Executive Summary
Department of Veterans Affairs

Amputee Rehabilitation – what steps are needed/must be taken for maximum function?

Issues

I. The number of amputees serviced and eligible for care within VA is increasing at an alarming rate. While the majority of amputees seen in the VA are the result of diabetes and dysvascularization, Operation Iraqi Freedom/Enduring Freedom (OIFEF) has resulted in over 120 traumatic amputations.

II. Veterans with amputations resulting from disease have additional medical complications and therefore, often do not return to premorbid functional levels. Anecdotal reports suggest that increased rehabilitation may return, even compromised veterans, to high levels of functional activity.

III. One of the determinant factors of the ability to function in the disease-compromised and traumatic amputee is the proper prescription of prosthetic components (see prescription white paper) and the implementation of appropriate lifelong rehabilitation plans.

Background

I. Between the years of 1989-1998, 70,200 lower limb amputations were performed at VHA facilities. The majority of these amputations (62.9%) resulted from diabetic complications. An additional 23% resulted from atherosclerotic vascular disease.[1] Thus, the overwhelming majority of amputees requiring prosthetic fitting and rehabilitation within the VA system have diabetes or vascular problems.[2]

II. A paper reporting the experience of one VA institution reported that 84% of their transtibial amputees had diabetes and 34% of those had wound complications. This paper also reported that while 68% of the veterans were ambulatory prior to amputation only 34% were ambulatory post-amputation. In spite of this fact, only 51% of recent amputees were discharged to rehabilitation units within VA system.[3]

III. The success rate of prosthetic fitting and rehabilitation for the transtibial amputees varies tremendously from a low of 47% to a high of 90% depending on the characteristics of the population, the criteria for success and the type of rehabilitation program implemented.[4,5, 6] From the amputees' perspective, the most important issues involved in successful rehabilitation are the fit of prosthesis, ability to walk with a prosthesis and not feeling off balance while using the prosthesis.[7] Unfortunately, there is evidence to suggest that the majority of amputees are not satisfied with prosthetic comfort.[8] However, the most significant problem reported by amputees following their initial lower limb rehabilitation is a sense of instability when walking with the prosthesis. This sense of instability causes them to limit their activity level. Too often the ultimate outcome is a sedentary lifestyle for lower-limb amputees or outright rejection of upper-limb prostheses.

IV. It is important to note that the majority of amputees from OIFEF have incurred additional injuries, such as, bilateral amputations, soft tissue and nerve lesions to other limbs, internal injuries and head trauma. These patients present as complicated cases and will require far more complex rehabilitation than would be administered to a person whose diagnosis was limited to amputation alone.

Discussion and Recommendations:

As the number of amputees increases prioritizing the influencing interventions that contribute to the abilities of an amputee's ability to function are important when examining the focus of resources. The following recommendations discuss areas of investigation that serve as priorities for evaluation via an Amputation QUERI:

I. Determine the appropriate clinical outcome measures to determine the amputee's functional level and prosthetic ambulation potential

II. Determine an objective means to prescribe an evidenced based rehabilitation program.

III. Determine the duration of rehabilitation and when various phases of prosthetic rehabilitation should be implemented.

IV. Determine an objective means to assess functional prosthetic socket fit and function as well as the contribution of socket design to function ability.

V. Determine an objective means to assess dynamic prosthetic alignment with a systematic means to assist the prosthetist with the necessary adjustments.

VI. Determine the functional contribution and effects of prostheses not only to overall functional ability, but the effects to the contralateral limb, spine and other physiological areas of concern.

VII. Create an objective means to classify prosthetic components based on functional ability permitting clinicians to make an objective selection based on science as opposed to manufacturer's claims.

VIII. Determine the contribution of support services, peer visitation and educational programs to the overall rehabilitation process – both patient and caregiver education.

IX. Determine the longitudinal effects of an evidenced-based rehabilitation program to servicemen / women with respect to overall physical and mental health, employment and the ability to be a productive member of society.

X. Determine the economics of prosthetic rehabilitation, not only direct costs, but the impact that a comprehensive rehabilitation program may have on the overall healthcare system.

References:

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