

Pre-hospital transfusion of red blood cells in civilian trauma patients: what's next?

Dear Sir,

We read with interest the results of the recent before and after study presented by Rehn *et al.* (2017). The study examines an essential aspect of care for the trauma patient suffering from haemorrhage. As stated in many previous discussions, timing is essential, and early administration of proper treatment(s) is challenging (Khan *et al.*, 2014; Scerbo *et al.*, 2017). The recent introduction of pre-hospital red blood cell (RBC) transfusion in London Air Ambulance (LAA) is, consequently, a very promising and inspiring effort for better trauma care. LAA and the Royal London Hospital previously implemented their 'Code Red', thus allowing pre-hospital activation of the major haemorrhage protocol in the receiving hospital for early blood product availability (Weaver *et al.*, 2016). 'Code Red' activation now leads to pre-hospital RBC transfusion and stronger limitation of crystalloid infusion, which has the potential to avoid exacerbation of dilutional coagulopathy and acidosis. LAA hence continues to be a source of inspiration for worldwide pre-hospital caregivers.

Several on-going clinical trials investigate the use of pre-hospital plasma (Brown *et al.*, 2015; Chapman *et al.*, 2015; Reynolds *et al.*, 2015). The COMBAT trial was recently stopped for futility because of very short pre-hospital times and immediate availability of plasma at arrival. Despite the efforts to minimise on-scene time, median times from origin call to emergency department arrival remain long in London (73.5 min before pre-hospital RBC transfusion implementation and 78 min after). The first plasma infusion is, in consequence, delayed compared to the first RBC infusions. We ask the study investigators if they are planning to investigate the feasibility and

the effect of pre-hospital plasma transfusion (possibly combined with RBC) in LAA in the future.


Regarding the present results, the authors stated with clarity why it is challenging to investigate the effect of pre-hospital RBC transfusion on mortality. However, we find it difficult to draw any conclusions from the presented results without the assurance that the total 24-h blood products transfusion consumption was reduced because, as we can emphasize, of a positive effect on patients' care. To do so, we think it would be interesting to present the overall mortality rate in the compared population (before and after). Could we kindly ask the authors to present this data to prove that blood products consumption was not reduced because of a higher proportion of early deaths in the 'after' group?

ACKNOWLEDGEMENT

This work was not funded. All authors contributed to the critical analysis of the commented article and to the redaction of the present letter.

CONFLICT OF INTEREST

The authors do not have any conflicts of interest to declare.

M. L. TONGLET,  F. SWERTS, P. Y. MATHONET, D. MOENS,
V. D'ORIO & A. GHUYSEN *Centre Hospitalier Universitaire de
Liège, Liège, Belgium*

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Correspondence: Martin L. Tonglet, Centre Hospitalier Universitaire de Liège, Domaine du Sart Tilman, B36, 4000 Liège, Belgium.

Tel.: +32 4 284 37 35; fax: +32 4 366 83 79;

e-mail: tongletm@yahoo.com