Safe Anaesthesia Liaison Group

PATIENT SAFETY UPDATE

Including the summary of reported incidents relating to anaesthesia

1 OCTOBER TO 31 DECEMBER 2013

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.

MORBIDITY AND MORTALITY MEETINGS

A toolkit designed to make effective use of time during Morbidity and Mortality (M&M) meetings was launched on Wednesday 23 October at the annual Patient Safety Conference. The toolkit is available online.

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 M&M meeting and we would also like to hear your feedback on 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.

ON THE SALG AGENDA

The following topics are currently under discussion by SALG:

Incident data reported in Scotland

An agreement is now in place with an NHS organisation in Scotland to provide cleansed incident data for sharing through the Patient Safety Update (PSU). If you are in Scotland or Northern Ireland and would like to share the learning from anaesthesia-related incidents with the specialty via the PSU, we would be happy to hear from you to make the appropriate arrangements. Under the current data sharing agreements held between SALG and the National Reporting and Learning Service (NRLS), anaesthesia-related critical incident reports submitted by those working in the NHS in England and Wales are reviewed regularly by SALG members and shared via this update. If you would like more information about sharing critical incidents please get in touch with the SALG administrator at SALG@rcoa.ac.uk or on 020 7092 1575.

New National Patient Safety Alerting System

NHS England launched a new, more rapid and more flexible three-stage alerting system on 31 January 2014. The three stages are titled: Warning, Resource, and Directive. Stage One of the new system aims to permit rapid dissemination of information as new risks emerge, whilst Stage Two may follow a couple of months later with further information, examples of good local practice, tools and resources to help implement solutions and learning resources. More information on the new system can be accessed on the NHS England website.
Risk of hypothermia for patients on continuous renal replacement therapy

NHS England has issued a patient safety alert on the risk of hypothermia for patients on continuous renal replacement therapy (CRRT). This alert has been disseminated via the Central Alerting System to ensure that NHS staff are aware that it is never safe to use CRRT equipment without a fluid warmer, even for short periods. The alert was issued in response to three recent incidents in which two patients became severely hypothermic and in which another has since died. Further details are available from the NHS England website.

LEARNING POINTS FROM REPORTED INCIDENTS

The following extracts are from the eForm and from incidents reported to the LRMS graded as death or severe harm.

Bone cement implantation syndrome (BCIS)

➤ Patient admitted with fractured neck of femur. Patient had a Rhemiarthroplasty under GA. Cement inserted and at this point all the patients’ vital signs were stable. Ten minutes later the patient became hypotensive 60/30, tachycardia ~115/min, hypoxic sats 57% and her end tidal CO₂ fell to 2.2.

➤ During repair of hip fracture, patient deteriorated, blood pressure dropped, oxygen saturations became unrecordable. This happened not long after bone cement being put in (approx. 15 minutes). Orthopaedic team continued and finished the operation, so we could get the patient back onto her back. Adrenaline was given to try to increase blood pressure. Cardiac arrest call placed... on discussion between consultant anaesthetist, consultant surgeon, medical registrar and rest of team; it was decided not to continue resuscitation.

In the September 2013 issue of the PSU, a case of Bone Cement Implantation Syndrome was presented. At this time Costa's study1 on mortality and bone cement supported the insertion of cemented prostheses whenever possible. The National Hip Fracture Audit has published an analysis of 65,535 hip fracture patients according to type of anaesthesia.2 Although they have demonstrated no difference in mortality between spinal or general anaesthesia, there was a significant increase in mortality at 24 hours among patients with cemented prostheses compared to non-cemented. Bone cement implantation syndrome is suggested to be causal. The results of the Anaesthesia Sprint Audit of Practice (Health Quality Improvement Partnership supported audit undertaken by the Royal College of Physicians and AAGBI) looking at compliance with published guidance3 on the care of proximal femoral fractures, are due to be published soon.


Epidural analgesia

➤ Patient had epidural sited prior to GA for laparotomy. Was given epidural test dose - 6ml 0.25% plain bupivacaine. Around one minute later patient became unresponsive. Called for help. A - maintained with bag and mask, B - FiO₂ 100, normal bilateral air entry SpO₂ 98%, C - BP 75 systolic, HR 130 sinus tachy D - GCS 3. Patient was intubated, and we attempted to support blood pressure with metaraminol and stat IV fluids... CPR commenced. Initially PEA, but rhythm swapped into shockable 4 times. Received 4 shocks, and amiodarone 300mg after third shock. Also treated for possible local anaesthetic toxicity with intralipid, and treated for possible anaphylaxis with adrenaline, hydrocortisone and chlorpheniramine. CPR continued for one hour... no return of circulation after one hour – team decision made to stop CPR.

➤ Epidural inserted for pain relief following laparotomy. Patient asleep as transferred directly from ITU. No apparent problems with epidural over weekend but noted to not be working on Monday morning. Heparin stopped, clotting checked and epidural removed. Heparin given four hours after epidural removed as per guidelines. Patient unable to bear weight on left leg. Complete sensory loss and significant reduction in motor function.
NAP3 demonstrated that most incidents of neurological harm associated with central neural blockade arose in the peri-operative period, and that these were more common with epidural blocks. The AAGBI and Obstetric Anaesthetists Association have produced guidance on the risks and management of peri-operative anticoagulation and regional anaesthesia.¹


Stop Before You Block

➤ A sciatic nerve block was performed for a total knee replacement. On turning patient it was identified that the wrong side had been blocked.

In October 2010 the NPSA issued a signal alert on wrong-side nerve blocks, and SALG published a safety alert. These were followed closely by the Stop Before You Block (SBYB) campaign led by anaesthetists from Nottingham University. SBYB is a rapid check made immediately prior to needle insertion, and is designed to complement the WHO checklist. The check is initiated by anyone in the team, and only takes a moment. Inherent in the SBYB guidance is that local clinical governance procedures should audit effectiveness of the tool. The tool can be accessed via the AAGBI and RCoA websites. A national review of the campaign is planned.

Airway disasters: lessons for us all

➤ Patient extubated on ITU, developed stridor and then had a cardiac arrest, unable to reintubate patient.

➤ Patient having a hand operation under an arm block by the anaesthetist. Converted to a GA because of pain. Patient could not be intubated and developed cardiac arrest with hypoxia. Help called for and arrived quickly. Eventually resuscitated and intubated after 3/4 hour and was transferred to ITU. Patient died.

➤ Death on table...insertion of feeding tube with tracheo-oesophageal fistula... unable to adequately oxygenate patient, leading to hypoxic cardiac arrest and death on the table.

The NAP4 report remains essential reading. The report states that none of the audit’s findings are surprising or new, but they provide a unique opportunity for us to learn and to make anaesthesia safer.

Airway equipment – expect the unexpected

➤ High airway pressures, due to obstructed endotracheal tube secondary to internal herniation of pilot tube. Required re-intubation.

A routine check of airway equipment before use is essential.¹ Even when checks are done the unexpected can happen and does. Always consider this in your differential when having difficulty ventilating an intubated patient.


Managing complications of surgery

➤ Patient death in operating theatre. Elective laparotomy in the morning... taken to HDU. Persistently hypotensive on HDU requiring small amounts of noradrenaline all afternoon. Deteriorated approximately five hours later, large quantities of fluid resuscitation, increasing inotrope requirement and eventually blood and blood products. Returned to theatre after another three hours, approx three litres of blood in abdomen. Irreversible hypotension despite aggressive management. Asystolic cardiac arrest.

Failure to recognise deterioration and failure to rescue were two themes identified by the Data Intelligence Group (sub-committee of SALG) as warranting further review following a deep-dive search of the NRLS database. The Surgical Services Patient Safety Expert Group (NHS England and NHS Wales) will take this review forward on behalf of anaesthesia and surgery. Learning points will be shared across the other patient safety groups.

Compartment syndrome

➤ Anterior compartment syndrome bilateral lower limbs secondary to proning position.

➤ The patient came to theatre for an arthroscopy. The operation was completed without incident and the patient was transferred to recovery. During recovery the patient had been in a lot of pain, IV boluses had not been sufficient so a PCA was prescribed. The patient’s leg was painful and in spasm... a differential diagnosis of
Compartment syndrome was made... The agreed plan was to try and control the pain, apply ice packs to the leg and to review in 30 minutes... no improvement, the patient would return to theatre for an emergency fasciotomy/decompression and exploration of wound. ...patient became bradycardic and then apnoeic.... arrest call made.... 20 cycles of CPR and ALS were performed... it was unanimously agreed to stop CPR.

Compartment syndrome is a well-recognised complication of trauma and is seen most commonly in association with fractures.1 It may occur without a fracture during anaesthesia and surgery where situations of reperfusion, ischaemia, burns and poor positioning in lengthy operative procedures exist. The treatment, emergency fasciotomy, depends upon rapid diagnosis. The most important step in diagnosis is the index of suspicion. Mar’s review provides a summary of the condition and says there is little evidence that analgesia masks the symptoms of compartment syndrome.


Adverse incidents and fatigue
➤ Serious desaturation after CT scan... I am concerned that my personal performance may have been affected by fatigue. This incident occurred on a Wednesday morning. My working patterns for this week: Monday in theatre for 12 hours with a 20 minute break for lunch, Tuesday in theatre in the morning, office session in the afternoon and on-call overnight getting home at 00.30. Sleep was disturbed by several telephone calls... I am now in my late 50s and am finding problems with sleep disturbance.

There is good evidence for a link between fatigue and increased incidence of adverse events.1 Inadequate sleep is the single most important factor in developing fatigue and may arise due to insufficient sleep, prolonged wakefulness and being awake when one would normally be asleep. Add to this ageing, where sleep patterns are less stable, and interruptions to sleep are more difficult to recover from. Individuals need to take responsibility for assessing their fitness to work. Professor Tucker provides a succinct summary of the evidence in a recent editorial in Anaesthesia.2


SUMMARY
A total of 5,707 anaesthesia related incidents were reported during the specified time period. Only 19 incidents were reported using the anaesthetic eForm; 11 (58%) of these incidents were reported to the National Reporting and Learning System (NRLS) within one day of occurrence. Six (32%) of the incidents reported by eForm were reported as ‘near miss’ (harm was prevented from reaching the patient). 5,688 incidents were reported using Local Risk Management Systems (LRMS); 37 (0.7%) of these incidents were reported within one day and 2,883 (51%) were reported more than 30 days after they had occurred. Of the incidents reported via LRMS, 684 (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. Consultant anaesthetists from the RCoA or AAGBI reviewed incidents identified as giving potential cause for concern. No information about trusts was disclosed in this review; only information about incidents. Most incidents reported via the eForm were completed by consultant anaesthetists, although the eForm is available to all members of the peri-operative 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 about ‘degree of harm’ to patients who experience a patient safety incident is an important aspect of data quality.
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: https://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 their 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.

DEGREE OF HARM (ACTUAL INCIDENTS)

Figure 1 shows the degree of harm incurred by patients within the anaesthetic specialty during the period 1 October 2013 to 31 December 2013. All 14 deaths were reported though LRMS.

![Figure 1](image-url)
INCIDENT TYPE

Figure 2 shows the type of incidents that occurred within the anaesthetist specialty that were reported using LRMS or the anaesthetist eForm for the period 1 October 2013 to 31 December 2013. The categories were determined at local level.

Figure 2