INPLASY PROTOCOL

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Corresponding author:
Janaina Jorge

habib.jorge@unesp.br

Author Affiliation:
Araraquara Dental School, São Paulo State University (UNESP), Araraquara, Brazil

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Review Stage at time of this submission: **Preliminary searches.**

Conflicts of interest:
None declared.

Do denture cleansers influence the surface roughness and adhesion and biofilm formation of Candida on acrylic resin? Protocol for a systematic review and meta-analysis

Ferro, A[1]; Padilha, J[2]; Ribas, B[3]; Scabelo, L[4]; Jorge, J[5].

Review question / Objective: **Do denture base acrylic resin samples, when exposed to denture cleansers or water, undergo changes in surface roughness and adhesion and biofilm formation of Candida? Population: Denture base acrylic resin samples; Intervention: Denture Cleansers; Comparison: Distilled Water; Outcome: Surface Roughness; Adhesion and Formation of Candida Biofilm.**
Condition being studied: **Candida-associated denture stomatitis is the most common pathological condition in removable denture wearers. This fungal infection has a multifactorial etiology, however, the proliferation of fungi on the irregularities of the internal surface of the dentures contributes significantly to the installation and progression of the disease. Denture cleansers are widely used as methods of chemical hygiene, but, it is not yet known if the use of these substances can cause any topographic changes, such as increased surface roughness of the dentures and, consequently, increase proliferation and adhesion of Candida biofilm.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 February 2021 and was last updated on 10 February 2021 (registration number INPLASY202120039).

INTRODUCTION

Review question / Objective: **Do denture base acrylic resin samples, when exposed to denture cleansers or water, undergo changes in surface roughness and adhesion and biofilm formation of Candida? Population: Denture base acrylic resin samples; Intervention: Denture Cleansers; Comparison: Distilled Water;**

Outcome: Surface Roughness; Adhesion and Formation of Candida Biofilm.

Rationale: Several studies evaluate the antimicrobial effect of denture cleansers and the surface properties of the acrylic resin. However, the studies are contradictory and there is still no scientific evidence on the influence of cleansers on roughness and adhesion and biofilm formation on denture base acrylic resin.

Condition being studied: Candida-associated denture stomatitis is the most common pathological condition in removable denture wearers. This fungal infection has a multifactorial etiology, however, the proliferation of fungi on the irregularities of the internal surface of the dentures contributes significantly to the installation and progression of the disease. Denture cleansers are widely used as methods of chemical hygiene, but, it is not yet known if the use of these substances can cause any topographic changes, such as increased surface roughness of the dentures and, consequently, increase proliferation and adhesion of Candida biofilm.

METHODS

Search strategy: To identify the studies which would be included, the research was done in the MEDLINE via Pubmed, Embase, Scopus, Web of Science and LILACS databases. To develop the search strategy, we used Medical Subject Headings - MeSH and other non-indexed terms that were adapted for each database searched. The search strategy developed for PubMed was modified for the other databases to identify eligible studies.

Participant or population: ((((((((((acrylic resins[MeSH Major Topic]) OR (dentures[MeSH Terms])) OR (denture bases[MeSH Terms])) OR ("acrylic resins"[Title/Abstract])) OR (denture[Title/Abstract])) OR (dentures[Title/Abstract])) OR ("resin acrylic"[Title/Abstract])) OR ("resins acrylic"[Title/Abstract])) OR ("denture base"[Title/Abstract])) OR ("denture bases"[Title/Abstract])) OR ("resin denture"[Title/Abstract]).

Intervention: (((((((denture cleansers[MeSH Major Topic]) OR (disinfection[MeSH Terms])) OR (disinfection[Title/Abstract])) OR ("denture cleansers"[Title/Abstract])) OR ("denture cleanser"[Title/Abstract])) OR (antiseptics[Title/Abstract])) OR ("disinfection solution"[Title/Abstract])) OR ("disinfectant agent"[Title/Abstract]).

Comparator: We did not include comparator search terms in the search strategy.

Study designs to be included: In vitro studies.

Eligibility criteria: In vitro studies. Denture base acrylic resin samples. Only chemical denture cleansers used by immersion in any time. Evaluation of the antimicrobial effect assessed by CFU/mL. The assessment of acrylic resin surface properties determined by a perfilometer.

Information sources: To identify the studies which would be included, the research was done in the databases (MEDLINE via PubMed, Embase, Scopus, Web of Science, LILACS), by manual search and the gray literature was explored using the System for Information on Gray Literature in Europe (SIGLE) database. In addition, the search for abstracts published in annals of conferences was made and Dissertations and theses were researched using ProQuest® Dissertations & Theses Databases and Theses.

Main outcome(s): The increase or decrease of adhesion and biofilm formation of Candida and modifications on surface roughness of the acrylic resin.

Data management: The articles will be exported to a Reference Manager (EndNote Web) to select the studies to be included, firstly based on the titles, then on the abstracts. The full texts will be read in the Rayyan QCRI app for systematic reviews, and after that, studies that meet the

inclusion criteria will be selected for later data extraction and analysis.

Quality assessment / Risk of bias analysis: The evaluation criteria of the OHAT Risk of bias tool will be used, in which the following domains will be evaluated: selection bias, confusion bias, performance bias, attrition bias and detection bias, selective outcome reporting bias and others. These domains will be judged as Definitely Low, Probably Low, Probably High or Definitely High risk of bias.

Strategy of data synthesis: The data synthesis will be done qualitatively and, if there is sufficient data and homogeneity, in a quantitative way through the meta-analysis for the outcomes of interest.

Subgroup analysis: If there is heterogeneity, subgroup analysis will be performed in an attempt to minimize them, and subgroup analysis can be performed for the type of denture cleanser and immersion time.

Sensitivity analysis: After data collection, the authors will verify the requirement for sensitivity analysis.

Language: No limit was imposed.

Country(ies) involved: Brazil.

Keywords: Candida; Denture Cleansers; Surface Properties; Denture Bases.

Dissemination plans: Publication of the paper in important and long-range journals, local and regional dissemination through the submission of results in dental research events and research groups meeting and dissemination through social media.

Contributions of each author:

Author 1 - Amanda Ferro - The author participated in all stages of the achievement of the systematic review.
Email: a.ferro1604@gmail.com
Author 2 - Juliana Padilha - The author provided statistical expertise, development of the selection criteria and selection of eligible studies.
Email: j.padilha@unesp.br
Author 3 - Beatriz Ribas - The author read, provided feedback and approved the final manuscript.
Email: beatriz.ribas@unesp.br
Author 4 - Lais Scabelo - The author contributed to the manuscript writing.
Email: lais.scabelo@unesp.br
Author 5 - Janaina Jorge - The author contributed to the definition of the question, registration of the protocol, data extraction and manuscript writing.
Email: habib.jorge@unesp.br