INPLASY PROTOCOL

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Effectiveness of connective tissue graft substitutes for the treatment of gingival recessions using coronally advanced flap: a network meta-analysis

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Review question / Objective: What is the effectiveness of connective tissue graft substitutes for the treatment of Miller class I or II gingival recessions?

Condition being studied: Treatment of gingival recession through coronally advanced flap (CAF) or the association of CAF + xenogeneic collagen matrix (XCM), CAF + platelet-rich fibrin (PRF), CAF + acellular dermal matrix (ADM), CAF + enamel matrix derivative (EMD).

Information sources: PubMed/MEDLINE, the Cochrane Central Register of Controlled Trials, Scopus, and Embase were used to search for articles that were published before May 2020 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.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 June 2020 and was last updated on 20 June 2020 (registration number INPLASY202060075).

INTRODUCTION

Review question / Objective: What is the effectiveness of connective tissue graft substitutes for the treatment of Miller class I or II gingival recessions?

Rationale: The rationale of this systematic review was to conduct a network comparison of the clinical effect of connective graft tissue substitutes on the treatment of gingival recessions.

Condition being studied: Treatment of gingival recession through coronally advanced flap (CAF) or the association of CAF + xenogeneic collagen matrix (XCM), CAF + platelet-rich fibrin (PRF), CAF + acellular dermal matrix (ADM), CAF + enamel matrix derivative (EMD).

METHODS

Search strategy: The search-and-screening process was conducted by two independent reviewing authors (V.M. and M.D.C.M), commencing with the analysis of titles and abstracts. Next, full papers were selected for careful reading and matched with the eligibility criteria for future data extraction. Disagreements between the reviewing authors were resolved through careful discussion.

Participant or population: Patients undergoing mucogingival surgery procedure to treat Miller class I or II (Miller 1985) gingival recessions with a follow-up period ranging from 6 to 12 months.

Intervention: Surgical treatment for the correction of gingival recessions through CAF or CAF associated with substitute materials (XCM, PRF, ADM, and EMD).

Comparator: CAF isolate vs. CAF plus XCM, CAF plus PRF, CAF plus ADM, or CAF plus EMD.

Study designs to be included: Randomized clinical trial.

Eligibility criteria: Randomized clinical trials analyzing treatment of Miller class I or II gingival recessions with a minimum follow-up period of 6 months.

Information sources: PubMed/MEDLINE, the Cochrane Central Register of Controlled Trials, Scopus, and Embase were used to search for articles that were published before May 2020 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.

Main outcome(s): Analyze the variation of Root cover (primary outcome), clinical attachment level, keratinized mucosa width, and probing depth between the baseline and the final follow-up.

Quality assessment / Risk of bias analysis: Two reviewing authors (M.F. and M.D.C.M.) analyzed the risk of bias. The RoB 2 (a revised Cochrane risk-of-bias tool for randomized trials) (Sterne et al. 2019) 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. Studies were classified as having a low risk, some concerns, or high risks of bias for each domain. The overall risk of biased judgment used the following criteria: low risk, when the five areas of the study were judged as low risk; some concerns, when the study is judged as raising some concerns in at least one area; and high risk, when the study is judged to be at high risk in at least one domain or when the study is judged to have some concerns for multiple domains in a way that substantially lowers confidence in the result.

Strategy of data synthesis: The study data were extracted by V.M. and systematically reviewed by J.A.S. When available, the following data were obtained from the included studies: authors, study design, length of follow-up, number of subjects (per group of treatment), type of gingival recession, type of graft, site of gingival recession, smoking status, and mean difference (MD) in RC, CAL, KMW, and PD, between the baseline and final follow-up.

Subgroup analysis: CAF isolate (control group) vs. CAF plus XCM, CAF plus PRF, CAF plus ADM, or CAF plus EMD (Test group).

Sensibility analysis: To investigate sensitivity, studies classified as having a high risk of bias were excluded (outliers exclusion).

Language: No language restriction.

Country(ies) involved: Brasil.

Keywords: Gingival recession, biomaterials, graft.

Contributions of each author:

Author 1 - Vittorio Moraschini - Conceptualization, Data curation, Metodology, Software, Validation, Writing original draft, Writing - review & editing.

Author 2 - Monica Calasans-Maia - Data curation, Metodology, Writing original draft, Writing - review & editing.

Author 3 - Alexandra Dias - Data curation, Metodology, Writing original draft.

Author 4 - Márcio Formiga - Data curation, Metodology, Writing original draft.

Author 5 - Suelen Sartoretto - Data curation, Metodology, Writing original draft.

Author 6 - Jamil Shibli - Conceptualization, Metodology, Validation, Writing original draft, Writing - review & editing.