

REVIEW

Early Post-operative Mortality After Major Lower Limb Amputation: A Systematic Review of Population and Regional Based Studies

J.J. van Netten^{a,*}, L.V. Fortington^{b,e}, R.J. Hinchliffe^c, J.M. Hijmans^d

^a Department of Surgery, Ziekenhuisgroep Twente, Almelo and Hengelo, The Netherlands

^b Australian Centre for Research into Injury in Sport and its Prevention (ACRISP), Federation University Australia, Ballarat, Australia

^c St. George's Vascular Institute, St. George's Healthcare NHS Trust, London, UK

^d University of Groningen, University Medical Center, Department of Rehabilitation Medicine, Groningen, The Netherlands

WHAT THIS PAPER ADDS

The population undergoing major lower limb amputation have a notorious association with mortality. Based on a systematic review of the literature, this study shows that 30 day and in hospital mortality rates vary between 4% and 22% in population and regional based studies. To provide direction for improvements in both clinical care and research, the need for detailed information is demonstrated to allow appropriate investigation of the relationship between population characteristics and post-operative mortality. Although it is currently unclear what these factors may be, it is clear that agreement through a coordinated process will improve current knowledge.

Objective: Lower limb amputation is often associated with a high risk of early post-operative mortality. Mortality rates are also increasingly being put forward as a possible benchmark for surgical performance. The primary aim of this systematic review is to investigate early post-operative mortality following a major lower limb amputation in population/regional based studies, and reported factors that might influence these mortality outcomes.

Methods: Embase, PubMed, Cinahl and Psycinfo were searched for publications in any language on 30 day or in hospital mortality after major lower limb amputation in population/regional based studies. PRISMA guidelines were followed. A self developed checklist was used to assess quality and susceptibility to bias. Summary data were extracted for the percentage of the population who died; pooling of quantitative results was not possible because of methodological differences between studies.

Results: Of the 9,082 publications identified, results were included from 21. The percentage of the population undergoing amputation who died within 30 days ranged from 7% to 22%, the in hospital equivalent was 4–20%. Transfemoral amputation and older age were found to have a higher proportion of early post-operative mortality, compared with transtibial and younger age, respectively. Other patient factors or surgical treatment choices related to increased early post-operative mortality varied between studies.

Conclusions: Early post-operative mortality rates vary from 4% to 22%. There are very limited data presented for patient related factors (age, comorbidities) that influence mortality. Even less is known about factors related to surgical treatment choices, being limited to amputation level. More information is needed to allow comparison across studies or for any benchmarking of acceptable mortality rates. Agreement is needed on key factors to be reported.

© 2015 European Society for Vascular Surgery. Published by Elsevier Ltd. All rights reserved.

Article history: Received 11 June 2015, Accepted 2 October 2015, Available online 14 November 2015

Keywords: Amputation, Benchmarking, Mortality, Operative surgical procedure, Post-operative complications, Systematic review

^e J.J. van Netten and L.V. Fortington are joint first authors.

* Corresponding author. Zilvermeeuw 1, 7609 PP, Almelo, The Netherlands.

E-mail address: jaapvannetten@gmail.com (J.J. van Netten).

1078-5884/© 2015 European Society for Vascular Surgery. Published by Elsevier Ltd. All rights reserved.

<http://dx.doi.org/10.1016/j.ejvs.2015.10.001>

INTRODUCTION

Major lower limb amputation is a procedure often associated with a high risk of post-operative mortality.^{1–4} This is generally attributed to the relative older age and the high prevalence of cardiovascular comorbidities in the

population undergoing the procedure, the amputation being a sign of end stage disease and multi-organ failure; but it has also been labelled as a failure of care.⁵ Increasingly, data driven benchmarks for outcomes are requested by national bodies who seek to ensure standardised care for patients.⁶ However, it is not clear for the population with amputation what might be considered an acceptable outcome, including that of acceptable early post-operative mortality rates.

A range of factors are thought to be related to post-operative mortality after amputation, including comorbidities (e.g. diabetes mellitus, cardiac disease, or renal insufficiency), the setting in which the procedure takes place, and a person’s status at the time of surgery. These factors may provide additional information about who is most at risk of dying within the population undergoing amputation. Highest early post-operative mortality percentages are seen in clinical practice for older patients and those undergoing amputation at the transfemoral level, but it is unknown if this difference is found consistently in population based studies, as an overview of early post-operative mortality after major lower limb amputation based on a systematic review of the literature is not available.

The risk of early post-operative mortality is an important consideration on which patients and surgeons base their decision firstly to undergo the procedure, and secondly the subsequent details such as level of the surgery. However, there is currently little consistency in the way data are

presented. Summarising the published literature will aim to provide a minimal standard to which national registries, such as the UK vascular registry, can work to include relevant information. This information might also provide useful benchmarks for comparing prognostic outcomes to gain a deeper understanding of factors contributing to mortality.

The primary aim of this systematic review is to investigate early post-operative mortality following major lower limb amputation in population or regional based studies. Secondary aims are to evaluate what is known about the relationship between early post-operative mortality and reported factors that might influence these mortality outcomes.

MATERIALS AND METHODS

This systematic review was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines⁷ and was prospectively registered at PROSPERO (CRD42012002241).

Search strategy

Because death is a frequent outcome within amputation populations, mortality is often included as a secondary outcome alongside a primary aim, for example, when a rehabilitation outcome is presented and a percentage of the population will have died in the time of follow up. In an effort not to immediately exclude such studies, the search strategy was

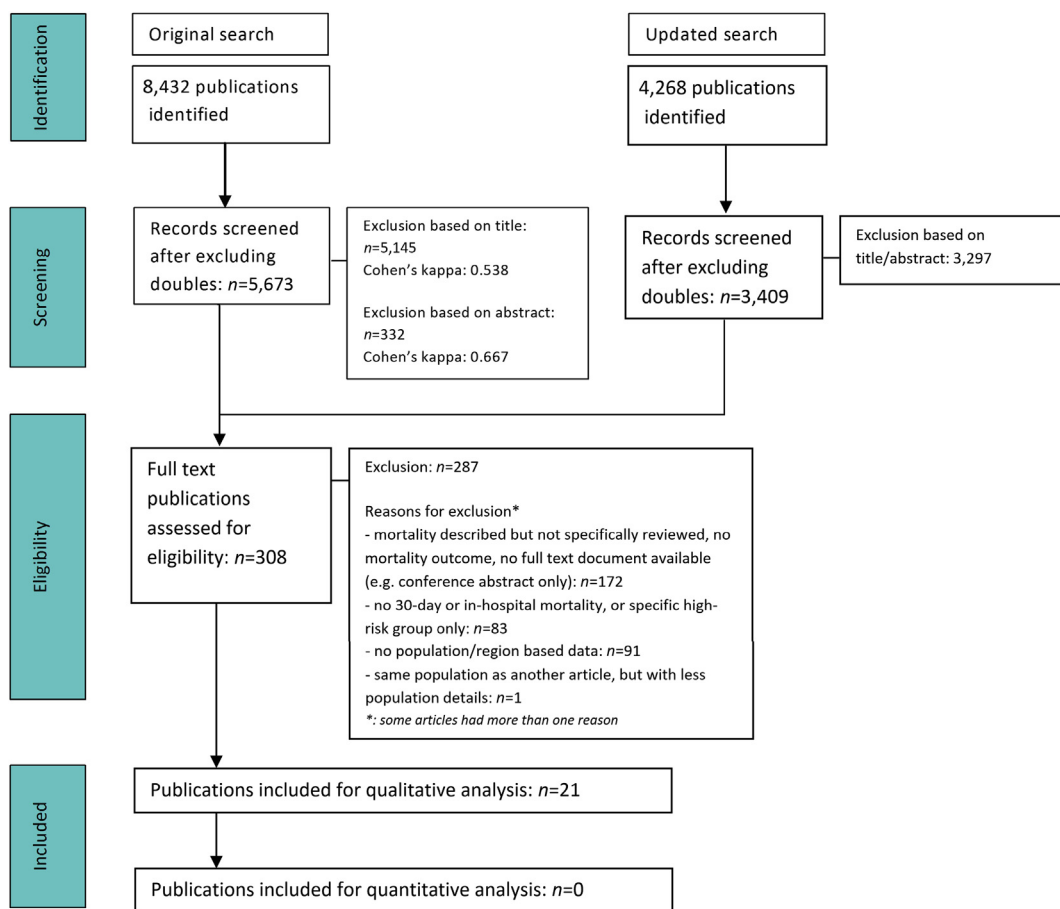


Figure 1. PRISMA flow chart.

Download English Version:

<https://daneshyari.com/en/article/2911717>

Download Persian Version:

<https://daneshyari.com/article/2911717>

[Daneshyari.com](https://daneshyari.com)