

# SAFETY OF TRANSFUSING LEUCOCYTE DEPLETED RED CELL AND PLASMA FOR TRAUMATIC HAEMORRHAGE

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## BACKGROUND

As part of a 2 year feasibility study, the London Helicopter Emergency Medical Service (HEMS), known as the London Air Ambulance (LAA) made a clinical decision to change transfusion management of trauma bleeding patients in the pre-hospital setting from red blood cell only transfusion to group O leucocyte depleted red cell and plasma (RCP). Although RCP does not contain platelets and is not equivalent to a whole blood component, it still provides some logistical advantages for the pre-hospital community compared to red cells and thawed plasma components. Group O RCP contains anti-A and anti-B at low titre (<1/128). The safety of transfusing ABO mismatch plasma remains unknown.

## AIMS

The aim of this study was to assess the risk of haemolysis from anti-A and anti-B due to transfusing group O RCP component to non-group O patients.

## METHODS

A prospective observational study evaluating all trauma patients who received RCP in London between October 2018 and December 2019. Blood samples were taken from all patients to establish blood groups, haemoglobin, DAT and bilirubin levels. Data was collected using laboratory information management system WinPath.



## RESULTS

Of the 106 patients who were transfused RCP, 50 (47%) were group O and 56 (53%) were non-group O. Of the 106 patients, 103 patients received  $\leq 4$  units of RCP and 3 patients received  $>4$  units. Hb and bilirubin were measured in 95%, 89% of cases respectively at days 0, 1, 2, 3 or all 4 time points. DAT was measured in 28% of cases. There was no statistically significant difference between the Hb of group O patients (97.43 [22.6]), vs non-group O patients (96.4 [21.55],  $p = 0.68$ ) or bilirubin levels of group O patients 18.53 (16.19), vs non-group O patients 20.93 (17.68),  $p = 0.30$ . No transfusion reactions were reported during the study period and there were no positive DAT results due to transfusion of RCP component.

## SUMMARY/CONCLUSIONS

Thus far we have not seen any clinical or serological evidence of haemolysis with transfusion of RCP, suggesting that the high titre negative component is safe for non-group O patients despite the presence of anti-A and anti-B.

