The Faculty of Intensive Care Medicine

Safety Incidents in Critical Care

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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 | Needlestick injuries

A nurse was taking a blood sample from a haeomofiltration filter. The patient was known to be positive for a bloodborne virus. The needle slipped and penetrated her thumb.

Comment

Sharps injuries seem as old as medicine itself, and many readers of this bulletin will probably have had one. As this case demonstrates, the consequences can be significant both for the individual and the organisation, but we also know that such injuries are still underreported. This could be because they are seen as trivial, or are normalised, and instituting any changes in practice to avoid them may therefore be challenging. The availability and adoption of safety engineered devices has been beneficial, but avoidance of the risk is even better. Are there any tasks on your unit that could be replaced with a sharp free alternative?

Case 2 | A missed prescription

A postoperative patient was prescribed dual antiplatelet therapy without gastrointestinal bleeding prophylaxis whilst in the critical care unit. After discharge to the surgical ward, the patient suffered a major upper gastrointestinal bleed requiring endoscopic intervention.

Comment

This BMJ article describes a quality improvement project designed to encourage PPI prescription in a coronary care unit, and provides a summary of guidance. The reported intervention consisted of visual aids and education, with a plan to alter paper documentation to provide visual prompts. The implementation of electronic prescribing is sometimes only thought of as a way of reducing errors in prescribing, but with decision support it can also be a useful tool to encourage appropriate drug use and adherence to pathways. Cases such as this also highlight the potential for clinical pharmacists to optimise treatment and identify prescribing omissions.

Cases 3 | Inevitable harm?

There have been several reports of anterior pressure damage associated with the prone patient position.

Comment

The narrative of these incidents commonly includes a comment that the pressure damage was unavoidable, or the result of necessary harm for a greater need. This UK observational study conducted during the COVID pandemic reported an incidence of anterior pressure damage of 88.7% when patients were in the prone position for >1 day, which does seem to suggest at least a degree of inevitability.

The PROVESA study did not report any data on the incidence of pressure damage, however they report in their supplementary appendix that the patient's knees, forehead, chest, and iliac crests were protected using adhesive pads, and that the patient's head was turned every two hours.

In 2019, the FICM and the Intensive Care Society produced joint guidance for prone positioning, which does include some information on reducing the risk of pressure damage. The associated harm from prone positioning remains worthy of further investigation and innovation.

Cases 4 and 5 | Air emboli

A patient was found to be unresponsive, hypoxic, bradycardic and hypotensive having been recently disconnected from a haemofiltration machine. Both access and return lines had been clamped, but on return to the patient, blood was noted from the blue return line and the clamp was no longer in place.

A patient woke from restful sleep and began hyperventilating. They were noted to be distressed, hypoxaemic and cyanosed. When help arrived, they noticed the clamp was open on a dialysis catheter and there was bleeding from it. The clamp was closed but the patient suffered a cardiac arrest.

Comment

In both cases, the clamp failed to prevent an influx of air. A 'cap' would act as a second safety measure, and it is recommended that when not in use both safety measures are put in place. It is unclear whether a cap was applied in these cases. A review of venous air embolism associated with central venous might be helpful. The recognition and management of air embolism would be a useful addition to departmental training and a potentially ideal scenario for multidisciplinary simulation training.

Case 6 | The patient, the machine and everything inbetween

A patient receiving high flow nasal oxygen was noted to be desaturating. An arterial blood gas was taken, which confirmed the hypoxaemia, and 100% oxygen was administered. By chance it was later noticed that the inspiratory limb of the wet circuit was not connected to the humidifier, therefore the patient was not receiving any oxygen. On rectifying the situation, the fiO2 was rapidly reduced to 0.6.

Comment

In response to receiving several reports like this one, FICM will be releasing a resource to help units produce their own guidance and visual aids for the connection and reconnection of breathing circuits.

Case 7 | Unknown patients

A patient admitted originally as an 'unknown male' had their electronic patient record merged with a different individual who had the same name, when they were identified. The error resulted in the administration of a wrong drug.

Comment

This patient safety alert describes the risks of confusing unknown patients with other unknown patients. This case demonstrates that there is a further risk once identity is known. Once identified, vigilance is required to ensure the record, identity, and patient all match. It would be easy to be falsely reassured by knowing the name alone.

Safety Bulletin News

Following this edition, 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'.

Case 8 | Harm from a safety measure

Deep tissue damage was noted to the back of a patient's head when removing a neck collar.

Comment

In 2004, the BMJ published an article describing the issues associated with prolonged spinal immobilisation. The article proposed pragmatic removal of c-spine immobilisation if imaging did not show an injury and the patient was unlikely to regain consciousness within 48-72hrs (as adopted by the British Orthopaedic Association and others). This review was updated in 2012, to reflect advances in imaging technology. The discussion in both papers centre around 'acceptable risk' and the unintended consequences and hazards aiming for absolute harm prevention can bring.

Case 9 | Retained foreign body

A radiologist contacted the critical care unit to inform that a foreign body had been identified in a patient's airway on a recent CT. This foreign body was identified as the distal section of a closed suction catheter. The section of catheter was removed by bronchoscopy. The endotracheal tube had been shortened in situ, so it was likely the catheter had been cut at that time.

Comment

Inadvertently transecting in-line suction catheters when cutting tubes in situ has been reported previously, and has been the subject of a patient safety alert. Interestingly, the alert did not touch on whether endotracheal tubes should be cut in situ, and a later alert on foreign body aspiration did not consider this action as a potential cause.

From a safety perspective, the risks of cutting a tube in situ are not insignificant; this incident and the ocular injury reported demonstrate that it is not just an issue of difficulty reinserting the tube connecter as often thought. Do the benefits of cutting a tube in situ outweigh the associated risk?

Case 10 | Serotonin Syndrome

A patient was admitted to the intensive care unit after an overdose of Venlafaxine. Fentanyl was initially withheld given the risk of serotonin toxicity, but re-introduced on day four, as the period of risk for serotonin toxicity was felt to have passed. As a result of paralytic ileus however, the absorption of modified release venlafaxine was delayed. This, in combination with the Fentanyl, was concluded to have caused a re-precipitation of serotonin toxicity which was ultimately fatal. This case is described in further detail in this Regulation 28 report.

Comment

There are two learning points from this case that can be highlighted. The first is to increase awareness of the risk of worsening serotonin syndrome with the co-administration of serotonergic drugs, including opioids. As this article describes, the risk differs depending on the opioid given, but is not limited to Fentanyl. Other commonly used medicines in critical care that might contribute to the risk of developing serotonin syndrome include linezolid, erythromycin and fluconazole.

The second point is the risk of delayed absorption in oral overdose. The mechanisms for this include delayed gastric emptying, bezoar formation and the ingestion of sustained release preparations. In overdose, maintaining clinical suspicion of the possibility of biphasic or prolonged toxicity is required, as reliance on the use of drug levels can be challenging.

Safety News

The UK Health Security Agency are investigating a cluster of Burkholderia cenocepacia infections. There is a potential association with carbomer containing lubricating eye gel, though investigations are ongoing and these findings are not conclusive (by the time of publication of this bulletin the situation may have changed). They have recommended that carbomer containing eye gels are avoided where possible in the following groups: individuals with cystic fibrosis, critical care inpatients, severely immunocompromised inpatients and patients awaiting lung transplantation. Units should work with pharmacy colleagues to identify the best available products for use.

The MHRA have released guidance and educational materials to support the new regulatory measures for patients aged under 55 prescribed Valproate. They have also updated the indications for all systemic fluoroquinolones to state they should only be used when other commonly recommended antibiotics are inappropriate. The situations when then can be used are also described.

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.