Route of administration
- Rate of administration
- The calculation for dosing (including the variables used in this calculation)

Neuss et al. 2013

Getting ready

- Follow the protocol
- Use aseptic technique
- Antiemetic
- Double check medication (prescription, dosage)
- Line is working
- Bolus/infusion
- “Closed system”

Patient

- Information
- Follow up
- RR, pulse etc
- Weight
- (measure urine)
- Vomiting
- Allergic reaction

Extravasation

"Extravasation is the process by which any liquid (fluid or drug) accidentally leaks into the surrounding tissue. In terms of cancer therapy, extravasation refers to the inadvertent infiltration of chemotherapy into the subcutaneous or subdermal tissues surrounding the intravenous or intra-arterial administration site."

Perez Fidalgo et al 2012

Local skin reactions	Chemical phlebitis
Aspariginase	Amsacrin
Cisplatin	Carmustin
Daunorubicin	Cisplatin
Doxorubicin	Dacarbazine
Epirubicin	Epirubicin
Fludarabine	5-Fluorouracil (as continual infusion in combination with cisplatin)
Mechlorethamin	Mechlorethamine
Melphalan	Gemcitabine
	Vinorelbin

Perez Fidalgo et al 2012

- Stop and disconnect infusion. Do not move the cannula
- Identify extravasated agent
- Specific measures
- Identify the area

Perez Fidalgo et al 2012

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If something goes wrong?

Top 10 cytotoxic errors
Missing or incorrect prescription of antiemetics
Incorrect prescription of cytotoxic drug
Drug not prescribed and/or ordered from pharmacy
Incorrect administration
Patient has not taken prescribed medication
Incorrect dose verification
Correct regime was missing or incomplete
Errors related to the electric prescription software
Leakage from the infusion bags/pumps
Prescription both manually and electronically not matching

L.Sharp 2014, EONS 9

Wrong patient/drug/dosage….

- Act immediately – stop infusion
- Inform physician
- Patient! Information for parents

- Make an inquiry on the PROCESS
- Look for weak points on the process and don't punish the individual
- Change the procedure, increase education if needed

Take home message

Protect the staff, patient and environment

Prepare and administer drugs safely, if you don't have a protocol, write it and follow

If something goes wrong – act immediately – make an inquiry to avoid the same error

"Creating environments where people will express their concerns and speak up is a key factor in safety" "Patient safety and Quality"

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European Agency for Safety and Health at Work https://osha.europa.eu/en


Thank you!