

J Spec Oper Med. 2014 Spring;14(1):40-4.

Prehospital emergency care: evaluation of the junctional emergency tourniquet tool with a perfused cadaver model.

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Objective: Junctional bleeding from the groin is a leading cause of potentially preventable death on the battlefield. To address this problem, a novel device called the Junctional Emergency Treatment Tool (JETT™) was developed. The JETT was designed to stabilize pelvic ring fractures while controlling lower extremity bleeding sustained during high-energy traumatic events on the battlefield and in the civilian environment. Our purpose was to assess the effectiveness of the JETT in the control of simulated life threatening hemorrhage from proximal injuries in the groin of a perfused cadaver.

Methods: The JETT was compared with the standard issue combat tourniquet and a Food and Drug Administration (FDA)-cleared junctional hemorrhage control clamp (CRoC™) in a perfused human cadaver model. The JETT's ability to stop pulsatile flow at the common femoral artery was assessed through proximal aorta and distal measurements of arterial flow rates and pressures.

Results: In three cadavers, when the JETT or the CRoC was applied in the groin, there was an immediate cessation of fluid flow from the common femoral artery while the inlet flow aortic pulsatile pressure was maintained. However, the time to bilateral application of the JETT was faster (10 seconds vs. 68 seconds) than bilateral sequential application of two CRoC devices.

Conclusions: The JETT is a single device capable of effectively and quickly controlling bilateral lower extremity junctional hemorrhage at normal physiological blood pressures.