Whole Blood Resuscitation for Hemorrhagic Shock in Geriatric Trauma Patients: A Western Trauma Association Multicenter Trial

Caitlin Fitzgerald, MD[1], Mary Noory[2], MD, Sarah Posillico[2], MD, Andrew Doben, MD[2], Stepanie Montgomery, MD[2], Chasen Greig, MD[2], Meredith Sommerville, MD[2]

[1]Baylor College of Medicine, Houston, TX; [2]Saint Francis Hospital, Hartford, CT

Introduction

Trauma remains a leading cause of death in older adults, and the proportion of geriatric trauma patients (age ≥ 65) continues to rise as the population ages.[1] Compared with younger adults, older patients experience significantly higher mortality following traumatic hemorrhage. Age-related physiologic changes including reduced cardiovascular reserve, impaired oxygen delivery, and the increased usage of anticoagulant and antiplatelet agents all contribute to an elderly patient's vulnerability to hemorrhagic shock and traumatic coagulopathy.[2]

Hemorrhage remains one of the most preventable causes of early trauma death.[3-6] Traditionally, damage control resuscitation strategies emphasized component therapy (CT) via early balanced transfusion in a 1:1:1 ratio of packed red blood cells, plasma, and platelets.[7] More recently, low-titer group O whole blood (LTOWB) has emerged as a superior transfusion agent that has been shown to improve survival in trauma patients with hemorrhagic shock.8-9 As a result, the use of LTOWB has rapidly expanded across both trauma centers and in the pre-hospital setting.

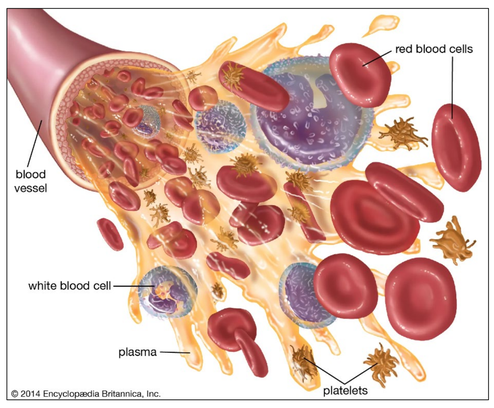
Despite the robust adoption of LTOWB transfusion protocols, most studies that have evaluated LTOWB when compared with CT have focused primarily on younger patients with severe hemorrhagic shock.[10-13] Thus, geriatric patients are often underrepresented in the literature which marks an important knowledge gap as older adults may derive a particular benefit from early LTOWB resuscitation.

Aims

- **Aim 1:** Determine whether initial resuscitation with LTOWB is associated with a mortality benefit in geriatric trauma patients when compared with CT.
- **Aim 2:** Evaluate whether resuscitation with LTOWB decreases blood product utilization in geriatric trauma patients.

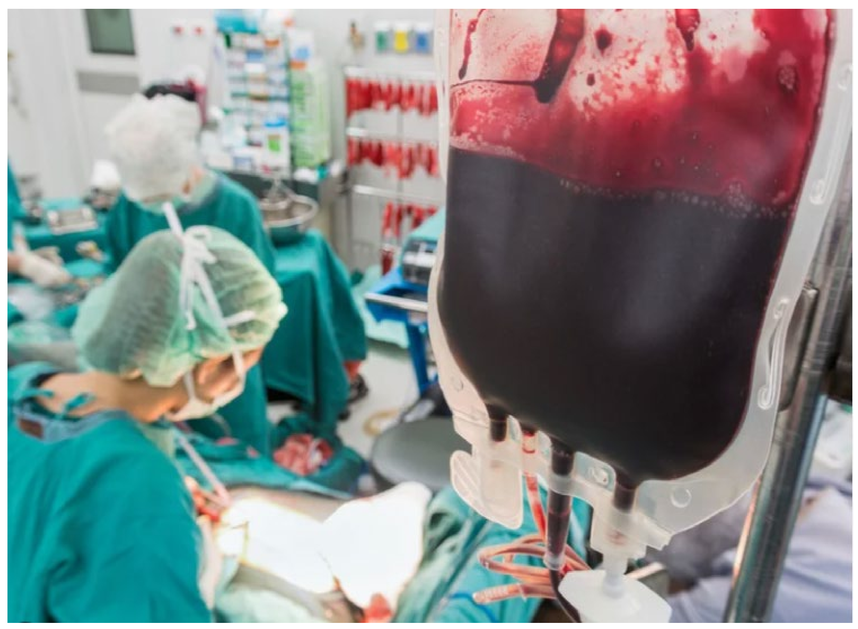
Research Methods

This is a retrospective, multi-center study comparing early resuscitation with LTOWB to standard CT in elderly trauma patients with hemorrhage requiring transfusion. Patients meeting inclusion criteria will be divided into those who received any LTOWB and those who received only CT consisting of packed red blood cells, plasma, and platelets.



Composition drawing 2014 Encyclopedia Britannica, Inc.







Google photo: Blood transfusion