**Focus** on
patient safety

MEASURING
& IMPROVING
QUALITY

# High-alert medications

## Underestimating the risk is risky

10 June 2021

## It could happen to you too

Event 1

### TRAMADOL OVERDOSE IN A YOUNG CHILD, LEADING TO RESPIRATORY DISTRESS

***An 8-year-old child is urgently admitted to the adult reconstructive surgery department after osteosynthesis for simple fracture to the hand. Faced with persistent pain despite step 1 analgesics, and as the parents were worried, the on-call junior doctor prescribed TRAMADOL. Administration by a nurse (SRN) led to respiratory distress and transfer to paediatric intensive care.***

**What happened?** *Immediate cause*

The junior doctor prescribed 152 drops of TRAMADOL, i.e. 5 to 10 times the dose authorised in children.

**Why did it happen?** *Root causes, absent or deficient barriers*

- The child was hospitalised in an adult surgery department, one which was therefore not equipped for managing children, which in turn meant:
  - there were no paediatric provisions or paediatric pack sizes;
  - the healthcare professionals were unaccustomed to prescribing and administering drugs at paediatric dosage or in a paediatric formulation.
- The on-call junior doctor prescribed oral TRAMADOL and did not check the posology.
- The SRN did not ask for written confirmation of the prescription.
- The SRN did not double check the posology for this unusual type of use in the department.
- The department had not drawn up a protocol for managing pain by analgesic treatment post-operatively in the 24 h after surgery.
- The SRN interrupted the junior doctor when they were passing on the message as it was the weekend, the staff were under strain and busy and the parents in the child's room were particularly worried about their child who was in a lot of pain.

HAS
HAUTE AUTORITÉ DE SANTÉ

Event 2

## ADMINISTRATION OF A CURARE BY MISTAKE, LEADING TO RESPIRATORY ARREST

***A 40-year-old female patient is hospitalised for a colonoscopy under general anaesthesia. The patient was transferred to the recovery room after the procedure. The SRAN (state-registered anaesthetist nurse) administered an antispasmodic (TRIMEBUTINE). The injection immediately led to respiratory arrest, requiring intubation, sedation, and transfer to intensive care.***

**What happened?** *Immediate cause*

The SRAN administered a curare [CISATRACURIUM (10 mg)] instead of the antispasmodic (TRIMEBUTINE).

**Why did it happen?** *Root causes, absent or deficient barriers*

- The curare storage procedures were not followed:
  - health products stored in the refrigerator in alphabetical order, but without any difference being made between the international non-proprietary name (INN) of high-alert medications like curares;
  - curares not securely stored: placed next to antispasmodics;
  - the outer packaging of each of the products in the refrigerator had been removed, meaning the INN, dosage, form and route of administration could no longer be clearly discerned;
  - the lighting in the refrigerator was not working properly preventing proper visual identification.
- The SRAN did not check the name of the medicinal product before the injection.
- Special circumstances: the SRAN had worked the previous 2 nights, and worked her last day in the department as she was due to be transferred.

Event 3

## METHOTREXATE OVERDOSE LEADING TO DEATH

***An 80-year-old female patient, hospitalised in a nursing home is treated by METHOTREXATE. Presenting with thrombocytopaenia and anaemia, she was transferred to the hospital where she later died.***

**What happened?** *Immediate cause*

The SRNs administered 1 tablet of METHOTREXATE per day for 8 days, whereas the prescription was for 1 tablet per week.

**Why did it happen?** *Root causes, absent or deficient barriers*

- The medicinal product was selected without consulting national guidelines, the alert message was therefore not available.
- The pharmaceutical analysis was not performed as the pharmacist was absent.
- The regular doctor's prescription was not taken into account.
- The healthcare professionals did not read the "high-alert medications" sheet or the "pharmacy" gazette on
- METHOTREXATE available at the hospital.
- The SRNs did not double check when preparing the pill bottle or when administering it to the patient. A high-alert medication preparation/administration procedure is available but was not taken into account as stored at the bottom of the medicine cupboard.
- The summary of Product Characteristics (SPC) for the medicinal product was not followed even though a copy of the VIDAL was available in the patient's computer record.

**Key words: Iatrogenesis – High-alert medication – Medication error – Anaesthesia – Chemotherapy**

# So it doesn't happen again

The analysis of the serious adverse events from the REX-EIGS database showed that for almost 250 medication errors analysed, 75% covered all categories of high-alert medications. Errors related to misuse of these medicinal products are not necessarily more frequent but they have more serious consequences for patients. Therefore, making their use safe is essential and implies, among other things:

- identification of high-alert medications at each step of medication management especially with a list of medications for each sector of activity so each healthcare professional is aware of them identification of high-alert medications likely to be used;
- setting up of safeguarding measures at each step of medication management to prevent errors, such as standardisation of prescription, dispensing, administration and storage rules, the existence of good practice protocols for high-alert medications, ready-to-use medicines preferably…

These principles remain general principles applicable to all high-alert medication. However, good practice recommendations that are safety barriers at each step of medication management exist for each of the high-alert medications categories.

# Focus on patient safety collection

The “Focus on patient safety” collection aims to draw the attention of and raise awareness among healthcare professionals as to risk management. Each focus covers a specific and recurrent risk based on care-related adverse events, identified and selected from national care-related serious adverse event reporting databases or doctors’ accreditation.

This alert focusses on the occurrence of adverse events incriminating high-alert medications[1]. This guide relates events with which healthcare professionals have been confronted and which are always associated with a series of dysfunctions.

**High-alert medications (see order of 6 April 2011) are most often medicinal products with narrow therapeutic index such as anticoagulants, antiarrhythmic agents, IV adrenergic agonists, IV digitalis glycoside, insulin, antineoplastics, concentrated electrolyte solutions, etc. These are medicinal products leading to a higher risk of causing harm to patients.**

## Find out more:

- Circular DGOS/PF2 no. 2012-72 of 14 February 2012 relative to medication management in healthcare facilities NOR: ETSH1204322C
- List of high-alert medications from the Institute for Safe Medication Practices (ISMP) *www.ismp-canada.org/fr/dossiers/HighAlertMedications_2012_FR_3.pdf*
- **If I want to assess myself** *www.omedit-centre.fr/FormationnouveauxarrivantsWeb_gen_web/co/QCM_apres.html*
- **If I wish to assess my hospital** *www.anap.fr/actualites/toute-lactu/detail/actualites/outil-inter-diag-medicamentsc-evaluer-pour-evoluer/*
- **If I want to train** *www.omedit-grand-est.ars.sante.fr/erreur-medicamenteuse-0?parent=6576rubrique : analyser les erreurs médicamenteuses*

  *www.has-sante.fr/upload/docs/application/pdf/201111/guide_outil_securisation_autoevalusation_medicaments_complet_2011-11-17_10-49-21_885.pdf*

The HAS would like to extend its thanks to the OMéDITS who helped proofread this flash.

1. Order of 06 April 2011 relative to medication management quality and medication in healthcare facilities, OJFR no. 0090 of 16 April 2011.

© Haute Autorité de santé — June 2021

HAS
HAUTE AUTORITÉ DE SANTÉ
Advancing quality in health and social care services