

A New Protocol for Reversal of Coagulopathy in Aortic Surgery with Deep Hypothermic Circulatory Arrest

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Methods

Transfusion requirements in 166 consecutive patients undergoing aortic surgery under DHCA were analysed. 118 patients had traditional clotting restoration (Fresh Frozen Plasma (FFP), cryoprecipitate and platelets in a TEG guided algorithm) versus 48 patients treated with factor concentrates and autologous plasma and platelets (study group). In the study group, autologous blood was taken prior to skin incision and separated into platelet rich plasma (PRP), platelet poor plasma (PPP) and red cells. Red cells were transfused back once available and PRP and PPP were given following protamine. During rewarming at 32°C, blood samples were taken for point of care testing and any clotting deficiency was corrected according to the protocol in Figure 1.

Results

The use of factor concentrates and PRP led to a significant reduction in transfusion requirements (mean 19.3 to 8.1 units per patient, $p < 0.001$). When analysed separately, there was a reduction in red cell transfusion from a mean of 8.2 units to 4.9 units per patient ($p = 0.005$). There was also a significant reduction in transfusion of FFP (5.4 to 0.9 units, $p < 0.001$), platelets (3.3 to 1.9 units, $p < 0.001$) and cryoprecipitate (2.5 to 0.4 units, $p < 0.001$). There were no significant differences in mortality or morbidity (acute kidney injury needing dialysis, re-exploration, re-intubation), ITU stay or hospital stay.

Conclusion

Using autologous plasma and factor concentrates as first line clotting restoration significantly reduces blood product transfusion with less fluid volume infusion.