

Mil Med. 2014 May;179(5):497-514

Review of new topical hemostatic dressings for combat casualty care.

Bennett BL, Littlejohn L

Abstract:

This review analyzes the new (2008-2013) hemostatic agents and dressings for enhanced efficacy in preclinical studies, and investigates supportive findings among case reports of effectiveness and safety in hospital and prehospital literature. A literature search was conducted using PubMed, National Library of Medicine using key words and phrases. The search revealed a total of 16 articles that fit the criteria established for third-generation hemostatic dressings. There were a total of 9 preclinical, 5 clinical, and 2 prehospital studies evaluated. Evaluation of these third-generation studies reveals that mucoadhesive (chitosan) dressings, particularly Celox Gauze and ChitoGauze, clearly show equal efficacy to Combat Gauze across many dependent variables. Chitosan-based products are ideal prehospital dressings because they are shown to work independently from the physiological clotting mechanisms. Many first-, second-, and third-generation chitosan-based dressings have been in use for years by the United States and other NATO militaries at the point of injury, and during tactical evacuation, in Operation Enduring Freedom and Operation Iraqi Freedom without reported complications or side effects. Based on the reported efficacy and long-term safety of chitosan-based products, increased use of Celox Gauze and ChitoGauze within the Department of Defense and civilian venues merits further consideration and open debate.