Interventions for replacing missing teeth: dental implants in zygomatic bone for the rehabilitation of the severely deficient edentulous maxilla

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Authors' objectives

Background: Dental implants are used for replacing missing teeth. Placing dental implants is limited by the presence of adequate bone volume permitting their anchorage. Several bone augmentation procedures have been developed to solve this problem. Zygomatic implants are long screw-shaped implants developed as a partial or complete alternative to bone augmentation procedures for the severely atrophic maxilla. One to three zygomatic implants can be inserted through the posterior alveolar crest passing through the maxillary sinus, or externally to it, to engage the body of the zygomatic bone. A couple of conventional dental implants may also be needed in the frontal region of the maxilla to stabilise the prosthesis. The potential main advantages of zygomatic implants could be that bone grafting may not be needed and a fixed prosthesis could be fitted sooner. Another specific indication for zygomatic implants could be maxillary reconstruction after maxillectomy in cancer patients.

Objectives: To assess the effects of zygomatic implants with and without bone augmenting procedures in comparison with conventional dental implants in augmented bone for the rehabilitation with implant-supported prostheses of severely resorbed maxillae.

Search methods: We searched the following electronic databases: the Cochrane Oral Health Group's Trials Register (to 17 June 2013), the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2013, Issue 5), MEDLINE via OVID (1946 to 17 June 2013) and EMBASE via OVID (1980 to 17 June 2013). Personal contacts and all known zygomatic implant manufacturers were contacted to identify unpublished trials. No restrictions were placed on the language or date of publication when searching the electronic databases.

Selection criteria: Randomised controlled trials (RCTs) including participants with severely resorbed maxillae, who could not be rehabilitated with conventional dental implants, treated with zygomatic implants with and without bone grafts versus participants treated with bone augmentation procedures and conventional dental implants, with a follow-up of at least one year in function.

Data collection and analysis: Two review authors would have extracted data from eligible studies and assessed their risk of bias independently and in duplicate. The results of included studies were to be combined in meta-analyses using random-effects models where there were more than four studies, and fixed-effect models where there were less than four studies. We would have expressed the estimate of the intervention effect as mean difference for continuous outcomes and risk ratio for dichotomous outcomes, with 95% confidence intervals. Heterogeneity was to be investigated including both clinical and methodological factors.

Main results: We did not identify any RCTs which were eligible for inclusion in this review.

Authors' conclusions: There is a need for RCTs in this area to assess whether zygomatic implants offer some advantages over alternative bone augmentation techniques for treating atrophic maxillae.


Bibliographic details

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