INPLASY PROTOCOL

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Conflicts of interest:
None declared.

How Efficacious is the Association of Substitute Bone Graft with Autogenous Bone Graft in Comparison with Bone Graft Alone? A Systematic Review and Meta-analysis

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Review question / Objective: **In patients who were submitted to horizontal guided bone regeneration, how efficacious is the association of substitute bone graft with autogenous bone graft in comparison to substitute bone graft alone, in terms of bone gain?**
Condition being studied: **To evaluated how efficacious is the association of substitute bone graft with autogenous bone graft in comparison with substitute bone graft alone.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 25 July 2021 and was last updated on 25 July 2021 (registration number INPLASY202170081).

INTRODUCTION

Review question / Objective: **In patients who were submitted to horizontal guided bone regeneration, how efficacious is the association of substitute bone graft with autogenous bone graft in comparison to substitute bone graft alone, in terms of bone gain?**

Condition being studied: **To evaluated how efficacious is the association of substitute bone graft with autogenous bone graft in comparison with substitute bone graft alone.**

METHODS

Search strategy: **The MEDLINE (PubMed), Embase, Scopus, and Web of Science**

databases were searched up to March 2021 by two independent reviewers (J.M.M. and C.P.F.). The search was performed without restrictions on dates or language. The search strategy was applied as follows: PubMed: ("Horizontal ridge deficiencies"[All Fields] OR "horizontal alveolar ridge augmentation"[All Fields] OR "lateral ridge augmentation"[All Fields] OR "Lateral bone augmentation"[All Fields] OR "Horizontal bone augmentation"[All Fields] OR "horizontal Bone regeneration"[All Fields] OR "Horizontal ridge augmentation" [All Fields]) AND ("Bone graft"[All Fields] OR "Autologous bone"[All Fields] OR "Autogenous bone"[All Fields] OR "Bone substitute"[All Fields] OR "Allograft").

Participant or population: Patients with horizontal atrophic alveolar ridge in need of horizontal guided bone regeneration prior to dental implant installation.

Intervention: Bone augmentation using guide bone regeneration. This procedure needed to have been performed with particulate materials, such as autologous bone chips, and/or osteoconductive materials, such as allografts, xenografts, or alloplastic bone substitute materials.

Comparator: Substitute bone graft + autogenous bone graft vs substitute bone graft alone.

Study designs to be included: Randomized clinical trial.

Eligibility criteria: The inclusion criteria were based on the PICOS strategy.

Information sources: the grey literature in the System for Information on Grey Literature in Europe (http://www.opengrey.eu) and The New York Academy of Medicine Grey Literature Report (http://www.greylit.org) were electronically screened, as recommended by the high standards for systematic reviews (AMSTAR guideline). Furthermore, hand searches of relevant primary sources related to the topic were performed in Clinical Implants Dentistry and Related Research, Journal of Clinical Periodontology, Clinical Oral Implants Research and Clinical Oral Investigations. Finally, the list of references of studies included were explored to capture any potential additional records, as suggested by Greenhalgh and Peacock.

Main outcome(s): Horizontal bone gain.

Additional outcome(s): Graft resorption, and histological findings (secondary outcome variables).

Quality assessment / Risk of bias analysis: Two reviewers (C.P.F and J.M.M) assessed the risk of bias in the studies selected, using the Cochrane risk-of-bias tool, RoB 2 (version 2, available at: https://www.riskofbias.info/welcome/rob-2-0-tool/current-version-of-rob-2). The authors of this systematic review decided to assess the result related to "assignment to intervention (the intention-to-treat effect)" and five domains were examined: (i) bias arising from the process of randomization and allocation concealment, (ii) bias due to deviations from intended interventions that involved masking of participants and our team of researchers, (iii) bias due to missing outcome data, (iv) bias in measurement of the outcome, and (v) bias in selection of the result reported. Based on the answers to signaling questions and algorithms of this tool, each domain was judged as presenting "low risk of bias", "some concerns relating to the risk of bias," or "high risk of bias". Studies were categorized as being at low risk of bias (all domains were at low risk of bias), high risk of bias (one or more domains were at high risk of bias), some concerns (if one or more domains had some concerns). Disagreements were resolved by discussion, consulting a third researcher (G.R.).

Strategy of data synthesis: The software Rev-Man (version 5.3 for Windows) was used to perform both meta-analyses. Heterogeneity was assessed by the Q test and quantified by I2. As the methodological characteristics differed among the studies included, both analyses were performed using a random effect model.

Subgroup analysis: Subgroup analysis was not performed.

Sensitivity analysis: Sensitivity analysis was not performed.

Country(ies) involved: Brasil, Peru and Italy.

Keywords: bone graft; bone regeneration; allograft.

Contributions of each author:

Author 1 - Jonathan Meza-Mauricio - Performed the search in data base, selected of the included papers, evaluated the risk of bias if the included studies and drafted the manuscript.
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