INPLASY

Periodontal Regeneration using Platelet-Rich Fibrin. Part I – Intrabony Defects: a systematic review with meta-analysis

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ADMINISTRATIVE INFORMATION

Support - This study had no financial support.

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202430001

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 01 March 2024 and was last updated on 01 March 2024.

INTRODUCTION

Review question / Objective "In patients/teeth affected by intrabony periodontal defects, what is the efficacy of the use of PRF alone or associated with other biomaterials in regenerative periodontal surgery compared to access flap (OFD) alone or combined with other commonly used regenerative methods for the improvement of periodontal intrabony defects?"

Condition being studied Periodontal disease with intrabony defects.

METHODS

Search strategy PubMed/MEDLINE, the Cochrane Central Register of Controlled Trials, Scopus, Embase, and Lilacs were used to search for articles that were published before October 1st, 2023 without other restrictions regarding date or language. A search of the gray literature using the Literature Report and OpenGrey databases was also conducted. Finally, the study reference lists were evaluated (cross-referenced) to identify other studies for potential inclusion.

Participant or population Systemically healthy humans with periodontal intrabony defects.

Intervention Treatment of intrabony defects with platelet-rich fibrin.

Comparator Treatment of intrabony defects with others biomaterials.

Study designs to be included Randomized clinical trials.

Eligibility criteria Randomized clinical trials with a minimum of 10 patients comparing the use of PRF with other biomaterials for the treatment of intrabony defects.

Information sources PubMed/MEDLINE, the Cochrane Central Register of Controlled Trials, Scopus, Embase, and Lilacs were used to search for articles that were published before October 1st,

2023 without other restrictions regarding date or language. A search of the gray literature using the Literature Report and OpenGrey databases was also conducted.

Main outcome(s) Changes in probing pocket depth and clinical attachment level.

Additional outcome(s) Radiographic bone fill and bone sounding / bone fill assessed through bone sounding or re-entry.

Quality assessment / Risk of bias analysis The RoB 2 tool from the Cochrane Handbook for Systematic Reviews of Interventions was used to analyze the risk of bias in RCTs. Each study was analyzed in relation to five domains: risk of bias arising from the randomization process, risk of bias due to deviations from the intended interventions, missing outcome data, risk of bias in the measurement of the outcome, and risk of bias in the selection of the reported research.

Strategy of data synthesis The continuous variables (PPD, CAL, and RBF) of the included studies were categorized in groups and subgroups and analyzed in a meta-analysis through software Review Manager (version 5.2.8, Copenhagen, Denmark, 2014).
The effects were estimated as a mean difference (MD) with 95% of confidence interval (CI). The generic variation approach was adopted. Heterogeneity was assessed using the Chi2 tests, with low heterogeneity considered for values ≤ 25%, moderate heterogeneity considered for values > 25% but ≤ 50%, and high heterogeneity considered for values > 50%. For the analyses, the random effect model was chosen due to the variation in available evidence (e.g., populations, follow-up times, and settings). The statistical significance level of the meta-analysis effect was set at $P < 0.05$.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Language restriction No restriction.

Country(ies) involved Brazil, United States, and Swiss.

Keywords Intrabony defect; periodontal regeneration; periodontitis; leukocyte and platelet-rich fibrin; L-PRF; advanced-PRF, horizontal centrifugation; systematic review; meta-analysis.

Contributions of each author
Author 1 - Vittorio Moraschini.
Author 2 - Richard Miron.