

Incidents Related to Prothrombin Complex Concentrate (PCC) n=9

10d

These occurred in an elderly population, age range 62 to 90 years, median 83 years.

Six (66.7%) of these were reported because of delayed treatment. All were classified as emergency or urgent transfusions. Minutes count.

Case 10d.1: PCC given at an inappropriate rate due to lack of knowledge

Treatment was indicated for insertion of a chest drain in a patient with a haemothorax. PCC was started at the wrong rate of 8mL/hour instead of 8mL/minute. The prescribing doctor did not state a rate and was not competent to administer it. This was a fraught situation including cardiac arrest during the transfusion. As a result, further training was provided in the ED and there was discussion with all staff involved.

Case 10d.2: Inadequate dose required urgently for intracranial haemorrhage

Urgent treatment was required for an elderly patient on warfarin, INR 3.5, with intracranial haemorrhage. This site only had 500IU in stock and there was a delay in obtaining the rest of the 1500IU from another site resulting in delay of 1.5 hours. Although stock checks had taken place the staff had not ensured further supplies were ordered. The procedures have been tightened up.

Case 10d.3: Treatment delay due to lack of knowledge

Emergency surgery for a perforated ulcer was delayed because the ward staff were unclear how to obtain and administer PCC. Training needs were identified and have been resolved.

Case 10d.4: Confusion over similar trade names results in wrong product transfusion

An elderly man was admitted with gastrointestinal bleeding. There was confusion over similar blood component/product names. The patient was admitted with bleeding needing warfarin reversal. The patient also received emergency group O D-negative red cells (three), and platelets. Octaplas® (solvent-detergent fresh frozen plasma (SD-FFP)) was requested verbally without informing the laboratory staff about the need for warfarin reversal, and five units of Octaplas® were issued after 2 hours waiting for the correct documentation. Three units were transfused before the written request clarified what was required, and Octaplex® (PCC) issued with a delay of 3.5 hours for treatment. The laboratory BMS agreed they should not have released the product without written confirmation.

Learning points

- Transfusion laboratories and hospital transfusion protocols should not use trade names, which are particularly confusing, but rather describe these clearly as 'solvent detergent fresh frozen plasma (SD-FFP)' and 'prothrombin complex concentrate' in order to avoid confusion
- There are slight differences between the two commercially available prothrombin complex concentrate (PCC). Hospital/Health Board protocols should reflect dosage as indicated for the specific product
- PCC should be administered immediately (NICE 2015) and certainly within an hour particularly for serious bleeding and intracranial haemorrhage (ICH)



Further cases can be found in the supplementary information on the SHOT website www.shotuk.org.

These cases demonstrate lack of knowledge in many areas. It is surprising that clinical staff do not know that 'Octaplas®' and PCC are blood products.

Reference

NICE (2015) Guideline NG 24 Blood transfusion. <https://www.nice.org.uk/guidance/ng24/chapter/Recommendations#prothrombin-complex-concentrate-2> [accessed 31 May 2019].

See also several useful references in the 2016 Annual SHOT Report (published 2017) page 106-107.

Bolton-Maggs PHB (Ed), Poles D et al. (2017) on behalf of the Serious Hazards of Transfusion (SHOT) Steering Group. The 2016 Annual SHOT Report. <https://www.shotuk.org/shot-reports/> [accessed 30 May 2019].