9. ANTIFIBRINOLYTICS

The use of antifibrinolytic agents is an important component of therapy to minimise transfusion in some patients (PBM Pillar 2).

Key messages

- Antifibrinolytic therapy has been shown to significantly reduce blood loss and transfusion rates for some patients.1

Clinical implications

- Antifibrinolytic agents include tranexamic acid (TXA), aprotinin and ε-aminocaproic acid, however only TXA is currently available in Australia.1

- TXA is recommended in adult patients undergoing cardiac and non-cardiac surgery and in acutely bleeding, critically ill trauma patients.1,2

- TXA should be considered in critically ill patients with upper GI bleeding.2

- TXA must be given within 3 hours of injury.2

Background

Antifibrinolytics work by blocking the binding sites of plasminogen, displacing plasminogen from the fibrin surface which results in inhibition of fibrinolysis and stabilisation of clots, with subsequent reduction in blood loss. Antifibrinolytic agents include tranexamic acid (TXA), aprotinin and ε-aminocaproic acid, however only TXA is currently available in Australia. In adult patients undergoing cardiac surgery (PO- R17); and in those undergoing noncardiac surgery, if substantial blood loss is anticipated (PO-R18), the use of intravenous TXA is recommended.1

In trauma patients with, or at risk of, significant haemorrhage, TXA (loading dose 1 g over 10 minutes, followed by infusion of 1 g over 8 hours) is recommended by the CRASH 2 trial. The CRASH 2 trial was published on 14 June 2010 after the cut-off date of the systematic review for PBM guidelines: Module 1 – Critical Bleeding/Massive Transfusion.3 Note that due to concerns regarding generalizability of these findings, clinical trials are underway to further investigate this strategy in Australia.

In acutely bleeding critically ill trauma patients, TXA should be administered within 3 hours of injury (CC-R3).2 In critically ill patients with upper GI bleeding, consider the use of TXA (CC-R4). Late administration of TXA is less effective and may be harmful (CC-PP14).2

There is evidence for the beneficial effect of intravenous aprotinin on incidence and volume of transfusion, blood loss, and the risk of reoperation for bleeding. However, the drug has been withdrawn due to concerns that it is less safe than alternative therapies (PO-PP14).1

There is evidence for the beneficial effect of intravenous ε-aminocaproic acid on reduction of perioperative blood loss and volume of transfusion (PO-PP15) and it is recommended in adult patients undergoing cardiac surgery (PO-R19), however, the drug is not marketed in Australia and New Zealand.1

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References

1. National Blood Authority, Patient Blood Management Guidelines: Module 2 Perioperative. Australia, 2012.

2. National Blood Authority Patient Blood Management Guidelines: Module 4 – Critical Care. Australia, 2013.

3. National Blood Authority. Patient Blood Management Guidelines: Module 1 Critical Bleeding Massive Transfusion.

Australia 2011.

Additional Resources

y CRASH-2 trial collaborators (Effects of tranexamic acid on death, vascular occlusive events, and blood transfusion in trauma patients with significant haemorrhage (CRASH-2): a randomised, placebo-controlled trial. The Lancet

376(9734):23–32.

[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(10)60835-5/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2810%2960835-5/fulltext)

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