Open Book
Learning from close calls and adverse events

Epidural medicines through intravenous lines

This report aims to alert providers to the key findings of a recent review, with an update on new engineering standards being introduced worldwide to prevent Luer misconnections.

This report is relevant to:

- medical and nursing staff in units where patients have epidurals
- staff responsible for procurement, supply chain, transition arrangements, staff training and education.

Incident

An opioid patient-controlled epidural analgesia (PCEA) infusion pump was wrongly connected to an intravenous (IV) cannula.

Although no local anaesthetic medication was in the PCEA infusion bag, local anaesthetics are commonly used in epidural infusions and can cause fatal toxicity if given intravenously.

Chronology

- A patient was receiving an opioid PCEA through an epidural catheter and also had a peripheral IV cannula in place.
- The PCEA infusion bag was empty, and another bag was to be connected. Two registered nurses (RNs) correctly checked the medicine, dosage and patient identity.
- The hospital procedure manual required only one RN to ensure the epidural infusion was correctly connected.
- While connecting the PCEA infusion, the RN misidentified the peripheral IV line as the epidural catheter, and the drug was given via IV.

Review

- The incident review found there was no physical barrier preventing connection of a PCEA giving set to the end of either an epidural or IV cannula – both use universal Luer connections.
- The hospital procedure manual did not require two people to check the point of connection to identify the correct line.
- An identification label was on the epidural catheter just above the filter. There was no label on the PCEA giving set to indicate the intended route of administration or connection.
- The review could not identify a product that would physically prevent misconnection of IV and epidural lines.

Actions subsequently taken

- Medicine administration policies were changed; now two RNs must be present at the bedside when connecting epidural infusions to a patient.
- All epidural line giving sets must have a yellow sticker placed on them before they are connected to a patient, as part of the double-checking process.
- New products for systems to physically prevent epidural and IV tubing being connected are to be sought and reviewed.

Health Quality & Safety Commission comment

Universal Luer connectors are still the only available option worldwide for connecting multiple types of catheters and tubing. New Zealand distributors and their parent companies say improvements are still years away.

Providers must ensure staff are fully aware of:

- the potential for misconnections, as universal Luer connectors are used on multiple types of catheters and tubing
- the potential for misconnection to result in serious patient harm
- safety measures to reduce the risk of misconnection.

Recommended reading

The Institute of Safe Medication Practices' alert 'Epidural-IV route mix-ups: Reducing the risk of deadly errors'. URL: https://www.ismp.org/newsletters/acutecare/articles/20080703.asp.

Joint Commission's Sentinel Event Alert, 'Managing risk during the transition to new ISO tubing connector standards'. URL: http://www.viasysmedsystems.com/Supplement_Material/SupplementDownloads/enfit/SEA_53_Connectors_8_19_14_FINAL.pdf