Introduction to THOR supplement

Yazer, Mark H.; Woolley, T.

Published in:
Transfusion

DOI:
10.1111/trf.15765

Publication date:
2020

Document version:
Accepted manuscript

Citation for pulished version (APA):
Yazer, M. H., & Woolley, T. (2020). Introduction to THOR supplement. *Transfusion*, *60*(Suppl. 3), S1. https://doi.org/10.1111/trf.15765

Woolley Tom (Orcid ID: 0000-0001-9957-6453)
Yazer Mark (Orcid ID: 0000-0001-5937-3301)

Welcome to the Trauma, Hemostasis, Oxygenation and Research (THOR) Network's fourth supplement in TRANSFUSION. As in the previous years, the manuscripts presented in this supplement highlight the presentations from our annual meeting in Bergen, Norway.

The first THOR conference was in 2011 and looking back at that conference agenda and at the first THOR supplement, the changes are apparent. In the early years the agenda was heavily weighted towards analysis of retrospective databases and pathophysiology after traumatic bleeding. In this issue, the focus shifts to reporting actual civilian use and consequences of low titer group O whole blood (LTOWB) for bleeding trauma patients.

The evidence for early blood product administration is increasing,[1] and in particular for the use of plasma early in the resuscitation for selected patients.[2-4] In recent years more centers are taking up the challenge of adding LTOWB to their inventory. Yazer and Spinella describe the increasing numbers of centers that are using LTOWB as part of the trauma pathway. We have reports from the Israeli search and rescue unit's experience of transfusing LTOWB in the pre-hospital setting, the use of LTOWB for Law enforcement tactical teams, along with a multicenter case series of LTOWB use in post-partum hemorrhage.

One question always asked is the efficacy of LTOWB compared to component therapy. Along those lines, there were several presentations on the appropriate use of blood products in trauma and massive bleeding resuscitation, including a thought-provoking cohort study of outcomes in traumatically injured patients who received low titer group O whole blood (LTOWB) compared to those who were resuscitated with conventional components. In this study, Shea et al. (TRF 15696, 0870) found that not only did the LTOWB recipients have improved outcomes, but that administration of LTOWB seemed to ameliorate the survival disadvantage of having a low maximum clot firmness as measured on the ROTEM amongst the conventional component recipients. While these interesting findings await verification in larger, prospective trials, they are certainly encouraging and add to the growing literature on the use of LTOWB in trauma resuscitation.

Barriers to implementation of whole blood for bleeding trauma includes concerns about safety. In particular concerns around the cold platelets present and the risk of the group O plasma containing anti A and anti B antibodies that may cause donor-recipient harm. Harrold et al (TRF 15629, 0681) examined hemolytic markers amongst group O and non group O recipients of LTOWB These authors found no laboratory or clinical evidence of hemolysis, highlighting the serological safety of administering up to six units of LTOWB in civilian trauma resuscitation.

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/trf.15765

This year's THOR supplement highlights the changes that have occurred and demonstrates that LTOWB is at least as safe as, and indeed might be better than component therapy. Importantly, these changes are being implemented in civilian practices.

Thank you for your interest in the THOR supplement. We hope that you find these studies interesting and thought provoking as we continue to refine our approach to resuscitating massively bleeding patients, and we look forward to seeing you at our meetings in Bergen and in conjunction with the AABB annual meeting!

Mark H Yazer, MD

myazer@itxm.org

Professor of Pathology, University of Pittsburgh

Visiting Professor in Pathology, Tel Aviv University

Adjunct Professor of Clinical Immunology, University of Southern Denmark

Associate Medical Director, Centralized Transfusion Service

Col Tom Woolley MD (L)RAMC

tomwoolley@me.com

Defence Professor of Anaesthetics and Critical Care

Royal Centre for Defence Medicine, Birmingham, UK

1. Shackelford SA, Del Junco DJ, Powell-Dunford N*, et al.* Association of Prehospital Blood Product Transfusion During Medical Evacuation of Combat Casualties in Afghanistan With Acute and 30-Day Survival. Jama 2017;**318**: 1581-91.
2. Sperry JL, Guyette FX, Brown JB*, et al.* Prehospital Plasma during Air Medical Transport in Trauma Patients at Risk for Hemorrhagic Shock. N Engl J Med 2018;**379**: 315-26.
3. Guyette FX, Sperry JL, Peitzman AB*, et al.* Prehospital Blood Product and Crystalloid Resuscitation in the Severely Injured Patient: A Secondary Analysis of the Prehospital Air Medical Plasma Trial. Ann Surg 2019.

4. Reitz KM, Moore HB, Guyette FX*, et al.* Prehospital plasma in injured patients is associated with survival principally in blunt injury: Results from two randomized prehospital plasma trials. J Trauma Acute Care Surg 2020;**88**: 33-41.