Review article

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Elderly, ageing and oral fragility

Abstract

Due to the fact that people live longer, population ageing has occurred, thus manifesting chronic diseases that have a multidimensional implication. The different diseases that a person may present can cause frailty and involve the oral health of the elderly. Oral health is related to general health as there is a link that is being analysed today. Thus, the concepts of functionality, geriatric syndromes, general frailty and oral frailty in the elderly must be internalized to carry out timely health care and improve the quality of life of the elderly. Therefore, there is a challenge that dentistry must face, mainly in the Latin American and Caribbean region.

Keywords: ageing, diseases, elderly, oral health, edentulism

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Abbreviations: WHO, world health organization; LA, Latin America; CEPAL, economic commission for Latin America and the Caribbean; OHIP, oral health impact profile

Introduction

Ageing is expressed as the gradual and irreversible changes in the structure and function of an organism that occur as a consequence of the passage of time.[1] Old age is the stage of life, beginning, depending on the legislation of each country, at 60 or 65 years of age.[2] In 2021, the International Classification of Diseases and Related Health Problems, CIE-11, considered old age within "general symptoms", generating a debate and global rejection of the decision taken by the World Health Organization (WHO) because ageism would be perpetuated however, it was finally decided that the most appropriate term to replace old age is "Decreased capacity intrinsic associated with ageing"[3] a term that the community has accepted. Old age is a physiological stage, and the nuance must be made between old age as a normal physiological process and pathological or deleterious physiological ageing. The term "frailty" has growing evidence-based support since it provides greater precision when defining the condition of the person who does not enjoy physiological, non-pathological ageing.[4] All this debate is necessary since the population is experiencing greater longevity, and it is necessary to broaden these topics, even more so since elderly population are functionally affected by highly prevalent chronic diseases. The ageing process in elderly must be understood from different perspectives: from geriatrics, gerontology- an area that studies the processes and problems of ageing, political, social and economic aspects. The review's objective is to address the relationship between ageing and oral fragility, all in the context of the oral health of the elderly.

Population ageing

Many countries in Latin America (LA) and the Caribbean are experiencing accelerated ageing. This multidimensional phenomenon is addressed by organizations such as the WHO, WHO for the Americas and the Economic Commission for Latin America and the Caribbean (CEPAL). In 2022, the programming of the "Decade of Healthy Aging" began, declared by the United Nations Organization, where priorities are pursued, such as collecting better global data on healthy ageing or launching a global campaign to combat discrimination by age,[5] to broaden the perspective of the ageing population.

In the LA and Caribbean region, the prevalence of elderly is 12.3%, and it is projected that by 2030 it will be 16.4%.[6] Ageing has caused changes in the population pyramid, where it is estimated that for the year 2047, the number of elderly populations aged 60 will exceed the number of children between 0 and 14 years of age for the first time, that is, the end of the demographic dividend.[6] This ageing is a consequence of the evolution of the components of demographic change, fertility and mortality, and migratory changes, and mainly due to the increase in life expectancy at birth, from 73.8 years for both sexes in 2022 to 89.1 years for women and 85.4 years for men by the year 2100.[7] The trend of five more years of life in women occurs globally due to biological factors, differences in behaviours related to health, differences in diet, frequency of medical visits and fewer comorbidities.[8] The SARS-CoV-2 pandemic reduced life expectancy at birth by 2.9 years, with the population data for 2019 and 2021 going from 75.1 years in 2019 to 72.2 years in 2021, making LA and the Caribbean the world region that lost the most years of life expectancy as a result of the pandemic, however, the rate of growth is projected that the population will return to the levels before the pandemic, which implies a series of challenges for public policies, especially concerning pensions, care and health.[7]

Oral health in the elderly

Ageing is strongly associated with the development of chronic diseases and age-related health conditions, which negatively affect elderly population health and quality of life, even more so in LA and the Caribbean, with a high disease burden.[9] For example, according to the 2017 National Health Survey in Chile, 61% of elderly population enrolled in the public health system have not visited a dentist in the last year, and 3.1% have never seen one. The prevalence of total edentulism in the age group between 65 and 74 years is 17% and increases to 41% in those older than 75. The prevalence of partial edentulousness in the age group between 65 and 74 years is 79% and decreases to 57% in those over 75 years of age, but probably because total edentulousness increases.[10]

With regards to partially edentulism, less than 20 remaining teeth is considered non-functional dentition. There is an increase in non-functional dentition, which has less than 20 remaining teeth, there is an increase in non-functional dentition at an older age, where it reaches 81% of elderly aged 65 and is inversely proportional to the number of years studied. 65% of the 65-year-old elderly population use dental prostheses, primarily women, which is also inversely proportional to the years of study.[10]

Oral health impacts the quality of life of the elderly. In a 2020 study, 391 older people, Swedish population ≥65 years, being able

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to understand Swedish and having sufficient cognitive ability, participated and the data were collected via oral health- related quality of life (OHRQoL) that was measured using the Oral Health Impact Profile (OHIP-14). 50% of elderly experienced mouth pain and discomfort while eating, functional limitations such as trouble pronouncing words, and altered sense of taste. 44% of the elderly who perceived their psychological health as quite deficient/poor had a poor quality of life-related to oral health.[11] Neurocognitive disorders are also related to oral health and systemic diseases in the elderly. The relationship between ageing, oral dysfunction and the development of dementia suggests that oral dysfunction is not only the result of dementia in older people but could also be a causative factor in the onset of dementia.[12] This indicates the importance of early detection of oral health problems in elderly and their proper approach, even more so in the population of elderly in the LA region, which has a high burden of disease. The primary diseases and conditions of oral health of elderly are described in Table 1.[13,14]

Table 1 Diseases and conditions of oral health of the elderly

Diseases	Condition of oral health
Periodontal diseases	Root exposure
	Denture stomatitis
	Dental caries
Xerostomia	Hyposialia
	Prosthesis in poor condition / without controls by the specialist
Lesions in the oral mucosa	Epulis
	Fibroids
	Potentially malignant disorders
	Angular cheilitis
	Traumatic ulcers
	Reactional lesions
Oral hypofunction	Poor oral hygiene
	Dry mouth
	Reduced occlusal strength
	Decreased tongue-lip motor function
	Decreased pressure on the tongue
	Decreased masticatory function
	Impaired swallowing function

Functionality, geriatric syndromes, general frailty and oral frailty in the elderly

Functionality is the ability to carry out a habitual activity and maintain independence, being the activities of daily living (ADL) the variable, whether basic (ABVD), instrumental (AIVD) or advanced, and depending on the scale used to measure it, is the score obtained and therefore independence or dependence to perform activities of daily living and therefore the need for help from a third person.[15] Elderly population with physical impairment, such as limited mobility, may have difficulties performing their daily oral hygiene and accessing dental care, directly affecting their oral health.

Geriatric syndromes are disease situations expressed by symptoms or pictures caused by the concurrence of a series of diseases that have their expression through pathological pictures not included in the usual diseases[16] (Table 2).

Table 2 Geriatric syndromes

Geriatric syndromes
Dysmotility
Constipation
Gait disorders and falls
Depression
Urinary and faecal incontinence
Fragility
Dementia and acute confusion syndrome
Sarcopenia - Osteosarcopenia
Cognitive decline
Polypharmacy
Pressure ulcers
Malnutrition

They are the frequent origin of the loss of functionality in elderly. Immobility in elderly that has lost their autonomy is frequently caused by musculoskeletal, neurological, or cardiovascular disorders. A prolonged state of immobility has physical and psychological effects, such as pressure ulcers, decreased bone mineral density, lack of cardiovascular conditioning, impaired lung function predisposing to pneumonia, and lack of environmental stimuli favouring depression, among others. Thus, geriatric syndromes cause elderly population biological and social dysfunction, and it is essential to intervene on time.[16]

Frailty in elderly corresponds to a clinical state where vulnerability to possible stressors occurs, influenced by each person's physiological reserve to deal with this stressor.[17] Thus; there can be robust or fragile elderly. An elderly may begin to have muscle weakness or fatigue, slow motor performance, low physical activity, unintentional weight loss, and possible falls, which predisposes to a disability, hospitalization, long-term care, and possible mortality. Frailty can occur at different levels: mental, social, or functional frailty.[17]

In the cycle of frailty proposed by Fried,[17] due to ageing or some disease, sarcopenia can occur in an elderly that reduces gait speed. If at any time the person stops walking, they may become disabled and functionally dependent, which implies that they would need another person to carry out their BADLs or IADLs; therefore, their activity and energy expenditure decrease, and if this added to this is the anorexia typical of elderly, which is physiological, leading to chronic malnutrition, with inadequate consumption of proteins, vitamins, plus weight loss, which further enhances sarcopenia.

In which part of this cycle does dentistry participate? If the elderly has poor oral health or oral fragility, with edentulousness, periodontitis, oral infections, xerostomia, candidiasis and dental prostheses in poor condition, the elderly will not be able to chew or swallow. Therefore, this will have repercussions on the quality of food, producing alterations in eating patterns since elderly population will prefer soft foods, primarily carbohydrates, to the detriment of proteins, which produces chronic malnutrition and, ultimately, deterioration of general health. Therefore, the oral component and dentistry are essential in this cycle. Thus, it is shown that oral frailty is a risk factor for general frailty. This is of high clinical relevance since elderly with oral frailty has an increased risk, up to 2.4 times, of physical frailty, sarcopenia, disability, and mortality.[18]

Thus, referral to dentistry for evaluation, correct diagnosis and treatment that restores oral functionality is a priority in elderly to

prevent sarcopenia and frailty in the early stages, based on the frailty cycle and in the concepts of oral hypofunction.[19] Dentistry should also refer to geriatrics promptly when investigating geriatric syndromes.

Comorbidities can trigger poor physical functioning and limited self-care capacity in frail elderly, affecting oral health status.[13]

The role of dentistry concerning ageing should be the maintenance of the natural dentition in the elderly and not favour tooth loss, achieve a better quality of oral life and restore oral functionality if lost. This is done through health promotion, prevention, and proper dental treatment, focusing on people at risk of oral diseases. The idea is to raise the population's oral health level and retain 20 or more natural teeth until 80 to maintain chewing capacity, as practised in Japan.[20]

Conclusion

The relationship between ageing and oral fragility must be addressed in a multidimensional way to improve the quality of life of the elderly. The high burden of periodontal disease, caries, edentulousness and lesions in the oral mucosa in elderly implies a challenge for the LA region and the Caribbean, a challenge that dentistry can and should lead to.

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Conflicts of interest

The author declares no conflict of interest.

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