

## **Rapid Reaction: PROCOAG References**

Special Guest: Scott Dietrich, PharmD, BCCCP

### **PROCOAG Trial**

Bouzat P, Charbit J, Abback PS, et al. Efficacy and Safety of Early Administration of 4-Factor Prothrombin Complex Concentrate in Patients With Trauma at Risk of Massive Transfusion: The PROCOAG Randomized Clinical Trial. *JAMA*. 2023 Mar 21; e234080. doi: 10.1001/jama.2023.4080. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/36942533/>

### **Guidelines**

Eastern Association for the Surgery of Trauma: Damage Control Resuscitation in Severe Traumatic Hemorrhage Practice Management Guidelines  
<https://pubmed.ncbi.nlm.nih.gov/28225743/>

Eastern Association for the Surgery of Trauma: Thromboelastography and Rotational Thromboelastometry in Bleeding from Coagulopathy Practice Management Guidelines  
<https://pubmed.ncbi.nlm.nih.gov/32941349/>

European 5<sup>th</sup> Edition: Major Bleeding and Coagulopathy Post-Trauma Management Guidelines  
<https://pubmed.ncbi.nlm.nih.gov/30917843/>

### **Articles Referenced**

Schöchl H, Nienaber U, Maegele M, et al. Transfusion in trauma: thromboelastometry-guided coagulation factor concentrate-based therapy versus standard fresh frozen plasma-based therapy. *Crit Care*. 2011; 15(2): R83. <https://pubmed.ncbi.nlm.nih.gov/21375741/>

Jehan F, Aziz H, O’Keeffe T, et al. The role of four-factor prothrombin complex concentrate in coagulopathy of trauma: A propensity matched analysis. *J Trauma Acute Care Surg*. 2018; 85(1): 18-24. <https://pubmed.ncbi.nlm.nih.gov/29664892/>

Zeeshan M, Hamidi M, Feinstein AJ, et al. Four-factor prothrombin complex concentrate is associated with improved survival in trauma-related hemorrhage: A nationwide propensity-matched analysis. *J Trauma Acute Care Surg.* 2019; 87(2): 274-281.  
<https://pubmed.ncbi.nlm.nih.gov/30889141/>

Innerhofer P, Fries D, Mittermayr M, et al. Reversal of trauma-induced coagulopathy using first-line coagulation factor concentrates or fresh frozen plasma (RETIC): a single-centre, parallel-group, open-label, randomised trial. *Lancet Haematol.* 2017; 4(6): e258-e271.  
<https://pubmed.ncbi.nlm.nih.gov/28457980/>

Bouzat P, Bosson JL, David JS, et al. Four-factor prothrombin complex concentrate to reduce allogenic blood product transfusion in patients with major trauma, the PROCOAG trial: study protocol for a randomized multicenter double-blind superiority study. *Trials.* 2021; 22(1): 634.  
<https://pubmed.ncbi.nlm.nih.gov/34530886/>

Osama M, Syed SH, HMSA Nasir, et al. Four-Factor Prothrombin Complex Concentrate: An Indispensable Adjunct in Coagulopathy of Trauma Management - A Comparative Review of the Literature over 2 Decades. *Eur Surg Res.* 2020; 61(2-3): 51-61.  
<https://pubmed.ncbi.nlm.nih.gov/32966972/>

Holcomb JB, Tilley BC, Baraniuk S, et al. Transfusion of plasma, platelets, and red blood cells in a 1:1:1 vs a 1:1:2 ratio and mortality in patients with severe trauma: the PROPPR randomized clinical trial. *JAMA.* 2015; 313(5): 471-482. <https://pubmed.ncbi.nlm.nih.gov/25647203/>