



Mini Review

Fragile elderly, systemic conditions and dental homecare – a mini-review

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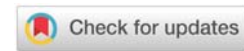
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Abstract

Background: The oral health of elderly patients can be treated at home or in the hospital environment with adaptations. This type of home dental care is possible through the synergistic interactions among several health professionals involved in improving the quality of life of dependent and fragile elderly patients. Scientific articles and bibliographic databases on the dental practice-based study in the elderly were searched and analyzed. Search strategy terms were: home care, geriatric dentistry, dental home care, frail elderly, systemic diseases, Alzheimer's disease and oral health. Inclusion criteria were: published articles in English; articles indexed in databases Pubmed; articles published from 2001 to 2019, totaling 22 references.

Objective: The purpose of this review is to describe a different approach in dentistry that encourages adaptation for home dental care.

Conclusion: Home dental care for dependent elderly people should be prioritized as an interdisciplinary health action, as many problems in the oral cavity have direct interference in the systemic condition and the dental conduct at home should be essential, based on the sharing of clinical decisions between family and entire care team for the frail elderly.

Introduction

The population of people over 60 years of age is growing faster than other age groups. The World Health Organization projects that the number of elderly people will increase fivefold from 1950 to 2025 [1]. This aging population exhibits an increasing number of pathologies such as arthritis, osteoporosis, heart disease, and degenerative neurological diseases (with a significant prevalence of dementia). All these conditions create the need for a new set of social and health care (according to social status, gender, and others), such as home dental care [2].

Nowadays, home dental care for the elderly is an innovative approach that dentists must adopt and work to create conditions that promote oral health [3,4]. In such cases, the appropriate dental practice aims to carry out dental procedures for patients that increase their quality of life. These procedures may involve different areas including periodontics, stomatology (prevention of mucosal lesions), preventive dentistry and, in some cases, surgery [5-8]. The scope of dental treatment is based on the interaction of all professionals involved at distinct stages, with the focus on patient welfare. With this in mind, dentists should be part of a multidisciplinary team with other health professionals creating a thorough plan together [9].

Elderly patients (partially or fully incapacitated) represent the most massive audience of this care and assistance at home or at the hospital to maintain oral health. The requirement of a health oral status is part of systemic health and should be prioritized in frail elderly in home care [10,11].

The purpose of this review is to describe a different approach in dentistry that promotes dentist adaptation for home dental care. This review presents preventive methods to promote the oral health of the elderly dependent population based on an alternative practice of dentistry. Described herein are all the variables involved in dental home treatment, including knowledge on technical guidelines, professional and social relationships, and the general role of the dentist in contact with debilitated patients.

Methodology

A survey of published studies on home dental practice in the worldwide was carried out. A bibliographic survey was carried out by means of a search strategy based on the terms: home care, geriatric dentistry, home dentistry, frail elderly, systemic diseases, Alzheimer's disease and oral health. The abstracts of the retrieved articles were analyzed to verify compliance with the inclusion and exclusion criteria. The following inclusion criteria were adopted: articles published in English; indexed in Pubmed database from 2001 to 2019. Exclusion criteria were: studies without information on home dental practice and relationship between oral health and the systemic condition of elderly, on sampling and analysis. Considering the scientific bases analyzed, 22 references related to the theme of home dentistry for the elderly met the selection criteria established.

Systemic repercussions and oral health in the elderly patients

Many diseases directly affect the quality of life in the elderly population, such as heart disease, pneumonia, bacterial endocarditis, diabetes mellitus, neurodegenerative disorders, and other age-related diseases. Indeed, health professionals need to be better trained in the gerontological context, and also improvements in health techniques and approaches may contribute to a higher life expectancy of this population. Importantly, most of these diseases present repercussions for the oral cavity, which in turn will require multidisciplinary planning and differentiated service for dental care: homecare for the elderly [1,4,12],.

Arterial hypertension

Arterial hypertension is an asymptomatic disorder characterized by an abnormal elevation of pressure in the arteries and thus increasing the risk of organ system disorders. It represents one of the main causes of death in the elderly population [13]. Patients who control hypertension are considered to have an acceptable risk for dental treatment based on constant blood pressure monitoring during the entirety of treatment at home. According to clinical practice, the administration of high concentrations of vasoconstrictors should be avoided [5,11,13].

Pneumonia

Pneumonia presents with high frequency in totally or semi-dependent elderly patients, due to the aspiration of contaminants present in the oral cavity, specifically the biofilm and accumulation of food debris on the tongue near the oropharynx. Thus, it is crucial to maintain the oral health of these patients in order to minimize or eliminate these microbial reservoirs present in the oral cavity employing preventive dental procedures at home [7,12,14].

Poor oral hygiene and health represent a significant risk factor for contamination. The aspiration of microbial components presents in the buccal cavity associated with the difficulty of swallowing promotes contamination in the lower respiratory tract of the elderly. Meanwhile, (in)dependent patients with dental prostheses present the relatively common situation of a compromised respiratory tract due to the incorrect hygiene of dental prostheses, leading to the increased formation of biofilm on its surfaces, which can be aspirated. Thus, there is a great need to institute preventive policies and guidelines for health and hygiene of oral tissues and teeth in addition to the tongue and prostheses for the family and homecare providers of the elderly [2,5,6,14].

Bacterial endocarditis

Bacterial endocarditis is a severe disease characterized by infection of the heart valves or endothelial tissues of the heart. Its development is related to bacteremia and can occur in the more vulnerable elderly due to its direct relation with infectious foci present in the oral cavity, leading to a considerable risk of death. In this context, dental professionals must pay attention to all invasive procedures that can be performed on these patients, mainly at home. These procedures must be performed safely in order to prevent the onset of this disease, especially in elderly patients already undergoing heart surgery and who are dependent on their homes. Antibiotic prophylaxis should be considered before dental procedures that are regarded as invasive. In addition, the planning and execution of the treatment should be multidisciplinary, mainly linked to the doctor responsible for the patient [11,15].

The American Heart Association recommends as antibiotic prophylaxis to prevent the development of infectious endocarditis in high-risk cardiac patients; being amoxicillin as the first choice (2 g) and clindamycin the second (600 mg), both administrated one hour before the dental procedures. However, all recently reported studies support that the actual guidelines for antibiotic prophylaxis should be modified to the actual knowledge of science. Probably, amoxicillin associated with clavulanic acid should be included considering its high susceptibility to bacteria associated to oral, genitourinary, and gastrointestinal infections and its low antibiotic resistance [16].

Diabetes mellitus

Diabetes mellitus is a disorder in the metabolism of organic glucose, affecting millions of individuals, including elderly patients. Elderly diabetics patients have a high risk

of manifesting periodontal disease, involving bone loss and gingival recession, culminating in the rapid and aggressive loss of tooth support. Some clinical signs and symptoms are quite evident, including xerostomia, burning mouth syndrome, erythema, and altered taste. Thus, oral healthcare at home, such as the correct use of artificial saliva and oral antiseptics, should be instituted to minimize these signs and symptoms. Guidelines on oral health for caregivers and dental professionals who visit the fragile elderly at home may favor the stabilization of signs and symptoms, as well as eliminate and control the inflammatory, infectious and pain foci present in the oral cavity of these patients [12,17].

Dementia & alzheimer's disease

Dementia is a neurodegenerative disorder that affects memory, learning, emotional stability, and the ability to communicate. According to the progression of the disease, these patients become more and more unable to continue certain activities, such as primary personal care (bathing and oral hygiene), thus requiring in-home support. In advanced stages, patients lose the motor and cognitive coordination required to perform adequate hygiene, contributing to the appearance of periodontal diseases, dental caries, and mucosal lesions due to improper use of prostheses. In these cases, the dental professional is the health professional most qualified to assist in preventive oral health activities at home [2,7,10,18].

It is very important to know the stages of dementia for correct and interdisciplinary planning of oral health actions. The main objective in home care is to promote oral health and quality of life, that is, elimination of foci of infection, inflammation and pain that may interfere with the systemic condition. The moderate and final stages of dementia are those that require interdisciplinary support from home dentistry [19].

Dental homecare

Performing dental homecare involves professional responsibility and respect for patients. Dentists must become flexible with traditional training standards and adapt themselves to each patient's environment, including all the possible difficulties it might present, in order to provide healthcare as a whole (Figure 1) [1,5,11].

Knowledge of biological, clinical, historical, psychological, economical, and social aspects of the patient is needed for a dentist to develop a humanized relationship [20]. Therefore, it is possible to acquire this knowledge with detailed anamnesis, compiling personal, clinical, familial, and medical data. Discussions on pathology, pharmacologic interactions, and oral impacts require that the dentist remain current in order to design effective treatment. The advantages of this type of care for elderly patients and their families include accessibility to treatment within the residence or at the hospital, which favors an increase in credibility and safety. However, some of the disadvantages are related to the unknown and sometimes inadequate home environments, poor professional ergonomics, the limited number of clinical procedures that can be performed

and the significant shortage of professionals with expertise and skills for this type of differential treatment [1,4,8].

Multidisciplinary team-interdisciplinarity

Importantly, another necessary directive is the ethical conduct of dentists in this type of care. Since the patient may not have the autonomy, the final decisions on dental treatment have to be authorized by a competent and liable proxy. The dentist is responsible for creating and performing the terms of consent with the medical group. In these terms, an efficient treatment plan must be explicit with a detailed clinical development sheet, specifying each procedure that will be performed [2,5,7,8,12]. Such procedures provide credibility to the dentist and health professionals involved, thus maintaining a multidisciplinary relationship (Figure 2). For this reason, the interaction with medical professionals (geriatricians, psychiatrists, general practitioners), psychologists, audiologists, physiotherapists, case-workers, caregivers and especially the family, is the dentist's responsibility [6,10].

Quality of life, a personal commitment in the continuous search for a healthy life, has been a constant concern of the human being. In terms of the use of health services, health professionals should work together with the medical staff



Figure 1: Professional adaptation. Local anesthesia.



Figure 2: Professional adaptation. Oral examination with environmental clarity and professional work aide.

and any other health professionals involved and the family responsible for the patient. Dental professional at home can provide health services and improve the quality of life [3,11,12].

Planning and performing dental treatment

The promotion of oral healthcare is the main way to prevent dental problems in these patients. The constant need for guidance in preventive methods and clinical actions is motivated by the professional's difficulty in controlling or resolving painful symptoms in most cases [6,7]. The main pathologies found during dental homecare visits to elderly dependents are: 1) microbial plaque, 2) periodontal disease, 3) tooth loss due to periodontal disease and cavities, 4) poorly fitted and sanitized dentures, 4) denture injuries, 5) oral habits and 6) oral repercussion of systemic pathologies. Hence, the main areas of expertise are related to prevention, periodontics, prosthodontics, stomatology, and surgery [20,21].

Dental homecare should plan only essential procedures in a well-designed manner with other health professionals and family [10,14]. Dental homecare treatment should aim to address oral functions such as chewing and speaking, by eliminating any focus of infection or pain. Preventive actions in dental home healthcare are related to the prevention of the occurrence of fatal diseases. These actions have a systemic impact by preventing bacterial endocarditis (dental infection focus), aspiration pneumonia (aspiration of oral fluids with a high bacterial concentration due to an inability to swallow) and nosocomial pneumonia (acquired in the hospital environment, due to the lack of an active policy to prevent the oral transmission of pathogens) [11-15, 20,17].

Several clinical and dental procedures necessary for these patients do not require the presence of portable dental equipment. Preventive actions, however, require adaptation, skill, and professional dental knowledge. In this approach, the dentist should be prepared to make some adaptations with auxiliary materials during treatment. In this way, the performance of clinical procedures to balance the oral environment such as assisted tooth brushing, oral hygiene guidelines for caregivers (using an electric toothbrush), brushing with fluoride, and restorations using glass ionomer cement are preventive and less invasive. Regarding periodontal pathologies such as gingivitis, periodontitis, and halitosis, a guide for caregivers is recommended. This guide involves the controlled and guided use of chlorhexidine gluconate 0.12% for a previously determined period of time and the use of dental floss soaked in chlorhexidine. These procedures may help reduce plaque, gingival inflammation, and bleeding [6,9,10,22]. In addition, chlorhexidine is one of the most common antiseptic agents with a broad spectrum of action and minimal local and systemic effects. As a final plan of priority, it is essential to connect dental homecare with aesthetic concepts [3,7,14].

Family and caregivers

One of the significant difficulties for implementing preventive action for elderly dependents is their caregivers' lack of specific knowledge. Caregivers are usually nursing technicians who are unprepared to apply basic principles of

oral hygiene, microbial plaque control, and preventive action for the maintenance of oral health. For this reason, caregivers must be trained in the prevention of oral pathologies and the maintenance of oral health procedures. The dentist is responsible for guiding the planning of oral health promotion in these patients by other professionals. In this context, the family forms a significant part in the successful treatment of elderly patients. Their active participation in the care and constant pursuit of knowledge for the sake of the family's health represents a great incentive for professional performance [10,20]. There is a real need for multidisciplinary professionals and interaction with the family as an important factor for the best treatment of patients who need homecare [1,2,4,11,12,13,14,21].

Conclusion

Home dental care for dependent elderly people should be prioritized as an interdisciplinary health action, as many problems in the oral cavity have direct interference in the systemic condition. Should be performed by professionals prepared to adapt the work environment, clinical management techniques and knowledge of main diseases or conditions that affect frail elderly people. Dental conduct at home should be essential, based on the sharing of clinical decisions between family and entire care team for the frail elderly.

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