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Review

Comparison of patient satisfaction with mini-implant versus standard diameter implant overdentures: a systematic review and meta-analysis of randomized controlled trials

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Additional article information

Abstract

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Patients have been known to prefer mini-implant overdentures to conventional dentures with standard diameter implants. Mini-implants are a viable option for edentulous patients with anatomical challenges.

Patient satisfaction is a key factor in treatment decision and acceptance of treatment. Patient satisfaction with mini-implant overdentures has been reported to be higher than that with standard diameter implants. However, the evidence is not clear. The aim of this study was to review and meta-analyze the results of the relevant randomized controlled trials (RCTs) comparing patient satisfaction with mini-implant versus standard diameter implant overdentures.

A search of the PubMed, Cochrane and Google Scholar databases was performed for relevant RCTs. The Newcastle-Ottawa Scale was used to assess the risk of bias. The Cochrane Collaboration's tool was used to assess the risk of bias in the included RCTs. Meta-analysis was performed using Review Manager (RevMan) software. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach was used to assess the quality of the evidence. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed.

Four RCTs were included in the review. Two RCTs were found to be at high risk of bias. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach showed a low quality of evidence. The meta-analysis showed a significantly higher satisfaction with mini-implant overdentures than with standard diameter implant overdentures (p = 0.04). The sensitivity analysis showed a significant difference (p = 0.02) in favor of the mini-implant overdentures. The results of this review suggest that patients may be more satisfied with mini-implant overdentures than with standard diameter implant overdentures. The evidence is of low quality. Further high-quality randomized controlled trials with better patient satisfaction tools compared to standard diameter implant overdentures are required to confirm the results of this review.

Keywords: Mini-implants, Implant overdentures, Standard diameter implants, Patient satisfaction, Meta-analysis, Randomized controlled trial

Review

Introduction

Implants have been considered to improve retention and stability of complete dentures in patients with anatomical challenges.

Implants have been considered to improve retention and stability of complete dentures in patients with anatomical challenges. Mini-implants are a viable option for edentulous patients with anatomical challenges. Mini-implants are intended to be used as temporary implants [1]. Initially, mini-implants were used as temporary implants because of their diameter, which was 2.1 mm or less. Mini-implants have been considered as temporary implants because their diameter is less than standard diameter implants, which are usually 3.3 mm or more [2]. Mini-implants are intended to be used as temporary implants because of their diameter, which was 2.1 mm or less. Mini-implants have been considered as temporary implants because their diameter is less than standard diameter implants, which are usually 3.3 mm or more [2]. They are commonly used with ball-retained mini-implant overdentures and are usually placed using a flapless surgical technique. Although, they are also indicated for implant-supported overdentures but have been considered as temporary implants because of their diameter. Patient satisfaction with mini-implant overdentures has been reported to be higher than that with standard diameter implants [3–5]. They are commonly used with ball-retained mini-implant overdentures and are usually placed using a flapless surgical technique. Although, they are also indicated for implant-supported overdentures but have been considered as temporary implants because of their diameter. Patient satisfaction with mini-implant overdentures has been reported to be higher than that with standard diameter implants. However, the evidence is not clear. The aim of this study was to review and meta-analyze the results of the relevant randomized controlled trials (RCTs) comparing patient satisfaction with mini-implant versus standard diameter implant overdentures.

Materials and methodology

Information sources and search strategy

The protocol for this review was registered with the International Prospective Register of Systematic Reviews (PROSPERO) (CRD42020187176). The review protocol was prepared using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [6]. A search of the PubMed/MEDLINE database, the Cochrane Central Register of Clinical Trials (CENTRAL), and Google Scholar was performed (Table 1). The search strategy was: (((implant[Title/Abstract] OR implants[Title/Abstract]) AND (mini[Title/Abstract] OR narrow[Title/Abstract] OR small[Title/Abstract] OR narrow[Title/Abstract] OR small[Title/Abstract])) AND (overdenture[Title/Abstract] OR overdentures[Title/Abstract]) AND (satisfaction[Title/Abstract] OR satisfaction[Title/Abstract]) AND (randomized[Title/Abstract] OR randomized[Title/Abstract]). The search was performed on 15 September 2020. Disagreement between the authors was resolved by discussing the issue. The search was performed using mini-Cochrane Search in Review Manager (RevMan) software