Hemorrhage Control and Resuscitation

Evaluation of Extremity Tourniquets

Policy decisions implemented in 2005 to broaden tourniquet use by US military personnel in TCCC have led to a dramatic reduction in the number of deaths attributed to extremity hemorrhage in the last decade. Currently, several extremity tourniquets are on the market, and rigorous independent testing is imperative to ensure that the Service Member is equipped with the most effective, reliable, and operationally sound tourniquet designs. Researchers at Naval Medical Research Unit–San Antonio, sponsored by the US Army Medical Materiel Development Activity (USAMMDA) and the Marine Corps Systems Command, have evaluated extremity tourniquets for safety and efficacy using HapMed instrumented manikin limbs in different simulated field conditions, including limited visibility and soaked with a blood simulant. Thirteen tourniquet designs underwent initial testing to examine their performance and operational characteristics. Seven tourniquets performed at an acceptable level and are undergoing further evaluation using a SynDaver™ Synthetic Human and during self-applications. Performance metrics collected included application time and contact pressure, as well as end-user feedback.