

Summary

Background: We performed a systematic literature review of relevant clinical studies targeting the following criteria: preoperative and postoperative sports activities in patients who underwent total ankle replacement (TAR) and TAR failure in sports-active and sports-inactive patients.

Materials and Methods: Literature review was performed using different databases including PubMed, MEDLINE, and GoogleScholar. Study eligibility was assessed independently and in duplicate by two independent reviewers. Coleman Methodology Score (CMS) was used to assess the quality of included studies.

Results: In total, 5 clinical studies have been included for the review based on the inclusion criteria. There were 2 Level III and 3 Level IV studies. The mean CMS of included studies was 33.4 ± 10.9 points.

Conclusions: In the current literature, there is no evidence demonstrating that participation in sports activities may be associated with increased failure rate of TAR. It remains controversial, whether TAR results in higher participation in sport activities.

Level of evidence: Level IV, therapeutic study. See Guidelines for Authors for a complete description of levels of evidence.

Keywords

Total ankle replacement– sport activity– recreation activity– TAR– TAR failure

H. Hörterer et al.

Sportaktivität bei Patienten mit endoprothetischem Ersatz des oberen Sprunggelenks

Zusammenfassung

Hintergrund: Wir führten eine systematische Literatur-Recherche mit folgenden Suchkriterien durch: Präoperative und postoperative Sportaktivität bei Patienten mit endoprothetischem Ersatz des oberen Sprunggelenks sowie Implantatversagen in Hinblick

ORIGINAL PAPER / SPECIAL ISSUE

Sports Activity in Patients with Total Ankle Replacement[☆]

Hubert Hörterer¹, Oliver Miltner², Ralf Müller-Rath³, Phinit Phisitkul⁴, Alexej Barg⁵

¹Center for Foot and Ankle Surgery, Schön Klinik München Harlaching, Germany

²Orthopaedic Clinic Hygiea, Berlin, Germany

³Orthopaedic Clinic Neuss, Germany

⁴Department of Orthopaedics and Clinics, University of Iowa Hospitals and Clinics, Iowa city, USA

⁵University Orthopaedic Center, University of Utah, USA

Eingegangen/submitted: 12.11.2014; überarbeitet/revised: 11.12.2014; akzeptiert/accepted: 16.12.2014

Introduction

In the last decades, total ankle replacement (TAR) has been evolved as a valuable treatment option in patients with end-stage ankle osteoarthritis [11]. However, the indication for TAR still remains controversial because the overall survivorship of prosthesis component is substantially lower than survivorship after total knee replacement or total hip replacement. Labek et al. [15] reviewed clinical studies and the National Joint Registers of Sweden, Norway, Finland, Denmark, Australia and New Zealand with respect to revision rates after joint replacement. In total, 33 of 100 patients who underwent TAR had a revision surgery within 10 years after initial implantation. This was substantially higher than revision rate observed in patients with total knee and total hip replacement with 13 of 100 patients within 10 years [15]. Aseptic loosening of tibial and/or talar components is the most common reason for revision surgery

after TAR with up to 40% of all revision cases [18].

In the current literature, there is a controversial discussion whether patients who underwent TAR can participate in sport activities due to preserved ankle motion. Furthermore, it remains unclear whether sport activities may play a positive or negative role regarding the failure of ankle replacement. Therefore we performed a systematic literature review of relevant clinical studies targeting the following criteria: preoperative and postoperative sport activities in patients who underwent TAR and TAR failure in sports-active and sports-inactive patients.

Methods**Systematic literature search**

We reviewed the literature using PubMed, MEDLINE, GoogleScholar, Embase, CINAHL, Cochrane Central Register of Controlled Trials (CENTRAL), ScienceDirect, and SpringerLink. All literature searches were unlimited regarding the date of publication. All types of publications including prospective and retrospective studies, case reports, and review articles in English and in

[☆] Young Investigator Award – Preisträgerarbeit. Systematic Literature Review.

auf sportaktive und sportinaktive Patienten.

Material und Methoden: Unterschiedliche Datenbanken inklusive PubMed, MEDLINE und GoogleScholar wurden für die Literatursuche herangezogen. Die Studieneignung wurde unabhängig von zwei Beobachtern untersucht. Der Coleman Methodology Score wurde verwendet, um die Qualität der eingeschlossenen Studien zu überprüfen.

Ergebnisse: Insgesamt wurden 5 klinische Studien basierend auf den Einschlusskriterien für die Literatur-Recherche eingeschlossen. Hierunter befanden sich zwei Level-III- und drei Level-IV-Studien. Der mittlere Coleman Methodology Score lag bei $33,4 \pm 10,9$ Punkte.

Schlussfolgerungen: In der aktuellen Literatur gibt es keine Hinweise darauf, dass Sport als möglicher Risikofaktor für das Versagen des endoprothetischen Ersatzes des oberen Sprunggelenks betrachtet werden kann. Es bleibt daher unklar, ob Patienten nach endoprothetischem Ersatz des oberen Sprunggelenks in der Lage sind, besser und häufiger sportliche Aktivitäten auszuüben.

Evidenzebene: Level IV

Schlüsselwörter

Endoprothetischer Ersatz des oberen Sprunggelenks– Sportaktivität– Freizeitaktivität– OSG-TEP– Implantatversagen

German were considered. We also searched the electronic contents of several orthopaedic and specialized foot and ankle journals including Foot and Ankle International, Journal of Bone and Joint Surgery (American Volume), the Bone and Joint Journal (also known as Journal of Bone and Joint Surgery, British Volume), Clinical Orthopaedics and Related Research, Foot Ankle Clinics of North America, Journal of Foot and Ankle Surgery and Orthopäde. We supplemented our search method by a manual search of the bibliographies of all identified studies. All online searches were crosschecked in duplicate by two independent reviewers. The last online search has been performed on October 1, 2014.

All databases were searched using the following primary keywords: “total ankle replacement”, “total ankle arthroplasty”, “ankle replacement”, “ankle arthroplasty”, “ankle prosthesis”. Secondary keywords used in the search process were: “sport”, “sports activity”, “recreation activity”.

Identification of relevant studies

Study eligibility was assessed independently and in duplicate by two independent reviewers. Afterwards the eligibility assessments were crosschecked. All included studies have been described using following criteria: type of study (multi-center vs. single-center vs. case report), type of data collection (prospective vs. retrospective), level of evidence (assessment using the Journal of Bone and Joint Surgery ranking system) [24], patient cohort (number of patients who underwent TAR, number of replaced ankles), ankle prosthesis type used in the mentioned study, and the follow-up duration.

We used the score of Coleman et al. [6,22] (commonly known as the

Coleman Methodology Score (CMS)), which has been modified by Gougoulas et al. [10] to assess the quality including patients who underwent TAR. The CMS is used to evaluate publication methodology using 10 criteria, giving a total score between 0 and 100 points (Table 1). Two observers scored the quality of included studies independently.

Results

Included studies

In total, 5 clinical studies have been included for the review based on the inclusion criteria (Table 2). All studies were published between 2006 and 2012 with 1 prospective and 4 retrospective studies. The mean patient cohort size was 104 ± 50 patients ranging between 20 and 147 patients. There were 2 Level III and 3 Level IV studies. The mean CMS of included studies was 33.4 ± 10.9 points with a range between 52 and 82 points (Table 3).

Sports activity in patients with total ankle replacement

The first clinical study addressing sport and recreation activities in patients who underwent TAR was published in 2006 [23]. In total, 147 patients with a mean age of 59.6 years (range, 28 – 86 years) underwent 152 TARs using a modern 3-component ankle prosthesis. At the mean follow-up of 2.8 years (range, 2 – 4 years), all patients reported about substantial functional improvement including improved range of motion from 21° (range, $0^\circ - 45^\circ$) preoperatively to 35° (range, $10^\circ - 55^\circ$) postoperatively. A special sports frequency score was developed to assess the preoperative and postoperative level of sports activities: 0 (none), no sports activity; 1 (moderate), moderate level of sports activity in

Download English Version:

<https://daneshyari.com/en/article/2740241>

Download Persian Version:

<https://daneshyari.com/article/2740241>

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