A Collaborative Research System for Functional Outcomes Following Wartime Extremity Vascular Injury

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Background: The rate of vascular injury in the wars in Iraq and Afghanistan are five times what previously reported in combat with predominantly extremity injury. Extremity vascular injury is associated with significant long-term morbidity and exacts a heavy toll on the individual and society. Attempts at limb salvage require prolonged surveillance to maximize durability and outcome. To improve the quality of outcomes after injury, a method is needed that integrates injury related factors to outcomes data which is then tied to follow up patient education. The objective of this study is to describe a novel system designed to contact wounded warriors in the years following extremity vascular injury to ascertain quality of life and limb outcomes and provide performance improvement of vascular injury through structured surveillance.

Methods: A research team comprised of surgeons and nurses with wartime experience conducted a review of the Joint Theater Trauma Registry (JTTR) identifying US casualties with extremity vascular injury. A medical record review was performed to confirm the specific details of vascular injury and repair then patient contact was attempted. Patients were contacted and informed consent obtained. Outcomes information was gathered using standardized forms SF 36 and SFMA. Furthermore, vascular injury education was provided based on an algorithm that directs follow-up and surveillance.

Findings: Extremity vascular injury was confirmed in 768 patients. During the current phase, contact was attempted in 64.3% of patients (n=494/768) with actual contact 54.9% of the time (n=271/494). Of the patients contacted, 92.6% (n=251/271) consented to participate. Of the subjects consenting to participate, 62.5% (n=157/251) completed one or both of the surveys. The remaining 37.4% (n=94/251) are pending completion. However, only 59.8% (n=#/#) of consented subjects have completed both surveys so far. There was a 61% survey completion rate of consenting subjects during the proof of concept phase, which preceded the current survey cycle.

Conclusions: Functional outcomes research and education are feasible following wartime injury. This method provides relevant insight into extent of recovery following injury on the battlefield and allows information to be linked to early injury characteristics, management strategies, occupational outcomes, and long-term health issues. Veterans from OIF/OEF with amputations and limb salvage have returned to duty, gained full time employment in the civilian sector, started degree programs, and have been actively involved in team and recreational activities.