PATIENT SAFETY UPDATE

January – March 2016

PUBLISHED JULY 2016

LEARNING POINTS FROM REPORTED INCIDENTS

January 2016 – March 2016

This document aims to achieve the following:

- Outline the data received, the severity of reported patient harm and the timing and source of reports
- Provide feedback to reporters and encourage further reports
- Provide vignettes for clinicians to use to support learning in their own Trusts and Boards
- Provide expert comments on reported issues
- Encourage staff to contact SALG in order to share their own learning on any of the incidents mentioned below.

The SALG Patient Safety Updates contain important learning from incidents reported to the National Reporting and Learning System (NRLS). The Royal College of Anaesthetists (RCoA) and the Association of Anaesthetists of Great Britain and Ireland (AAGBI) would like to bring these Safety Updates to the attention of as many anaesthetists and their teams as possible. We would like to encourage you to add this Update to the agenda of your next Morbidity and Mortality (M&M) meeting, and we would also like to hear your feedback on the learning points.

Feedback from M&M meetings on how the Patient Safety Update has informed action can be sent to the SALG administrator at SALG@rcoa.ac.uk.

The clinical scenarios published in the PSU are taken from the National Reporting and Learning System database on a quarterly basis and are anonymised real cases reported as causing severe harm or death. The text is changed very little, keeping the story real. There are often common themes within the cases, and learning points, with supporting evidence when available, are summarised for the benefit of the readership. Some cases deliver learning without the need for third-party analysis. This PSU has examples of both.

LOCAL TOXICITY

- *Axillary plexus block was done. All safety precautions followed. Patient developed the following local anaesthetic toxicity symptoms : Blurring of vision, light-headedness, difficulty in swallowing and shivering. Intralipid 20% was administered IV according to the protocol. Patient felt better in the next 10-15 minutes. Planned operation went ahead uneventfully.*
- *This patient was scheduled for a 2nd stage brachiobasilic fistula formation, and after pre-assessment clinic review a regional anaesthetic technique was preferred due to the pre-existing cardiac disease. 20ml 0.375 levobupivicaine in a supraclavicular block (US guided) failed to cover the surgical region. 135 minutes later - repeat supraclavicular block under ultrasound. 10ml 2% lignocaine, 10ml 0.5% bupivicaine + 1:200000 adrenaline used. 15 minutes later – intercostobrachial block, landmark technique. 5ml 1% lignocaine. 75 minutes later – the patient began jerking the right arm, thought to be focal seizure activity. This was announced out loud in theatre and intralipid was found and administered to the patient as per AAGBI protocol for local anaesthetic toxicity. Jerking ceased approximately one minute after the end of the initial bolus of intralipid.*

Although local anaesthetic systemic toxicity is a rare event, anaesthetists need to remain vigilant and have a specific plan to manage the situation whenever local anaesthetic drugs are used.[1] Patient factors, site and conduct of the block, and type of drug and dose injected determine the risk of toxicity.[2]

1. AAGBI Safety Guideline: Management of Severe Local Anaesthetic Toxicity (http://bit.ly/1MShvsl)
2. LE Christie, J Picard, GL Weinberg. Local anaesthetic systemic toxicity. *British Journal of Anaesthesia Education* 2015; 15 (3):136–142 (http://bit.ly/297WzV2)

SAVE THE DATE

PATIENT SAFETY CONFERENCE 2016

The annual SALG Patient Safety Conference will be held on 30th November 2016 at the Royal College of Physicians, Edinburgh. For further information, or to register for the Conference, please visit: www.rcoa.ac.uk/education-and-events/patient-safety-conference.

ANAPHYLAXIS RELATED TO ANAESTHESIA

- *79-year-old patient for a hip replacement operation… past medical history included hypertension, asthma, CKD stage 3, hiatus hernia, partial thyroidectotmy, hysterectomy, anterior and posterior repairs, and a right total hip replacement, BMI was 34.9… documented allergies and/or intolerances to penicillin, cephalexin, tetracyclines, indomethacin, tramadol, cipramil, sertaline, meloxicam… a spinal anaesthetic was given along with prophylactic antibiotics (teicoplanin)… this takes a while to mix and so the surgeons were quite well advanced in the procedure before the antibiotic was given… low dose infusion of propofol running for sedation… about ten minutes after the teicoplanin injection, patient developed a tachycardia and blood pressure was recorded as 40 mm systolic… stopped the propofol infusion. The surgeons were asked to wait (so no cement was in the patient) while adrenaline increments were given and infusion started. The patient was noticeably red in the arms and face once the pressure was restored… completed the procedure… tryptases were raised around 34.6, 25.5 then 3.4 mcg/L the next morning.*

NAP6[1] is underway now and aims to provide the incidence of anaphylaxis related to anaesthesia in the UK, as well as describing the presenting signs and symptoms. Details of care, from emergency management through to allergy clinic investigation follow-up, will be collated. Recommendations for the improvement of patient care is the anticipated outcome.

1. NAP6: Perioperative Anaphylaxis; Sixth National Audit Project of the Royal College of Anaesthetists (www.nationalauditprojects.org.uk/NAP6home)

MACHINE CHECK

- *The float in the anaesthesia gas scavenging system (AGSS) flowmeter on the back of the machine was noted to be below the lower allowed index mark, denoting insufficient flow in the AGSS. System engineers confirmed that the flow in the main system was 120 L/min (regulation limits of 80-130). No obvious fault could be found with the flowmeter. Testing using other machines in that theatre and testing that machine in other theatres suggested that the issue was specific to this theatre. This made no sense given the engineer test and further advice was sought from the machine's manufacturers who were both prompt and helpful. They indicated that there is a flow restrictor at the very machine end of the scavenging hose which can become fouled and part-occluded over time with environmental debris. On disconnection of the hose, there was a significant circumferential build up within the bore of the restrictor… some of our other machines have the same issue. It is not clear whether or not this is a routine service item.*
- *PCA pump checked against prescription… match 1mg/ml patient press with five minute lockout. On review the screen did not show Protocol A (morphine)… displayed 'Protocol'. Discussed with anaesthetist who set up the PCA, who confirmed that they would not have modified the pump on set up with it being a 1mg pre-set protocol. Rechecked the pump, which showed a fourth screen. Looked through the pump history confirming Protocol A was selected at set up. Pump was modified the next day to 1.5mg. Modified back to 1mg the following day. Although this matched prescription, and the check protocol screen showed morphine bolus at correct doses and drug, this has highlighted a potential risk if the drug name is modified. This situation could potentially pose a Significant Risk as there are no limitations to the settings.*

All components of anaesthetic gas scavenging systems can add additional risk to patients if they are not adequately checked prior to use.[1]

The AAGBI guidance highlights infusion equipment for inclusion in the pre-anaesthesia safety check.

1. Checking Anaesthetic Equipment 2012. *AAGBI* 2012;67, 660–668 (http://bit.ly/1fsVhLG)

VTE – REDUCING THE RISK

- *The patient was transferred to the ICU 3 with suspicion of pulmonary embolism or acute coronary syndrome… Physician review concluded no need for PCI or CT-PA at this time… 3 hours later suddenly developed cardiac arrest on mobilisation in bed… No VTE assessment performed since admission to the hospital… No thromboprophylaxis given throughout admission (for tibial fracture) and previous PE (2014).*

NICE published a quality standard of care in 2010 which was updated in 2015.[1] NHS England require data on VTE risk assessment using the national assessment tool[2] to be collected on all adults admitted as inpatients.

1. Venous thromboembolism in adults: reducing the risk in hospital. NICE Quality Standard [QS3] 2015 (www.nice.org.uk/guidance/qs3).
2. Risk assessment for venous thromboembolism (VTE). Department of Health, 2010 (http://bit.ly/28RQfNK).

LEARNING POINTS FROM REPORTED INCIDENTS

FAILURE TO ESCALATE

- *Failure to escalate patient deterioration to critical care following early warning score observations scoring 10 (not calculated on chart) sometime before 1700hrs (time not recorded). Incomplete fluid balance chart. ABG – pH 7.0, lactate 10, K 6.0. Following admission to ICU possible delay in commencing renal replacement therapy. Cardiac arrest...*

The rationale for early warning scoring systems and escalation protocols are detailed in the National Clinical Guideline[1]. The guidance highlights education as a vital step in the efforts to improve patient care.

1. National Early Warning Score: Clinical Guideline No1. Department of Health (RoI) February 2013 (http://bit.ly/28RGfbm).

CENTRAL VENOUS CATHETERS – VARIOUS COMPLICATIONS

- *Patient with poor-grade SAH complicated by vasospasm – poor outcome anticipated. Febrile ++ despite standard measures, so cooling line inserted into right femoral vein... some time later became haemodynamically unstable with low CO state and rising lactate, fall in Hb... CT abdomen undertaken demonstrating massive pelvic haematoma – likely acute – possible injury to anomalous right IEA. Proceeded to have IR embolisation of right IEA. Haematoma compressing right ureter, acute kidney injury. Unusual complication... patient iatrogenically injured either by insertion of cooling line or at time of coiling of aneurysm.*
- *Patient admitted to ICU post liver and renal transplant for Level 3 care. Haemodynamically unstable on admission to unit. Bedside nurse had been present through theatre as was attending to dialysis machine. Patient appeared to have a swollen head on admission to ICU as noted by nurse in charge. 1 litre fluid bolus administered to patient via central line in right neck area. Patient head visibly expanded and went purple. Eyes unable to open. Infusions running through line at the time included sedation and inotropes.*
- *The patient was scheduled for redo aortic valve replacement, mitral–aortic continuity patch, mitral valve repair for endocarditis... it was a high mortality-risk procedure... before the procedure, the patient deteriorated: the infusion rate of the noradrenaline was increased and vasopressin was started... FiO2 1.0 and PEEP 10. The plan was to insert a balloon into the LIMA to allow a proper action of the cardioplegia during the procedure. The patient had a tri-lumen central line in the right internal jugular vein. After moving all the infusion pumps in a convenient stand to have enough length for the pumps extensions we moved the patient from bed to the table. Despite moving slowly and gently, the RIJV tri-lumen central line was dislodged.*

Recent guidance on safe vascular access reminds us that vascular access is a frequent source of patient adverse events[1].

1. Association of Anaesthetists of Great Britain and Ireland. Safe vascular access. 2016. *Anaesthesia* 2016; 71, 573–585 (http://bit.ly/28XDSTu).

ATTENDING TO DETAIL – PREMEDICATION

- *Patient admitted with fractured neck of femur. Past medical history documented including diagnosis of Addison's Disease. Steroids not prescribed or administered to patient on day of admission nor on following day (the day of surgery). Patient should have received hydrocortisone 100mg pre-op and further steroids post-op. These were not given. Post-op patient remained in recovery for 8 hours. Addisonian crisis recognised by anaesthetic SHO. High-dose steroids immediately given and pt transferred to ITU for ongoing care.*

Abrupt withdrawal of steroids is one of the commonest causes of an Addisonian crisis.[1] The AAGBI will provide up-to-date guidance on perioperative steroid therapy in the near future.

1. M Davies, J Hardman. Anaesthesia and adrenocortical disease. British Journal of Anaesthesia *Continuing Education in Anaesthesia Critical Care and Pain* 2005;5(4):122-126 http://bit.ly/28RH43M

WRONG ROUTE INJECTION – IT'S NOT WHAT YOU DO BUT THE WAY THAT YOU DO IT

Detection of Incident:
Severe pain and abnormal lower-limb movements within minutes of spinal anaesthesia being performed. Laboratory results confirmed presence of tranexamic acid in CSF.

Analysis of contributory factors:
Preparation of the sterile field and medications in readiness for performing a spinal anaesthetic is commenced in advance of the anaesthetist being 'scrubbed' for the procedure... perception that this aids in the efficiency of performing the anaesthetic procedure in anticipation of starting surgery.

It is the standard practice of the anaesthetist to prepare the diamorphine solution in advance of the spinal anaesthetic and to draw the solution up "hands-free".
Tranexamic acid 5ml and hyperbaric bupivicaine (Marcain) 5ml ampoules are very similar in physical appearance. Tranexamic acid and hyperbaric bupivicaine (Marcain) were stored in adjacent cupboards.

Root Causes:
The anaesthetist readied, prepared and delivered the intrathecal (spinal) medication without any checks from a second member of staff. Medications for spinal anaesthesia are not consistently nor completely prepared by the anaesthetist and ODP together.

LEARNING POINTS FROM REPORTED INCIDENTS

The detail described here is a synopsis of a Significant Event analysis review following the inadvertent injection of tranexamic acid intrathecally as opposed to intravenously in a patient in preparation for an elective arthroplasty procedure. Common themes in drug error events include, slips in attention, not applying the right rules, lack of knowledge and inadequate training, poor communication and fatigue.[1] In this case, time pressures appeared to influence the anaesthetist's method of working; drug checking was abandoned for speed and so a double-check and potential safety net was missing.

1. B Dean et al. Causes of prescribing errors in hospital inpatients: a prospective study *Lancet* 2002; 359: 1373–1378

THROAT PACKS – IN OR OUT?

SALG received notice of a significant incident report following the retention of a throat pack during oral surgery. The theatre team concerned had complied with the NPSA Safer Practice Notice[1] (sticky label applied to the HME filter and label in the notes). However, the sticky label on the filter was removed with the surgical drapes thereby by passing the visual trigger to removing the pack. The pack was removed in the recovery room with no harm to the patient.

The NPSA published a Safer Practice Notice in 2009 following reports of patient harm from inadvertent retention of throat packs after surgery. Recommendations to reduce risks included visual checks, documentary checks and use of the WHO checklist.[1] Recommendations for local implementation now include:

- Agreement at pre-list briefing as to who will insert and remove the pack.
- Throat packs will not be stored in the anaesthetic room.
- Throat packs will be allocated by the scrub-nurse and will be included in the swab count.
- The throat pack sticker will be applied directly to the tube.
- Removal of the pack must be confirmed in recovery handover.

1. NPSA. Safer Practice Notice: Reducing the risk of retained throat packs after surgery. (www.nrls.npsa.nhs.uk/resources/?entryid45=59853)

APPENDIX: INCIDENT DATA SUMMARY

A total of 8,504 anaesthesia-related incidents were reported during the specified time period. Six incidents were reported using the anaesthetic eForm; 1 (17%) of these incidents was reported to the National Reporting and Learning System (NRLS) within one day of occurrence. Five of the incidents reported to the eForm were reported as 'near-miss' (harm was prevented from reaching the patient). 8,498 incidents were reported using Local Risk Management Systems (LRMS); 37 (0.4%) of these incidents were reported within one day, and 3,787 (45%) were reported more than 30 days after they had occurred. Of the incidents reported via LRMS, 1,017 (12%) were reported as near miss.

All incidents reported via the eForm, and all those reported to the LRMS graded as 'death' or 'severe harm', were reviewed by the Patient Safety Team, now part of the Patient Safety Function within NHS England (formerly the NHS Commissioning Board). Consultant anaesthetists from the RCoA or AAGBI reviewed incidents identified as having potential cause for concern. No information identifying trusts was disclosed in this review; only information about the incident. Most incidents reported via the eForm were completed by consultant anaesthetists, although the eForm is available to all members of the perioperative team.

As with any voluntary reporting system, interpretation of data should be undertaken with caution as the data are subject to bias. Many incidents are not reported, and those that are reported may be incomplete having been reported immediately and before the patient outcome is known. Clarity of 'degree of harm' to patients who experience a patient safety incident is an important aspect of data quality.

INCIDENT DATA SUMMARY

January–March 2016

ANAESTHETIC EFORM

The Anaesthetic eForm was designed to allow specific clinical information relating to anaesthetic incidents to be reported by anaesthetists and other members of the anaesthetic team, and can be found at www.eforms.nrls.nhs.uk/asbreport.

The RCoA and AAGBI continue to work with the NRLS team at Imperial and the patient safety function of NHS England. SALG would like to emphasise that processes for sharing and learning incidents remain firmly in place. Staff are urged to continue to use the eForm (or your local reporting systems) to report patient safety incidents, so that trends and incidents can be acted upon and learning maximised. The eForm is particularly useful as it provides a mechanism by which high-quality information can be reported rapidly by members of the anaesthesia team and disseminated nationally.

Figure 1 – Degree of Harm (actual incidents)

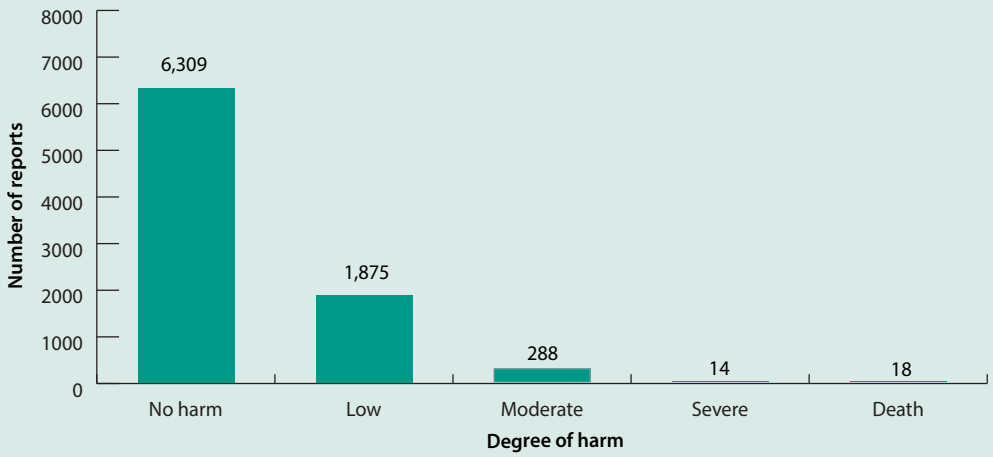

Figure 1 shows the degree of harm incurred by patients within the anaesthetic specialty during the period January – March 2016. 18 deaths were reported though LRMS and none via the anaesthetic eForm.

Figure 2 – Incident types

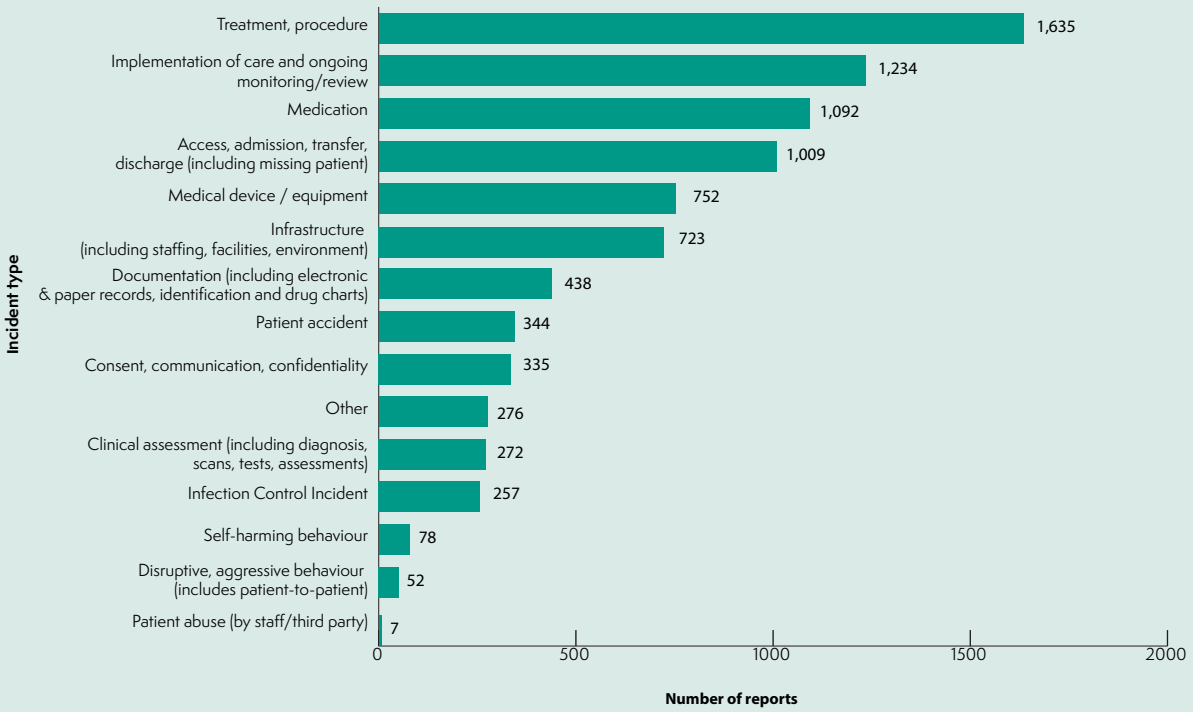

Figure 2 shows the type of incidents that occurred within the anaesthetic specialty that were reported using LRMS or the anaesthetic eForm for the period January – March 2016. The categories were determined at local level.

All enquiries in regard to this document should be addressed to the Royal College of Anaesthetists,
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