RISK CASE STUDY

Case: Medication Adverse Event – Heparin

Abstract:

An unstable post-operative neurology patient received an overdose of heparin. The patient sustained a stroke and ultimately quadriplegia.

Key Words:

High Alert Medication

Patient Deterioration

Neurology

Peer Reviews

Hierarchy of Effectiveness

Personal/ Anecdotal Notes

Second Victims

Complaint Response Letters

Case summary:

A patient was admitted to the neurology unit due to changes in his neurological status (transient brain stem anemia). The patient underwent a basilar artery flow reversal surgery; the surgery was complicated by a haematoma which was evacuated via drain intra-operatively.

The patient's neurological status began to rapidly deteriorate on day two following his surgery. Recognizing the possible risk to the patient, heparin was ordered at 5000 unit bolus followed by 7cc per hour by pump. The administering nurse inadvertently set the pump at 700cc per hour instead of 7cc per hour which resulted in the patient receiving 13,200 units in period of one hour.

Once the error was identified, the infusion was stopped and the medical resident was notified. A repeat partial thromboplastin time (PTT) test was ordered as well as a magnetic resonance imaging (MRI). The MRI revealed further neurological deterioration. The patient's Glasgow Coma Scale went from 10 to 3 with a marked increased intracranial pressure. Emergency surgery was performed. The patient was diagnosed with a brain stem stroke and quadriplegia.

Medical legal findings:

Internal and external expert reviewers were supportive of the nurse's response once the error was identified. However, they conflicted between and amongst each other with respect to whether the error caused or contributed to the patient's clinical outcome. Some expert reviewers believed that the outcome may have occurred regardless of the error while others believed it played a significant role. Devastated by the incident and concerned with the possibility of a legal and regulatory body investigation, the nurse wrote a lengthy personal note, setting out his recollection of the incident. This note was produced as part of the routine process of litigation as it could not be considered privileged (i.e. legally protected from disclosure).

Reflections:

1 The internal review and the medical-legal experts conflicted between and amongst each other with respect to whether the medication error caused or contributed to the patient's clinical outcome. What could lead to an incorrect or incomplete analysis during an internal critical incident review or external peer review? Describe the role the health record plays in

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internal and external reviews. Is it good practice to speculate as to the cause of the clinical outcome during disclosure meetings and/or on incident reporting forms? If not, what should have to be communicated and how?

2. The patient's family requested the hospital and team respond in writing to a series of questions they had with respect to the care provided. The hospital's complaint response letter was sent to the family four months after the request. Discuss your organization's internal processes for responding to care-related complaints or concerns. Is four month an acceptable timeframe to respond? Is an apology in a complaint response letter an admission of guilt? Describe some of the elements that should and should not appear in the letter. What supports are available in your facility for clinicians and administrators when drafting complaint response letters?
3. Healthcare providers may feel it necessary (or may be encouraged) to make personal anecdotal notes of situations that have 'not gone well' or where legal or regulatory body involvement is suspected. Are personal notes private and legally protected from discovery during legal and regulatory body investigations? Describe some of the risks associated with keeping separate 'personal notes' after a poor outcome.
4. Describe the concept of 'second victims'. What resources are available in your facility to support practitioners following patient incidents?
5. Heparin is a high-alert medication as defined by the Institute for Safe Medication Practices (ISMP). What are high-alert medications? Describe some of the safety precautions in place at your facility to minimize heparin associated medication adverse events. Are practitioners professionally accountable for implementing workarounds and shortcuts in response to perceived resource/time constraints? Would your answer differ if the program/unit was 'busier than normal'?
6. Patient safety literature speaks to the hierarchy of effectiveness when designing effective recommendations/interventions following an internal review. Discuss the hierarchy of effectiveness as it applies to healthcare. Discuss the effectiveness (i.e. least effective to most effective) of the following interventions:
    - Staff re-education/re-training (e.g. dose calculations)
    - Modification to existing policy/procedure
    - Independent double checks of dosing calculations
    - Pharmacy prepared premixed high-alert medications

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