Case report

Ebola virus disease managed with blood product replacement and point of care tests in Sierra Leone

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Learning Point for Clinicians

1. Blood product transfusion and point-of-care tests can be safely and successfully used in Ebola virus disease (EVD) in resource-constrained settings.
2. Significant coagulopathy and haemorrhage in EVD is not always a pre-terminal event and patients can survive with advanced supportive care.

Clinical case

A 28-year-old nurse presented to the Kerry Town Ebola Virus Disease Treatment Unit (EVDTU) in Sierra Leone on Day 5 of his illness with a positive Ebola Virus reverse transcriptase polymerase chain reaction (RT-PCR) test result, made on Day 3 at his employing hospital. His presenting symptoms included malaise, headache, sore throat, nausea and diarrhoea. Initial examination findings demonstrated a fever of 39°C and mild epigastric tenderness but was otherwise unremarkable. A rapid malaria test was negative. Although the EVDTU has a deployed laboratory capability, due to isolator problems only point of care analysers were utilized in the management of his case. On admission, he received empiric anthelmintics, analgesia and in line with unit guidelines, a central venous catheter (CVC) was placed later on the day of his admission. The subclavian vein was instrumented with the first pass of an 18G needle and the procedure was uncomplicated. Intravenous fluid resuscitation was commenced to maintain normovolaemia and electrolytes were replaced. Other intravenous prophylactic measures were vitamin K and ranitidine.

Hours later the dressing covering the CVC was noted to be blood soaked. A further suture, haemostatic gauze and a pressure dressing were placed in an attempt to stem the bleeding; however, it continued to ooze. Six units of fresh frozen plasma (FFP), 2 pools of platelets and 1 unit of cryoprecipitate were given and intravenous tranexamic acid was started. Despite these measures, the patient continued to bleed. Blood products were given according to clinical status and point-of-care test results. Blood loss was difficult to estimate, sometimes extending to the floor and was associated with changes in haemodynamic status. Activated clotting time, haemoglobin and haematocrit were targeted during episodes of active bleeding. The haemostatic gauze with pressure dressing was not changed until day 7 with 4 units of FFP and 1 pool of platelet cover. On the same day the patient developed worsening abdominal pain settling with a small dose of morphine.

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A vomit later that day was blood stained, and ranitidine was exchanged for an intravenous infusion of omeprazole.

By arrangement with his referring hospital he received ~1000 ml of convalescent whole blood in two 500 ml doses over 2 days. He received a total of 6 units of packed red blood cells, 16 units of FFP, 3 units of cryoprecipitate, 2 convalescent blood transfusions and 5 pools of platelets.

Over the next few days, he made clinical improvements to the point where his urinary catheter and bowel management system were removed on Day 11 and CVC on Day 12. He was discharged on Day 16 of his illness after a negative RT-PCR in plasma.

Discussion

Our patient was expected to deteriorate and require multiple intravenous infusions and blood sampling. The process of siting a CVC markedly reduces the risk from needle-stick injury from multiple venepunctures for blood analysis and repeated peripher al intravenous access.1 Subclavian access is known to be safe in patients with hypovolaemic shock2 and has been our experience in the management of traumatic haemorrhage.

Use of blood products was based upon our previous experience of managing massive haemorrhage on operations.3 The use of cross-matched whole blood is a recognized therapy in EVD.4 It may have ameliorated our patient’s coagulopathy as it contains some clotting factors, it was not leucodepleted and may also have contained some functioning platelets as a result.

We have demonstrated that even in cases of severe EVD with massive haemorrhage, rigorous supportive care can result in patient survival and advocate that when resources allow, blood component therapy and point-of-care testing are utilized.

Conflict of interest: None declared.

References


