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Review

Anxiety and depression following traumatic limb amputation: A systematic review

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ABSTRACT

Background: Traumatic amputation can result in multiple physical, psychological and socio-economic sequalae. While there has been a significant increase in investment and public profile of the rehabilitation of patients who have experienced traumatic limb amputation, little is known about the prevalence of anxiety and depression, especially in the long term.
Objective: To determine the association between traumatic limb amputation and anxiety and depression.
Data sources: A literature search of available databases including Cochrane, Medline, Embase, and PsycINFO was performed for relevant studies since 2002. Secondary outcomes included the effect on employment, substance misuse, relationships and quality of life.
Selection criteria: Randomised control trials, observational studies or reviews which met the inclusion, exclusion and quality criteria.
Results: Levels of anxiety and depression are significantly higher than in the general population. Significant heterogeneity exists between studies making meta-analyses inappropriate. Improved rehabilitation is having a positive effect on employment rates. There appears to be no significant effect on substance abuse and relationships.
Conclusions: All studies demonstrated high prevalence of anxiety and depression in post-traumatic amputees. No good prospective data exists for levels of anxiety and depression beyond two years of follow up and this should be an area of future study.

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Introduction

Trauma accounts for 16% of the global burden of disease [1,2]. This may be an underestimate given that 90% of injuries occur in low or middle-income countries. It is estimated 10,500 serious injuries with an Injury Severity Score (ISS) of 16 or more occur in the United Kingdom each year [3]. These resulted in 337 lower limb and 113 upper limb traumatic amputations in 2007 [4]. The problem is much more significant in the USA where, including digits, there are approximately 30,000 traumatic amputations each year alone [5]. The workplace is a common injury location and therefore a younger population group tends to be affected when compared to amputation for chronic disease. This may affect the sequalae of amputation when compared to indications more common in older age groups such as vascular ischaemia and cancer.

The battlefield may be described as a workplace and, by its very nature, tends to be a common setting for traumatic amputation. Many of these soldiers have a more significant injury burden when compared to their civilian counterparts. There were 76 amputations performed for traumatic injuries on UK military personnel in Afghanistan in 2010. This was a 40% increase on the previous year and reflects both the changing nature of the conflict and advances in military medicine [6]. The management of these patients has had a high profile in recent years due to extensive media coverage of the conflict and the personnel involved. However, the spotlight has always been on the short to medium care that these patients receive. The media has also been keen to point out the positive achievements. For example, teams of injured personnel performing incredible act such as mountaineering expeditions, marathons and competitive sport. This is an example of the perception that the more obvious physical handicap is the only problem that needs to be addressed with the psychological sequalae possibly being ignored by the public and invisible to medical practitioners. This issue may be compounded in the military veteran group [7]. While recent evidence has suggested that rates of mental health morbidity in the United Kingdom military population may be lower than in other national military services due to their resilience in the face of adversity there was little evidence regarding levels of long-term psychological effects [26].

The primary barrier to the management of anxiety and depressive disorders is failure to recognise the condition by the individual, families or professionals. Consequently, these conditions often become chronic. This can precipitate other compounding psycho-social factors such as unemployment, relationship breakdown, alcohol dependence and drug abuse. Timely identification and evidence based management of anxiety and depression in traumatic amputees is essential and should be given parity of esteem with the management of their physical condition. Knowledge of the prevalence of these disorders in traumatic amputees in the medium and long term is required for the planning and delivery of health and social care and to assess the economic impact. Currently, little is known about the prevalence of anxiety and depression in this group of people, particularly in the long term.

In all cause amputees, Horgan and MacLachlan reviewed studies by time following operation and found that depressive reactions were common in the first two years then decrease thereafter [8]. However, Singh et al. found that levels of anxiety and depression were significant during the initial stages of hospital admission before dropping and then increasing again after two years [9]. No similar review exists for traumatic amputees.

Post-Traumatic Stress Disorder (PTSD) has been excluded from this review because a significant body of research has demonstrated its link to trauma in veterans [10–12]. PTSD is classified as an anxiety disorder within the International Classification of Diseases [10]. More than 85% of PTSD cases present initially as an Acute Anxiety Disorder immediately after the event but diagnostic criteria for PTSD (i.e. a stressful situation plus three other specific categories) must be met within six months of the stressful event or of the end of the period of stress. One of these categories includes persistent remembering or reliving of the stressor in intrusive flashbacks, vivid memories or recurring dreams or in experiencing distress when exposed to circumstances resembling or associated with the stressor. Therefore screening and treatment of this condition may be easier to target and perform than anxiety and depression in this group although the long-term sequelae of PTSD still causes significant burden to the individual, family and services.

The aim of this study is to systemically review the literature to explore the incidence and/or prevalence, and associations of anxiety and depression in traumatic limb amputees. Secondary objectives were to assess the levels of suicide, substance misuse, relationship breakdown, employment and quality of life in this population.

Methods

Protocol

A review protocol was developed and followed as described in this methods section but was not published separately.

Inclusion and exclusion criteria

Types of study: English language Systematic Reviews, Randomised Controlled Trials and primary quantitative research published over the last 10 years were included.

Types of participant: adult men and women over 18 years of age at the time of primary study, with a traumatic amputation of one or