Patient Safety Alert

Stage One: Warning

Residual anaesthetic drugs in cannulae and intravenous lines

14 April 2014

Alert reference number:	NHS/PSA/W/2014/008
Alert stage:	One - Warning

Since January 2011 there have been six incidents of cardiac or respiratory arrest due to residual anaesthetic drugs in cannulae reported to the national reporting and learning system (NRLS).

After intravenous anaesthesia, some drug may be left in the cannula, or in the intravenous line distal to a site of drug injection, which is then flushed into the patient's circulation when further fluid or medication is given through the same cannula or line. This may also happen when ward staff give antibiotics or pain relief after the patient returns from theatre.
In order to raise awareness of this issue the former National Patient Safety Agency (NPSA) issued a Signal in 2009 focussed on incidents occurring in children under 12 years old that suggested that the anaesthetist ensures that all cannulae are flushed before children are returned to recovery or other wards.

Review of the NRLS since January 2011 identifies that 16 further incidents have been reported. Seven of these were reported as resulting in severe or moderate harm to the patient, and although the risk to children is greater because of their smaller size, eight of the incidents occurred in patients who were 16 years or older. The insertion of two cannulae during anaesthesia has also been identified as a potential risk factor, as only one may be subsequently flushed.

An example of a recent incident states:

> *Patient suffered an unexpected respiratory arrest on ward post surgery . He was attended immediately by the ITU team , who intubated , ventilated and transferred to CT scan for further investigation …. Upon extubation later in the day , the patient reported full awareness of the events leading up to his arrest , describing a ' heaviness' which crept up his arm , into his jaw and lead to him being unable to breathe but with a full level of consciousness . This occurred immediately following a peripheral line being flushed in his hand.*

From the incidents reported to us it appears that systems were not in place to ensure that all cannulae and extensions were flushed with saline or another solution that does not contain anaesthetic drugs before the patient left recovery or the department where the procedure/investigation was undertaken.

Actions

Who: All hospitals and community services that undertake surgery or other investigations and procedures using anaesthesia

When: As soon as possible but no later than 13 May 2014

1. Establish if local systems are adequate to prevent the risk of leaving residual anaesthetic drugs in cannulae or intravenous line post surgery or investigation/procedure requiring anaesthesia in your services and if similar incidents have occurred.
2. Consider and document if immediate action needs to be taken locally and develop an action plan, if required, to reduce the risk of a similar incident occurring.
3. Disseminate this Alert to all staff involved in caring for patients post anaesthesia
4. Share any learning from local investigations or locally developed good practice resources by emailing: patientsafety.enquiries@nhs.net.

Publications Gateway Reference 01516

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Technical notes

NRLS search dates and terms
The NRLS was searched on 4th March 2014 using the following search criteria:

- Incidents reported to the NRLS since 1st Jan 2011
- Filtered by IN05 medication
- Incident types reported as flush' AND 'venflon' OR line OR cannula

In total 2305 incidents were identified. All Death, Severe and Moderate harm incidents were reviewed n=88.

An additional filter of the free text fields in low and no harm incidents was carried using the search 'residual' OR 'drug left in' OR 'medication left in' OR 'medicine left in' OR 'anaesthetic left in' OR 'muscle relaxant left in'.

In addition to the trigger incident sixteen incidents were found involving unintended administration of anaesthetic agents and other identified drugs, during flushing of intravascular drug administration lines.

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