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LITERATURE REVIEW

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Cleaning methods for removable dentures: A critical review of the literature

Cleaning methods for removable dentures: A critical review of the literature

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ABSTRACT

A literature review was performed including studies that evaluated the use of cleaning protocols for removable dentures through questionnaires, clinical trials, randomized clinical trials, and systematic reviews. Twenty studies were included and the results showed that bad preservation of the prostheses is mainly due to low knowledge about cleaning habits and methods. Also, a wide variety of effective cleaning methods were presented. However, there is no standard protocol for all patients and it should be customized for each patient. It is important to highlight that dentists should give adequate instructions concerning maintenance and hygiene of the prosthesis.

KEYWORDS

Dental prosthesis; Oral hygiene; Oral health.

RESUMO

Uma revisão da literatura foi realizada incluindo estudos que avaliaram o uso de protocolos de limpeza para próteses removíveis através de questionários, ensaios clínicos, estudos clínicos randomizados e revisões sistemáticas. Vinte estudos foram incluídos e os resultados mostraram que a má preservação das próteses é principalmente devido ao baixo conhecimento sobre os hábitos e métodos de limpeza. Além disso, foram apresentados uma grande variedade de métodos de limpeza eficazes. No entanto, não existe um protocolo padrão para todos os pacientes, devendo ser personalizado para cada paciente. É importante destacar que os dentistas devem dar instruções adequadas quanto a manutenção e higiene das próteses.

PALAVRAS-CHAVE

Prótese Dental; Higiene oral; Saúde bucal.

INTRODUCTION

Hygiene orientation for removable denture wearers is a key factor in maintaining denture cleanliness and, consequently, achieving durability and adaptation of this kind of prosthesis [1]. There are a large number of denture care protocols and products available, among them we can mention Sodium hypochlorite 0.05%, 2% chlorhexidine digluconate, household solution of 0.45% chlorine, specific pastes formulated for denture cleaning, mild soap, coconut soap, effervescent tablets, and microwave irradiation. Some of these products are offered to patients as adjunct methods to daily cleaning. However, there is no definitive protocol about the best cleaning method and its effectiveness. Also, one must consider that each patient has different hygiene habits, and it should be taken into consideration by the professional in order to indicate the method that meets the needs and possibilities of a specific patient [1].

The ease of access to different cleaning products in drugstores, without the need of prescription, contributes to self-medication and lack of the correct hygiene care by the patients.

Currently, it is clear that hygiene habits, such as removal of the prosthesis before sleep, brushing and cleaning the oral cavity and the prosthesis are more important than the use of a cleaning solution in achieving good hygiene and quality of oral health [2,3]. Numerous in vitro studies have assessed different denture cleaning protocols. However, only few clinical trials have been reported, with an even smaller number of randomized clinical trials [4].

The wide variety of cleaning methods and protocols presented in the literature, with high data heterogeneity, does not support the indication of the best cleaning method for removable dentures, especially considering cost-effective aspects [5]. Thus, the aim of this literature review is to describe the different cleaning protocols and products available in the market in order to indicate, based on the literature, the best oral hygiene method for each case.

MATERIAL AND METHODS

The literature review was performed by searching the Pubmed database, unrestricted by language or year of publication using the MeSH: cleaning[All Fields] AND ("dentures"[MeSH Terms] OR "dentures"[All Fields]) AND clinical[All Fields]) OR (("denture cleansers"[MeSH Terms] OR ("denture"[All Fields] AND "cleansers"[All Fields]) OR "denture cleansers"[All Fields]) AND ("clinical trial"[Publication Type] OR "clinical trials as topic"[MeSH Terms] OR "clinical trial"[All Fields]) AND ("disinfection"[MeSH Terms] OR "disinfection"[All Fields]) AND ("review"[Publication Type] OR "review literature as topic"[MeSH Terms] OR "review"[All Fields])) AND ("dentures"[MeSH Terms] OR "dentures"[All Fields])). In vitro studies were excluded from this study and only articles that evaluated the use of cleaning protocols for removable dentures through questionnaires, clinical trials, randomized clinical trials, and systematic reviews were included. The number of articles previously selected for review by the title and abstract, as well as the work included after a thorough reading, are presented in Figure 1. The included studies are presented in the Literature Review and Discussion section according to their levels of evidence.

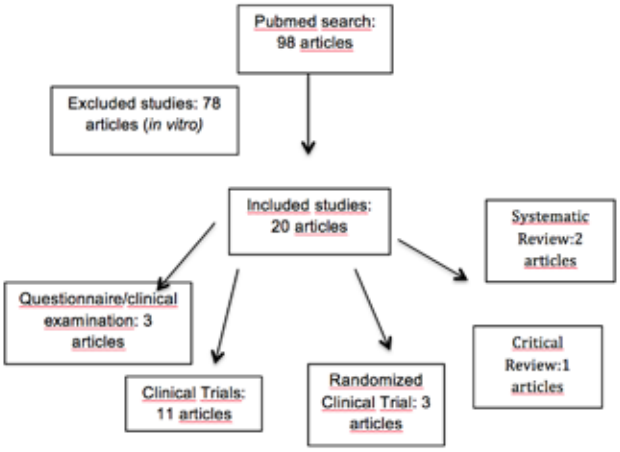

Figure 1 - Studies included in the review

Critical Review

Cleaning protocols assessed through questionnaires and clinical examinations

Three studies that evaluated the use of cleaning protocols for removable dentures through questionnaires were included in this literature review. Chowdhary & Chandraker [6] evaluated the knowledge about aftercare of removable dentures of 125 Indian patients. They concluded that the patients had limited knowledge of long-term denture hygiene methods. Among the interviewed patients, 94.26% reported to clean their dentures with a brush, but only 36.6% used soap and 28.8% toothpaste. Moreover, an association was found among the socioeconomic level and frequency of denture hygiene, being that 100% of the patients with high income remove their dentures before sleep while only 51.9% of the patients with lower income.

Apratim et al. [1] applied questionnaires to 230 subjects to assess the hygiene habits in complete denture wearers according to their age and the time of edentulism. They observed that

only half of respondents cleaned their dentures daily and 39.8 % of these patients were on the youngest group (45-54 years). In regard to the cleaning protocols, fifty-six percent used water or water and a brush for hygiene. The authors emphasized their concerns about the low use of cleaning solutions and the absence of daily hygiene habits on the studied sample.

Yang et al. [7] evaluated the hygiene habits and risk factors for plaque accumulation of 222 removable partial denture wearers. The authors found that time of use of the prosthesis, smoking habits, consumption of tea, and cleaning method are factors that influence significantly plaque accumulation. These data reinforces the importance of a good denture care protocol, and also highlight some factors that should be taken into consideration at the time when the dentist advises the patient during denture insertion and follow-up appointments.

Clinical trials

In 2007, Salles et al. [8] compared plaque accumulation on upper and lower complete dentures associated with toothpastes (Oral B Indicator 40); Corega Brite and neutral soap. Forty-five patients were included in the study and three cleaning protocols were assessed through a crossover design (9 weeks / 21 days each protocol – three times a day), without a washout period. The authors observed a significantly higher plaque accumulation in lower than upper dentures, being the use of specific toothpaste the best cleaning protocol. In regard of patient compliance, the patients preferred the use of toothpastes than neutral soap.

In 2009, a study conducted by Panzeri et al. [9] investigated the physical properties of experimental toothpastes (addition of 1% chloramine and presence of 0.01% fluorinated surfactant) on complete denture cleansing and its effect on the removal of biofilm and antimicrobial properties. This clinical trial included sixty patients that were randomly assigned into three groups, in which each cleaning method was tested for 21 days. Patients were instructed to brush the intaglio and external surfaces of their prosthesis for 2 min, according to each group test, after breakfast, lunch and before sleep. Both experimental toothpastes reduced the biofilm accumulation on the prostheses, being that the toothpaste with 1% chloramine was more effective in reducing streptococcus mutans colonization. On the other hand, none of the toothpastes reduced significantly Candida albicans or non-albicans colonization.

In 2010, Silva-Lovato [10] assessed the efficacy of cleaning tabs on plaque removal and antimicrobial action on complete dentures. To do so, forty complete denture wearers were instructed to clean their dentures according to two hygiene protocols: 1) control group - brush and water; 2) Experimental – brush and water and immersing the dentures in water with cleaning tables (NitrAdine TM tablets®) for 21 days. It was observed that cleaning tabs showed a significant lower percentage of biofilm and a reduction of yeast colonies on the prosthesis compared to the control group. Based on their results, the authors concluded that the use of cleaning tabs can be recommended as a standard cleaning protocol.

Another clinical trial was conducted by Uludamar et al. [11] to assess the efficacy of different brands of alkaline peroxide tablets and two rinses to remove Candida albicans in patients with denture stomatitis. Ninety complete denture wearers with diagnose of denture stomatitis were randomly assigned into six groups (5 experimental and a control group). The prostheses of each test group were treated with different alkaline peroxide tablets (Polident) and two mouthwashes (Closys II and Corsodyl), whereas the control group dentures were treated with distilled water. The reduction in the number of colony-forming units (CFU) of C. albicans before, and after 15, 30, and 60 min of use of CloSYS II and Corsodyl was significantly greater than that of the control group ($p < 0.05$). There was no statistically

significant difference ($p > 0.05$) on colony-forming units of candida albicans between Polident®, Efferdent® and the control group in any of the treatment periods. According to the authors, prostheses treated with Fittydent® had significant greater reduction in the number of Candida spp. after 60 min of treatment and the use of mouthwashes significantly reduced the number of microorganisms on dentures.

Rossato et al. [12] compared the efficacy of plaque removal of six cleaning protocols. To do so, fifteen dental students were randomly assigned into six groups and were instructed to use intraoral devices of acrylic resin for 24 h without cleaning. Then, these devices were cleaned according each group: 1) Wash with running water for 20 s; 2) and 3) cleaning with alkaline peroxide tab (Corega Tabs®) for 5 and 30 min, respectively; 4) brushing with soap and water for 40 s; 5) alkaline hypochlorite for 10 min; and 6) homemade solution of chlorine (0.45% Q'boa® for 10 min) over a period of 6 consecutive days, testing all methods in all groups (crossover). The use of alkaline hypochlorite was the best way to remove plaque from the devices, followed by household bleach solution and brushing with water and liquid soap. The authors suggested that prostheses cleaned with alkaline peroxide (Corega Tabs®) should be immersed for 30 min to have similar efficacy of the alkaline hypochlorite.

Takamiya et al. [3] evaluated, through interviews and clinical examinations, the night use of dentures and cleaning habits of 224 complete denture wearers who received their dentures between 2000 and 2005 in the Dental Clinic of Araçatuba and Araraquara Dental Schools. Fifty-six percent of the patients reported that they remove their dentures before sleep and 88% reported doing this procedure every day. Among them, only 66.4% remove both upper and lower prostheses. Although, forty-seven percent of the patients reported to brush their prostheses with toothpaste every day, sixty-three percent of the interviewed patients had biofilm and calculus on their dentures. The authors warn the professionals about the need of hygiene instructions and motivation throughout time to reinforce the importance of denture cleaning and removal at night.

A study was conducted by Andrade et al. [13] to evaluate the effectiveness of biofilm removal in complete dentures using two concentrations of chlorhexidine solution (0.12% and 2.0%). The study was conducted with 60 complete denture wearers who received brushing instructions and then were divided into 3 groups according to the tested solution: G1 (control) - Immersion daily in water overnight; G2 daily immersion at home in chlorhexidine 0.12% for 20 min after dinner; and G3- single immersion in 2.0% chlorhexidine for 5 min, at the end of the experimental period, carried out by the professional. The average values for the biofilm coverage area after treatment were: (G1) 36.0%, (G2) and 5.3% (G3) of 1.4%. The authors concluded that both chlorhexidine-based treatments had similar effect on removing biofilm.

The effect of sodium hypochlorite (NaOCl) in biofilms, color stability (AE) and surface roughness (Ra) of dentures was assessed by Porta et al.(14) in 2013. Fifteen patients were instructed to keep their dentures every night immersed in a sodium hypochlorite solution at 0.5% for 3 min over 90 days. A significant reduction in the total number of microorganisms ($p = 0.001$) and Candida spp. was observed, but no statistical difference was found for AE ($p = 0.68$) and Ra ($p = 0.47$). The study concluded that the 0.5% sodium hypochlorite solution was effective in reducing viable bacteria without significant changes in color or roughness of acrylic resin complete dentures.

Sesma et al. [15] assessed microwave irradiation as disinfection method of complete dentures. The authors included 10 male patients with denture stomatitis. The upper prostheses were submitted to two disinfection protocols, each protocol was applied for 7 days with a

washout period of 30 days between the methods. The cleaning protocols were: 1) Microwave steam sterilizer (Baby Bottle Microwave Steam Sterilizer; Kuka, São Paulo, SP, Brazil) with the prosthesis immersed in 500 mL of water and irradiate them in the microwave (3min/700w) combined with brushing (3x after meals); and 2) Combination of microwave irradiation and prosthesis sanitizer for 8h in a new denture enzymatic cleanser dissolved in 100 mL of warm water (Ortoform) and brushing for removal of the prosthesis microorganisms. The authors concluded that both methods were effective in reducing colonization, but no significant difference was found between them. The authors stated that complete removal of microorganisms is only possible when microwave irradiation was associated with prosthesis sanitizer and denture brushing.

The effectiveness of different commercially available cleaners on plaque accumulation on dentures was evaluated by Kadakol & Nadiger [16]. Forty healthy subjects were included and randomly assigned into four groups. The tested cleaners were sodium hypochlorite (0.02%); fittydent tablets®; Clinsodent powder®, and chlorhexidine digluconate (0.2%). The authors stated that all cleaning products were considered effective, being the sodium hypochlorite at 0.02% the most effective one.

Lucena-Ferreira et al. [17] investigated the use of an enzymatic chemical cleaner (Polident®) once a day for 3 min during 15 days on biofilm. The study included twenty-five removable partial denture wearers that were instructed to clean their dentures according to the tested cleaning method. It was observed that the daily use of chemical cleaner improved denture hygiene, reducing microorganisms and streptococcus spp. on the surface of removable partial dentures. However, no reduction in the population of Candida spp. was observed.

Randomized clinical trials

IA randomized clinical trial was conducted by Barnabe et al. [18] in 2004 in order to evaluate the effect of sodium hypochlorite 0.05% on the reduction of denture stomatitis and antimicrobial activity for Candida albicans and Streptococcus mutans and its association with denture brushing with coconut soap. Mucosal characteristics was evaluated according to Newton's classification [19] (0, the lesions were absent; 1, (initial stage): presence of inflammation; 2, the inflammation was simple and diffuse, with the presence of oedema on the mucosa confined under the surface of the dentures, without pain and 3, the inflammation was granular and hyperplasic characterized by nodular lesions associated with painful atrophic areas) at baseline and after cleaning the dentures with coconut soap for 15 days for control group (9 patients) and before and after the cleaning the dentures with coconut soap and disinfection in 0.05% sodium hypochlorite solution for 10 min during 15 days (19 patients). The authors concluded that the association of coconut soap and sodium hypochlorite 0.05% significantly reduced the clinical signs of denture stomatitis. Although the count of Streptococcus mutans has decreased, no statistical significant difference on antimicrobial activity was observed for both, Streptococcus mutans and Candida albicans.

Moffa et al. [20] assessed the effect of chemical disinfection with chlorhexidine or sodium perborate on the color stability of a hard relining material (Tokuyama Rebase Fast II)for 6 months. After the baseline color measurements, patients were randomly assigned into three groups (n=15), being brushing the denture with coconut soap and soft toothbrush the control group, and the test groups were standard brushing and disinfection with heated sodium perborate solution (Corega Tabs®) for 5 min once a day for 6 months and standard brushing and disinfection with 2% chlorhexidine digluconate for 5 min once a day for 6 months. The authors observed changes in some color parameters when dentures were disinfected by digluconate 2% chlorhexidine and perborate solutions. Furthermore, color stability was also influenced by time, regardless of disinfection methods.

A recent randomized clinical trial was made by Zenthofer. et al. [2], where the authors

compared three types of intervention to improve oral hygiene. This double-blind study had 106 participants from southwestern care homes from Germany that were randomly divided into three treatment groups and a control: In group 1 patients received hygiene instructions by the dentist after professional cleaning of teeth and dentures (n = 27); in group 2 patients also received instructions and were motivated by dental hygienists (n = 26); patient of the group 3 patients were not instructed after professional cleaning of teeth and dentures (n = 26); and in the control group no intervention was made (n = 23). In comparison to the control group, it was observed that the hygiene of dentures, plaque, and gingival bleeding rates were significantly lower in the intervention groups over a period of 12 weeks. When comparing the different treatment groups, no differences were observed in regard of plaque control, gingival bleeding and denture hygiene rates. However, after long-term follow-up (3 years), the authors observed that all indexes were significantly worse than the last evaluation. Thus, the authors highlight the importance of a periodic reinforcement on hygiene instructions.

Critical and Systematic reviews

Brondani et al. [21] made a critical review in 2012 about the use of conventional microwave ovens for cleaning dentures. Twenty-eight articles were included in their review aiming to describe the advantages and disadvantages of using such methods on dentures disinfection. The authors pointed out that the microwave irradiations have a momentary effectiveness. However, it does not produce a correct decontamination of dental prosthesis. Also, the authors failed to establish the number of times that would be required for cleaning dentures weekly (daily or several times a week) as possible replacement to cleaning dentures by traditional methods - brushing with water and soap or specific toothpaste. In summary, the authors suggest that microwave irradiation should be used as complementary method, making it necessary to use the traditional brushing method with soap or specific toothpaste.

In 2013, Skupien et al. [5] conducted a systematic review about protocols to prevent Candida colonization in denture relining materials and how to treat these materials after Candida colonization. To do so, the authors collected data of in vitro studies and clinical trials in seven electronic databases from 1950 to April 2012. In this systematic review, the authors highlighted the lack of standardized methods to evaluate microbial counts, which hindered the possibility of conducting a meta-analysis. According to their findings, immersion in sodium hypochlorite at 0.5% and microwave irradiation could be used as effective cleaning methods for denture relining materials and tissue conditioners. Also, the incorporation of nystatin to these materials is capable of treating or preventing oral candidiasis. However, the authors stated that the majority of the studies that were included in this systematic review were in vitro. Thus, there is not enough evidence to support recommendations for optimal cleaning method or addition of antifungal agents, reinforcing the need for well-designed randomized controlled trials to provide answers to these questions.

To the date, the most recent systematic review of this subject was made by Schwindling et al. [4] in 2014, the authors evaluated the effect of chemical disinfection procedures on surface roughness of denture relining materials. Five electronic databases were used for search. It was included twenty-five papers but only one was an in vivo study. According to the authors, all chemical disinfecting agents influences the surface roughness of denture relining materials after disinfection. Furthermore, the current literature suggests that changes in surface roughness can be more often associated with sodium perborate and less often with chlorhexidine digluconate and glutaraldehyde. The authors also stated that changes in surface roughness are only one of various aspects that should be taken on count when deciding when and which chemical disinfection products should be used. Thus, the need of further research to clarify whether these cleaning procedures can be recommended to patients was pointed out.

Figure 1 - Outcomes of the included studies.

Authors, Year	Country	Type	Outcomes
Apratim A et al., 2013	India	Complete dentures	Most of the included patients only brush their dentures as a routinely cleaning protocol.
Zenthöfer A et al., 2013	Germany	Dentures – not specified	Professional and personal denture cleaning following dentist instructions could improve oral hygiene. However this improvement decreases with time.
Takamiya AS, 2011	Brazil	Complete dentures	Patients need instruction and motivation appointments to reinforce hygiene importance. In addition, denture removal overnight should be emphasized.
Schwindling FS et al., 2014	Germany	Relining materials	Sodium perborate increases surface roughness of acrylic resin more than chlorhexidine digluconate and glutaraldehyde.
Skupien JA et al., 2014	Brazil	Complete dentures – relining materials	0.5% Sodium hypochlorite is appropriate to desinfect denture relining materials. Nistatine incorporation could also improve treatment and prevention of candida colonization.
Chowdhary R & Chandraker NK, 2011	India	Complete dentures	Edentulous patients have limited awareness of hygiene methods for complete dentures and soft tissues.
Yang Y et al., 2014	China	Removable partial dentures	Hygiene habits needs improvement. Most of the included patients brush only their teeth without any cleaning protocol for the removable partial dentures.
Salles AE et al., 2007	Brazil	Complete dentures	Lower dentures tend to presente more biofilm than upper ones. The use of commercial products (Corega Brite) was the first option of the patients followed by the use of neutral soap.
Panzeri H et al., 2009	Brazil	Complete dentures	Adition of chloramine (1%) and fluorinated surfactant (0.01%) improve the biofilm removal.
Silva-Lovato CH et al., 2010	Brazil	Complete dentures	NitrAdine TM improve biofilm removal and presente a antimicrobial effect and it could be indicated for routine cleaning protocol for patients presenting denture stomatitis.
Uludamar A et al., 2010	Turkey	Complete dentures	The use of mouthwashes decreased significantly microbial colonization on complete dentures. The use of effervescent tablets is a viable way to eliminate Candida Albicans in patients with denture stomatitis.
Rossato MB et al., 2011	Brazil	Maxillary Intraoral Appliance	Among the hygiene protocols, Alkaline hypochlorite presented the best way to remove biofilm on acrylic resin.
Andrade IM et al., 2012	Brazil	Complete dentures	0.12% or 2.0% chlorhexidine digluconate could be indicated as an additive cleaning method, presenting similar capacity of biofilm removal.
Porta SRDS et al., 2013	Brazil	Complete dentures	0.5% Sodium hypochlorite is effective for bacterial reduction, without deleterious effects on color or surface roughness of the acrylic resin.
Sesma N et al., 2013	Brazil	Complete dentures	Microwave irradiation (500ml water/3min. 700w) Ù denture brushing (3x/day) was the best cleaning assessed protocol.
Kadakol P & Nadiger KR., 2013	India	Complete dentures	Sodium hypochlorite was the best cleaning agent among the studied protocols.
Lucena-Ferreira SC et al., 2013	Brazil	Removable partial dentures	Daily use of an enzymatic cleanser improved the degree of cleanliness, reducing the number of streptococci in the surface of removable partial dentures. However, it did not have effect on Candida spp. population.
Barnabe W et al., 2004	Brazil	Complete dentures	Coconut soap and sodium hypochlorite (0.05%) reduced significantly clinical signs of denture stomatitis and to remove biofilm. However, it did not have effect on candida albicans population.
Moffa EB et al., 2011	Brazil	Complete dentures	Some color parameters were influenced when dentures were disinfected by chlorhexidine digluconate (2%) and perborated solutions.
Brondani MA et al., 2012	Canada	Dentures – not specified	Microwave irradiation should be used as complementary method, making it necessary to use the traditional brushing method with soap or specific toothpaste.

* The order of appearance of the studies in this table is in agreement with their position throughout the text.

MANUFACTURE'S DETAILS

1. Oral B Indicator 40; Gillette do Brasil Ltda, Manaus, Amazonas, Brazil
2. Corega Brite, Stafford; Miller Industria Ltda; Rio de Janeiro, Brazil
3. Neutral soap, Selvética – Farmácia Homeopática e de Manipulação; Ribeirão Preto, São Paulo, Brazil
4. NitrAdine TM tablets; Medical Interporous, Laboratories AG, Vaduz, Liechtenstein
5. Polident; GlaxoSmithKline Consumer Health Group, Oakville, Ontario, Canada
6. Efferdent, Pfizer Consumer Health Care, Scarborough, Ontario, Canada
7. Fittydent, Mag Hoeveler Co., Geinberg, Germany
8. Closys II, Portola Plaza Dental Group, Mission Viejo, CA, USA
9. Corsodyl, GlaxoSmithKline Consumer, Health Group, Oakville, Ontario, Canada
10. Enzymatic cleanser -Ortoform; Farmácia de Manipulação Fórmula e Ação, São Paulo, SP, Brazil
11. Clinsodent powder®, I.C.P.A. Health Products Ltd, Ankleshwar, India

DISCUSSION

In regard to the studies that assessed the cleaning protocols through questionnaires and clinical examinations, the consensus observed in the literature was that experimental toothpastes with addition of 1% chloramine or presence of 0.01% fluorinated surfactant could be effective for biofilm removal. Also, the use of mouthwash significantly reduced the number of microorganisms on complete dentures. These studies suggested that the bad state of preservation of the evaluated prostheses is mainly due to the lack of information about cleaning habits and methods. Thus, it is important to highlight that dentists should give adequate instructions concerning the maintenance of the prosthesis and hygiene methods.

According to the findings of the clinical trials that were included in this literature review, sodium hypochlorite solution at 0.5%, use of mouthwash, immersion in 0.12% or 2.0% chlorhexidine, and NitrAdine TM tablets® are effective methods in controlling biofilm and can be used associated with denture brushing to preventively maintain oral health of denture wearers. It is well-known that the level of evidence of randomized clinical trials is high compared to clinical trials. However, only two studies fitted the inclusion criteria of this literature review. These studies suggest that professional cleaning of teeth and dentures with professional orientation about hygiene habits may be recommended to improve oral hygiene of the patients. However, the effect of such orientations decrease with time and the reinforcement of it is necessary. Also, changes in some color parameters were observed when the dentures were disinfected by 2% chlorhexidine digluconate and perborate solutions.

The two systematic reviews that were included in this literature review assessed cleaning method for denture liners and tissue conditioners. The literature suggests that the use of 0.5% sodium hypochlorite can help disinfect these materials. Also, nystatin incorporation is also capable of treating or preventing oral candidiasis. Change in surface roughness is one aspect that should be considered when deciding the use of chemical disinfection products, but not the only one. Both studies suggested that more randomized clinical trials are needed to clarify about the effectiveness of different cleaning methods and its adverse effects on dentures quality.

Based on the reviewed literature, it is possible to infer that the professional and patient are responsible for the success and longevity of prosthetic treatment. There is no standard cleaning protocol for all patients and it should be customized for each patient. Also, the dentists have

the role to clarify to the patients that the success of the treatment is dependent on their hygiene, giving instructions and stablishing a hygiene protocol and regular maintenance appointments.

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