Extremity Injury Management

Assessing Initial Treatment and Outcomes After Deployment-related Upper Extremity Injuries

The Naval Health Research Center (NHRC; San Diego, CA) conducted multiple studies exploring the outcomes of deployment-related upper extremity injuries. Extremity injuries account for a large percentage of combat injuries sustained in the most recent conflicts in Iraq and Afghanistan with amputation being the most serious extremity injury. Little research has focused on upper extremity (UE) amputation and subsequent treatment. Using the NHRC Expeditionary Medical Encounter Database (EMED), 55 individuals were identified with above elbow (AE) amputations and 93 with below elbow (BE) amputations. During the early phases of rehabilitation, the BE group received more manual therapy (*i.e.,* massage) and modalities (*i.e.,* ice) than the AE group. In the later stages of rehabilitation, the AE group received more occupational therapy (OT) treatment overall, especially more active treatments (*i.e.,* therapeutic exercise). Identifying OT intervention strategies and the timing of visits can provide critical information on clinical resource requirements and improve outcomes for patients with upper limb amputations (Figures 1 and 2).

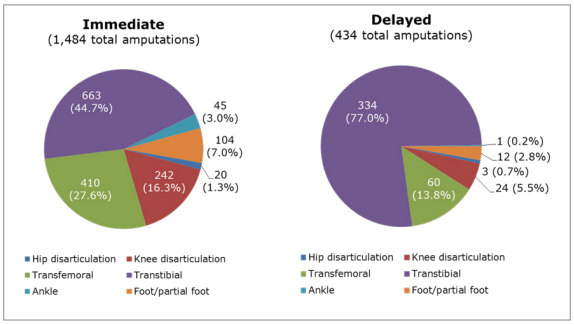

FIGURE 1: Lower extremity (LE) amputation location, by timing. (Figure used with permission from the authors).

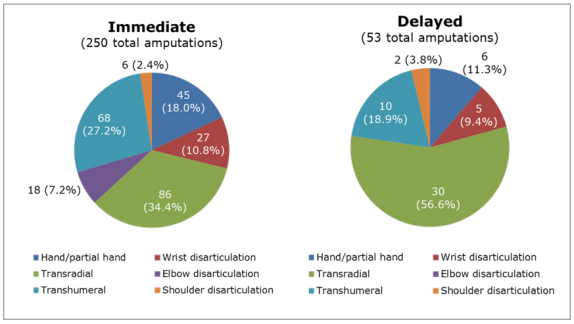

FIGURE 2: Upper extremity (UE) amputation location, by timing. (Figure used with permission from the authors).

Although the implications of acute injuries on delayed amputation in the lower extremity has been well-studied, little is known about the impact of these injuries on delayed UE amputation. In a second study, the investigators examining 2,679 Service members with UE injuries, delayed amputation was identified in 35 (1.3 percent) injured Service members. The most common injury sites in this cohort of Service members with UE injuries were open fractures of the ulna, hand, and humerus. Yet, vessel and nerve injuries, as well as thumb amputations, were more likely to result in a delayed amputation. The odds of delayed amputation increased substantially when more than one of these injuries was sustained. Understanding the relationship between specific acute injuries and delayed amputation may guide clinical decision-making in the acute care period.

This effort was supported by EACE.