Incidents Related to Prothrombin Complex Concentrate (PCC) n=5

11d

A small number of errors in relation to PCC were reported as shown below. These resulted from poor knowledge, inappropriate 'rules' and careless errors.

Learning point

- Guidelines relating to anticoagulant reversal can be followed but must take into account the precise clinical circumstances (Case 11d.2, prothrombin complex concentrate)

Case 11d.1: PCC algorithms should state maximum dosage

A woman in her 40s, weight 138kg, with a retroperitoneal haematoma was prescribed (by a foundation year 2 doctor) and given a PCC dose in the ED based on her weight (4140 units) which exceeded the maximum recommended dose of 3000 units for that particular PCC. This resulted in revision of the PCC algorithm to add the maximum dose and a notice was added to the refrigerator in transfusion to ensure more than the maximum dose could not be issued.

Case 11d.2: Guidelines are not rules

A woman in her 70s who was very unwell with INR 1.3 required an urgent laparotomy for bowel resection. She was on warfarin for atrial fibrillation and had a previous pulmonary embolism. She had initial surgery some days earlier and had been restarted on warfarin. The consultant anaesthetist refused to take her to theatre without PCC; 500 units were authorised by a consultant haematologist. This was against hospital and anaesthetic policy for the management of INR results.

The anaesthetist reported that the plan was to use epidural anaesthesia, which has a higher risk of vertebral canal haematoma, and that since she had recently restarted warfarin the INR was likely to be rising. The operation could not be delayed. The Association of Anaesthetists of Great Britain and Ireland (AAGBI) guidelines (AAGBI 2013) for neuraxial blockade recommend that an INR of <1.5 should be considered safe in a patient with normal risk but notes also that guidelines need to be interpreted for a given clinical situation, so he felt the decision to use PCC was justified.

Learning point

- Guidelines are not rules and should not be oversimplified. Clinical circumstances may overrule the guidance due to other factors which need to be taken into account, and recorded in the case notes. This is resilience

Case 11d.3: FFP should not be used to reverse warfarin

A woman in her 70s who was on warfarin for atrial fibrillation (INR 3.7) developed a rectus sheath haematoma. FFP (two units) was given for warfarin reversal instead of PCC. These were prescribed by a surgical registrar. The patient had a mild allergic reaction. As a result of this case, the PCC pathway was made more accessible to clinical staff.

Case 11d.4: Read the results carefully

A man in his 80s on warfarin for bilateral pulmonary emboli, was admitted with abdominal pain and distension. He was treated with PCC (3000 units) based on an erroneous blood result reported from a point-of-care test where the doctor misread the result (reporting that the Hb had fallen from 145g/L

to 45, but this was the %; actual Hb was 90-102g/L). The patient had already received vitamin K.

Case 11d.5: Consider the timing carefully

A man in his 60s on warfarin received PCC in advance of a renal transplant, but the interval between admission and transplant was sufficient that the INR was corrected to 1.2 by vitamin K and stopping the warfarin so the PCC was unnecessary.

Reference

AAGBI. Regional Anaesthesia and Patients with Abnormalities of Coagulation. 2013 https://www.aagbi.org/sites/default/files/rapac_2013_web.pdf [accessed 18 March 2018].