The Faculty of Intensive Care Medicine

Safety Bulletin

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Introduction

Through a data sharing agreement, the Faculty of Intensive Care Medicine can access a record of incidents reported to the National Reporting and Learning System (NRLS). Available information is limited and from a single source; all that we know about these incidents is presented in this report. The safety bulletin aims to highlight incidents that are rare or important, and those where the risk is perhaps something we just accept in our usual practice. It is hoped that the reader will approach these incidents by asking whether they could occur in their own practice or on their unit. If so, is there anything that can be done to reduce the risk?

Case 1 | The distracting presentation

A patient known to take recreational benzodiazepines presented with reduced GCS. The patient was invasively ventilated and admitted to the ICU. A paracetamol level was not checked for a prolonged period which subsequently was returned as being a toxic level. Treatment was delayed.

Comment

Paracetamol overdose can be easily missed if not considered. French guidelines on managing pharmaceutical and recreational drug poisoning recommend screening for paracetamol in cases where the patient is 'unconscious or unreliable', and a Danish series on acute drug poisonings reports that paracetamol was involved in 35% of acute drug poisonings resulting in hospitalisation, with >1drug (excluding ethanol) being involved in approximately 40%. A UK survey (albeit from 1997-8) found detectable paracetamol in 4/115 patients presenting with confusion or decreased consciousness and a clinical suspicion of overdose.

Case 2 | Pulmonary artery catheter entrapment

Resistance was encountered when attempting to remove a pulmonary artery catheter (PAC) after cardiac surgery. Imaging and clinical suspicion led to a return to theatre for open removal, where the catheter was confirmed to have been caught in an atrial suture. It was successfully removed.

Comment

This case describes a rare complication of PAC insertion and cardiac surgery. Entrapment in sutures is most commonly atrial, although entrapment at other sites is also reported. Echocardiography has been used to aid the diagnosis, alongside abnormal angulation of the catheter on a CXR and most importantly clinical suspicion. Clearly, removal should be paused when resistance is encountered.

Whilst unrelated to this case, a further complication encountered complicating PAC removal is knotting. A consensus doesn't appear to exist for how to best approach a knotted line, but there are several case reports and the described methods of removal are summarised in a letter published in the Anaesthesiology Intensive Therapy Journal. In terms of prevention, it is recommended not to continue advancing the catheter if a change in waveform isn't seen (a change is expected approximately every 15cm in adults). It has also been suggested that for selected high-risk patients transoesophageal echo or video fluoroscopy may be useful. Units inserting PACs may wish to consider a guideline/standard operating procedure for a knotted PAC based on local context.

Cases 3 | Displaced endotracheal tube

During patient repositioning, the inline suctioning was caught in the bed rails leading to an accidental extubation and reintubation.

Comment

This incident serves as a reminder that on turning, attached devices must be free and have 'enough length' to be free during the turn. In-line suction is at risk of being caught, as the valve can act as an anchor and the suction might be on the opposite side of the bed to the ventilator.

Cases 4 and 5 | Remaining foreign bodies

There have been several further incidents of arterial lines being cut when removing dressings (with a section remaining inside the artery and some requiring open removal), and an ICP bolt that snapped on removal (also requiring surgical removal).

Comment

It's always worth checking that removed devices are 'complete'. If the device is thought to be faulty or deficient a yellow card should be completed. Methods of securing an arterial line that require dressings to be cut for removal, whilst perhaps more secure may not be worth the risk.

Case 6 | Drug alternatives

A patient was transferred from one unit to another receiving an infusion of Enoximone (phosphodiesterase inhibitor). The receiving unit could not supply this drug before the infusion was due to run out, so an alternative was sourced.

Comment

This incident describes a breakdown of handover but also raises the issue of patients being transferred on medication that the receiving unit is less familiar with or is unavailable.

Best practice would be for a full list of infusions and regular drugs to be communicated before a transfer commences. This would allow appropriate arrangements to be made at the receiving hospital and any issues highlighted in advance. If there is a need to use an alternative critical medication, consideration should be made of whether the change should be made before or after transfer. Involvement of critical care pharmacists helps to avoid any detrimental effect from such changes.

Case 7 | Potassium infusions

A patient had been admitted to ICU with severe hypokalaemia due to prolonged diarrhoea, for electrolyte replacement. After two days the patient suffered an unexpected cardiac arrest due to hyperkalaemia – an infusion of potassium was running at the time of the arrest.

Comment

It is difficult to know from the information we have available whether the prescription had been continued after resolution of hypokalaemia resulting in hyperkalaemia, or whether there was an issue with the potassium infusion. The former explanation serves as a timely reminder to review prescriptions daily and to prescribe short courses of therapy. The latter provides further weight to the use of ready to administer pre-filled syringes/bags (PFS) of potassium replacement solutions to reduce medication errors and save nursing time.

FICM are working with the Safe Anaesthesia Liaison Group to encourage the use of PFSs in theatre and critical care areas. This work is in keeping with an ethos of 'Purchasing for Safety', which continues to be promoted by NHSE since this alert from 2007. Updates will be provided in future bulletins.

The National Patient Safety Agency issued a safety alert in 2002 regarding the storage and use of potassium solutions, which is evaluated in an article published in the Quality and Safety in Healthcare in 2005, with further comment in the BMJ later that year. Giving a patient a strong potassium solution (≥10% potassium w/v) intravenously rather than the intended medication is a never event, which occurred twice between 1st April 2023 and 29 February 2024.

Case 8 | Variable flange tracheostomies

A patient with severe burns was being cared for with an adjustable flange tracheostomy in place. On turning the patient the tracheostomy became dislodged, resulting in a hypoxic cardiac arrest. The airway was re-established and following six cycles of CPR the patient was successfully resuscitated. Unfortunately, this resulted in a non-survivable brain injury. Further details are available in this Prevention of Future Deaths (PFD) report.

Comment

The response to this PFD included a desire to highlight useful learning resources, including the National Tracheostomy Safety Project website and the tracheostomy safety e-learning programme available on the elfh platform.

Revised formal guidance for tracheostomy care in the critical care setting was released by the National Tracheostomy Safety Project in 2020. FICM will be stakeholders in the update of this document, which is planned for release in 2025. This standards document contains specific guidance for the management of adjustable flanged tracheostomy tubes, and states that:

"The position and orientation of the tracheostomy tube must be checked and documented, with the patient in the position that they will be nursed in (rather than the insertion position). This should include the distance from the carina, which is especially important for adjustable flanged tubes."

"The position of the flange (hence the length of the tube) should be reviewed daily, as changes in neck swelling may require the flange to be adjusted."

"Assessment of the condition of any artificial airway device in a critically ill patient is part of routine medical and nursing care and is recommended to be undertaken at least once per nursing shift."

Safety News

The MRHA have release a Patient Safety Alert aiming to reduce the risk of Transfusion Related Circulatory Overload (TACO). The Serious Hazards of Transfusion (SHOT) group have produced a useful and comprehensive FAQ document produced.

The Faculty of Pain Medicine are cautioning against the use of modified release opioids for acute pain or opioid withdrawal in intensive care. This is based on MR opioids being less effective than immediate-release opioids for managing acute, intermittent pain, but also because of harm associated with their use (including opioid-induced ventilatory impairment and persistent use/dependence). UK, Australasian and American guidance has cautioned against the initiation of MR opioids for acute pain, and the Centre for Perioperative Care have released this position statement.

A recent audit undertaken by the Southampton and Oxford paediatric retrieval team (SORT) has demonstrated that >40% of cuffed ETTs inserted in retrieved children were too large, possibly accounting for a significant increase in severe tracheal injuries. They highlight that the APLS taught tube size formula of "age/4 + 4" applies to uncuffed tubes, and that 25mmHg is an accepted maximal cuff pressure. They also highlight that there is variation between manufacturers in terms of cuff size, external diameter and tube rigidity; there is a need to become familiar with what is available in your hospital.

Safety Bulletin News

In case you missed it, the safety bulletin will be published every four months rather than every three. The reason for this change is to assist the inclusion of cases reported to NHS England as incidents involving 'anaesthesia' that would be more accurately characterised as 'critical care'.

We also invite you to submit anonymous summaries of incidents or near misses that have lessons that we can learn from. If you wish to do so, please get in touch via contact@ficm.ac.uk.