INPLASY PROTOCOL

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None declared.

Survival and complications of zygomatic implants compared to conventional implants reported in longitudinal studies with a follow-up period of at least 5 years: a systematic review and meta-analysis

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Review question / Objective: **What are the survival rates and complications (biological and mechanical) of zygomatic implants (ZI) compared to conventional implants (CI) reported in longitudinal studies with more than 5 years of follow-up?**
Condition being studied: **Rehabilitation of patients with atrophic maxilla.**
Study designs to be included: **Observational cohort studies (prospective or retrospective) and randomized clinical trials with at least 5 years of follow-up.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 August 2022 and was last updated on 06 August 2022 (registration number INPLASY202280025).

INTRODUCTION

Review question / Objective: **What are the survival rates and complications (biological and mechanical) of zygomatic implants (ZI) compared to conventional implants (CI) reported in longitudinal studies with more than 5 years of follow-up?**

Rationale: **The present study aimed to evaluate the survival and complication rates of ZI in longitudinal studies with more than 5 years of follow-up.**

Condition being studied: **Rehabilitation of patients with atrophic maxilla.**

METHODS

Search strategy: PubMed/MEDLINE, the Cochrane Central Register of Controlled Trials, Scopus, and LILACS were searched for relevant articles published prior to April 2022 without any restrictions regarding date of publication or language. Gray literature was searched using the OpenGrey database (www.opengrey.eu). Additionally, the studies' reference lists were evaluated (cross-referenced) to identify other potential studies for inclusion. The following search terms were used: "zygomatic" [MeSH Terms] OR "Zygoma" [MeSH Terms] OR "zygomatic implants" [All Fields] AND "survival rate" [MeSH Terms], OR "prognosis" [MeSH Terms] OR "implant failure" [All Fields] OR "prosthetic rehabilitation" [All Fields] OR "complications" [MeSH Terms] OR "maxillary sinus" [MeSH Terms] OR "sinusitis" [MeSH Terms].

Participant or population: Patients with atrophic maxilla rehabilitated through ZIs or rehabilitations with ZIs associated with CIs.

Intervention: Zygomatic implants.

Comparator: Survival rate of ZIs vs. CIs.

Study designs to be included: Observational cohort studies (prospective or retrospective) and randomized clinical trials with at least 5 years of follow-up.

Eligibility criteria: The exclusion criteria included animal studies, in vitro studies, case series, case reports, and reviews. Studies with less than 5 years of follow-up were also excluded. No studies were excluded for reasons of language, date of publication, and number of patients included.

Information sources: PubMed/MEDLINE, the Cochrane Central Register of Controlled Trials, Scopus, LILACS, and OpenGrey.

Main outcome(s): Implant survival rate (primary outcome) and complications (biological and mechanical; secondary outcome).

Data management: The study data were extracted by T.R.Q. and systematically reviewed by V.M. When available, the following data were obtained from the studies: authors, study design, length of follow-up, number of patients, number of implants (ZI and CI), number of implant failures, surgical technique, type of prosthesis, mechanical complications, and biological complications.

Quality assessment / Risk of bias analysis: Two reviewing authors (E.R.A. and M.D.C.M.) performed the risk-of-bias analysis. The Newcastle-Ottawa Scale (NOS) was used in the analysis of prospective and retrospective cohort studies. Studies can obtain one star/point per item in the selection and ascertainment categories; the comparability category awards two stars/points. According to the NOS, the maximum score for a given study is nine stars/points. High-quality studies scored ≥ 6 stars.

Strategy of data synthesis: The dichotomous variable (implant failure) of the included studies was categorized into subgroups based on study design (prospective or retrospective) or surgical technique (IZI or EZI), and a meta-analysis was conducted at implant level using Review Manager software (version 5.2.8, Copenhagen, Denmark, 2014). For the dichotomous variables, crude numbers were considered because of the presence of 0 events in at least one group of each possible comparison, which prevented any synthesis by means of effect measures. The estimates of the intervention effects were expressed as risk ratio (RR) with 95% confidence intervals (CIs).

Subgroup analysis: Not performed.

Sensitivity analysis: Not performed.

Language restriction: No studies were excluded for reasons of language.

Country(ies) involved: Brazil.

Keywords: Zigomatic implants, maxilla, maxillary sinus, survival.

Contributions of each author:

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