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Healthy Aging Begins With Oral Health: Addressing Well Being And Emerging Needs In Geriatric Dentistry

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ABSTRACT:

Geriatric oral health has become an important public health concern due to the rapidly increasing aging population worldwide. According to the World Health Organization, the proportion of individuals aged 60 years and above is steadily rising, increasing the demand for healthcare services tailored to the needs of older adults. Oral health is a fundamental component of general health and quality of life, as it influences essential functions such as chewing, speaking, and social interaction. Therefore, maintaining optimal oral health in geriatric individuals is essential for promoting overall health, preventing complications, and improving their quality of life, highlighting the need for effective preventive, diagnostic, and management strategies in geriatric dental care. Due to the continuous advancements in technology and science that are enabling us to live longer, the older adults in our world today must be embraced by the health care system and have access to high-quality, professional health care through greater accessibility to health care services. With a longer expected lifespan there will also be an increase in an individual's ability to maintain good health and quality of life as well as improve their quality of life in regard to oral health. This research aimed to explore how the aging process affects an individual's general well being and oral health related quality of life and emphasize the importance of dental treatment among older adults. There exists abundant research demonstrating that individuals with periodontitis may be at greater risk for developing certain systemic diseases due to their poor oral health, as well as presenting with chewing and nutrition-related issues that can greatly diminish their overall quality of life.

KEY WORDS :Oral health,quality of life,age related changes,edentulism,complete denture,nutritional.

INTRODUCTION :

According to the World Health Organization (WHO), health is a complex mix of many things - not only being healthy physically, mentally and socially but also not being sick (having no illness).The concept of Geriatric Health is beginning to attract the attention of Health Care Professionals all over the world, and WHO is currently working on creating plans to help improve the oral health of Older Adults.However, older adults are more susceptible to various oral conditions including dental caries, periodontal disease, tooth loss, xerostomia, oral mucosal lesions, and oral cancer. These problems are often compounded by systemic diseases such as Diabetes Mellitus, Cardiovascular Disease, and Alzheimer's Disease, which may have a bidirectional relationship with oral health. Additionally, factors such as polypharmacy, reduced manual dexterity, cognitive decline, limited access to dental care, and

socioeconomic barriers further contribute to poor oral health among the elderly. In India, 7.7% of the population are Older Adults. Geriatric Medicine in India is still in the early stages of development, and Geriatric Dentistry has yet to become a sub specialty. This increase in life expectancy among Older Adults (now referred to as the Elderly) is creating an increased demand for general as well as dental care for Older Adults. Dental Professionals will have to take actions to preserve natural teeth by implementing preventive techniques.^{1,2} Increased/Improved healthcare facilities are likely to contribute towards the increasing life expectancy among Older Persons. , Successful Aging is defined as maintaining good quality of life throughout life. Furthermore, Oral Health problems in this Age Group can cause great difficulty performing even Simple Daily Tasks, such as: Chewing food; Speaking; Maintaining good overall health; Maintaining an adequate diet (proper nutrition;) in addition to resulting in emotional, social and low-self-esteem problems.

Missing teeth contributes to an overall lack of nutrition among older adults as well. The issue is compounded when dental prosthetic are not placed, restoring the role of mechanical chewing. Healthy tissue increases the likelihood of successful prosthodontic rehabilitation for older adults. Along with other variables, such as diet and financial resources (which greatly impact dietary choices), prosthetic rehabilitation may restore or improve the mechanical ability to chew for those with partial or total tooth loss³

The elderly can suffer from a variety of chronic illness that can impact not only their oral health but also their overall body health (systemic). This report will summarize many of the different oral health issues in elderly dental patients, such as oral mucosa diseases; infections; teeth, gums, and salivary glands; etc. There are also many systemic health issues in elderly dental patients such as hypertension; diabetes; cardiovascular disease; and neurological disease, Endocrine disorders etc.

The purpose of this paper is to describe the oral and systemic changes associated with Human Aging, and how those changes affect the Quality of Life of an Aging Individual^{4,5}

The Elderly Segment Of Population:

1. Those who are 65-74 years of age are considered to be "younger" elderly
- 2.. Those who are 75-84 years of age are considered to be "older" or "middle-aged older adults". These range from "healthy and active" to "struggling" with multiple chronic health conditions;
3. Those who are 85 years and older are considered to be "oldest older adults", They suffer from multiple types of health problems, and thus many of them are deemed to be "less agile" and more physically challenged.

In the past decade, due to certain reasons there has been a dramatic growth of the "over 65" population in India.⁶

Geriatric patient assessment:

The assessment tool is multifaceted and is commonly known as OSCAR - Oral, Systemic, Capability, Autonomy, and Real World. Using the Clinical Frailty Scale and Care Dependency Scale can help assess how frailty, care dependency, and disability impact a person's ability to properly maintain their oral health so that suitable treatment plans can be developed and serve as a baseline to help achieve success. It is the first step in managing these individuals.^{7,8}

The Geriatric' 5 Ms' is a simple framework used to guide healthcare for older adults.[Mind,Mobility,Medications,Multi complexity,Matters most]⁹. the model helps the early detection of risks like falls,confusion,or drug interactions.

Tools for medication/ polypharmacy assessment :

The increased risk for drug-related complications are more seen in geriatric population. Most common problems among the elderly population include adverse drug reactions and polypharmacy.Absorption,distribution,metabolism,and elimination of drugs are influenced by physiologic aging of an individual.

Another Europe based tool in 2014 is called the Screening Tool of Older Person's Prescription(STOPP) and the Screening Tools to Alert Doctors to Right Treatments criteria of potentially inappropriate and underused medications for the elderly population.STOPP and STAR were designed to be used together medication for elderly people.¹⁰The Beers criteria assist healthcare providers in improving medication safety in older adults.others such as AROMOR tool [assess,review,minimize ,optimize,reassess] can be utilized in polypharmacy.The goal of this tool is improve the functional status and decrease the hospitalization.¹¹

Age related oral and systemic considerations in elderly population:

Oral Considerations:

Age Changes in oral mucous membrane:

The epithelial and connective tissue layers in the oral cavity (oral mucosa) serve as the body's defence to protect against diseases.¹²Epithelial thinning and less flexible mucosa occur as the individual ages, making the oral mucosa thinner and smoother, drier, and more likely to be injured. If oral cancer or pre-cancer is diagnosed early and treated quickly, the prognosis will be improved.¹³

The oral mucosa thins and becomes smooth and "satiny" as a person ages along with being less elastic and stippled. The tongue appears to undergo different clinical changes as well; it becomes increasingly smooth, with fewer filiform papillae, as the individual ages. Age also is associated with an increased

incidence of sublingual varices (large surface veins under the tongue) and a greater number of pathological conditions (for example, candidal infections) associated with an increased inability to heal after surgery or trauma.

Aging and oral infections:

The oral cavity, as well as the gingival crevice and oropharynx, are act as a natural habitat for mouth-associated microbes.¹⁴ The mouth is home to an abundance of microorganisms that cause numerous infections. These microorganisms can directly invade surrounding tissues, enter through the bloodstream, or travel through lymphatic vessels, causing infections or inflammation in other parts of the body.¹⁵ Elderly patients with reduced defence mechanisms are at risk of opportunistic fungal, viral, and bacterial infections. **Candidiasis** is the most common cause of fungal infections in elderly patients, and denture wearers are at greater risk for the colonization of *Candida* species due to lack of oral hygiene and/or immune system suppression. There are a number of viral infections that can result in localised skin and mucosal infections as well as systemic diseases. Recently, **Herpes viruses (HSV)** have been linked with several different diseases including **diabetes mellitus, myocardial infarction, skin cancer, and Alzheimer's disease.**¹⁶ The reactivation of the **varicella zoster virus** (an infection of shingles) is common in the elderly, and may cause complications like **postherpetic neuralgia**, which can last from months to years. The link between oral infections and cardiovascular disease has been established in studies that show the relationship between oral infections and the potential risk for **atherosclerosis.**¹⁷ The periodontal bacteria *Porphyromonas gingivalis* have been found in atheromatous plaques and *Streptococcus sanguis* may be associated with increased risk of **thrombosis**¹⁸. Clinicians should strongly encourage elderly patients with oral infections to obtain dental treatment as soon as possible.

Candidal infection:

The Candidal infection is caused by the fungus *Candida albicans*. Commonly observed features include creamy white or yellowish plaques on the oral mucosa, tongue, palate, or inner cheeks that can often be wiped off, leaving a red or bleeding surface beneath. Patients may complain of burning sensation, soreness, altered taste, and difficulty in eating or swallowing. In some cases, the mucosa appears erythematous and inflamed, particularly on the palate or dorsum of the tongue. Angular fissures and redness at the corners of the mouth may occur in a condition known as Angular Cheilitis. Chronic forms may present as persistent white plaques that cannot be easily scraped off, as seen in Chronic Hyperplastic Candidiasis. Denture wearers may develop redness and inflammation beneath the denture base, referred to as Denture Stomatitis. These clinical manifestations are commonly associated with factors such as immunosuppression, prolonged antibiotic use, xerostomia, diabetes, and poor oral hygiene. In elderly individuals, the presence of Candidal infections is frequently associated with an alteration in oral (buccal) flora as a result of polypharmacy or the use of other agents such as corticosteroids, dry mouth (xerostomia), immune deficiencies, and/or immune suppression (e.g., due to blood disorders, diabetes)

among other conditions. Candidal infections can be diagnosed based upon the characteristic signs/symptoms of this infection and treated by addressing the conditions that pre-dispose the elderly person to candidiasis as well as antifungal treatment options. The trade names of antifungal products used for the treatment of Candidal infections include oral suspension, lozenge, gel, or tablet dosage forms.¹⁹

Aging of salivary gland disorders:

Due to the growing number of older adults and increased life expectancy, dry mouth is now a significant health issue for the elderly population. Many older adults are particularly vulnerable to xerostomia and salivary gland hypofunction due to the high prevalence of these issues among older adults.²⁰ There are several common etiological factors that contribute to dry mouth, including polypharmacy (multiple medications), polypharmacy associated with using antihypertensive and antidepressant medications, poor health status, gender (being female), and advancing age. While dry mouth usually has a detrimental effect on a person's oral and overall quality of life, there are still limitations on available treatment options for dry mouth. While there are two main treatment modalities for dry mouth (artificial saliva and salivary stimulants), both modalities have resulted in low success rates for managing xerostomia. Therefore, management of dry mouth most often focuses on providing palliative care, as well as preventative measures to alleviate discomfort and reduce the risk of complications such as caries (dental cavities), periodontal disease (gum disease), and candidiasis (yeast infection).²¹

Burning mouth syndrome:

Burning Mouth Syndrome (BMS) is characterized by a persistent burning, scalding, or tingling sensation in the oral cavity without any obvious clinical lesions or identifiable medical cause. The discomfort most commonly affects the tongue, especially the tip and lateral borders, but it may also involve the lips, palate, and buccal mucosa. Patients frequently report symptoms such as dryness of the mouth despite normal salivary flow, altered or reduced taste sensation, and a metallic or bitter taste. The intensity of the burning sensation often increases as the day progresses and may be temporarily relieved while eating or drinking. In most cases, the oral mucosa appears clinically normal on examination, which makes diagnosis challenging. The condition is more commonly observed in middle-aged and elderly individuals, particularly women, and may be associated with psychological factors such as anxiety, stress, or depression. Burning mouth syndrome (BMS) is categorized into two types, primary (due to central neuropathic mechanisms) and secondary (due to local, systemic or psychological reasons).²² Previous studies have associated BMS with many other conditions including a wide variety of fungal infections, geographic tongue, lichen planus, oral carcinoma and microtrauma. BMS is commonly seen in the elderly patients with other systemic diseases (such as) diabetes, GERD, hypertension, autoimmune diseases, and nutritional deficiencies (such as) iron deficiency, vitamin B12 deficiency, and folate deficiency.

Clinically, BMS is characterised by either a continuous or periodical increase of localised burning sensations, most frequently in the anterior one-third of the tongue, followed by the gingiva and palate. Although not an isolated cause, it is believed that altered sensory function of the tongue has contributed to the pathogenesis of BMS.²³

Oral cancer:

Oral cancer is a major concern in geriatric oral health because its incidence increases significantly with advancing age. The majority of oral malignancies occur in individuals over 60 years of age, making older adults a high-risk population. More than 90% of oral cancers are oral squamous cell carcinomas, arising from the mucosal epithelium of the oral cavity. Common sites include the lateral border of the tongue, floor of the mouth, buccal mucosa, gingiva, and palate. In elderly patients, delayed diagnosis is common due to lack of awareness, reduced access to dental care, and the tendency to ignore painless early lesions, which contributes to increased morbidity and mortality.²⁴

Age-related physiological changes in oral tissues, cumulative exposure to carcinogens, and systemic health conditions all contribute to the higher prevalence of oral cancer in the elderly. Long-term tobacco use, including smoking and smokeless forms, remains the most significant risk factor. Alcohol consumption acts synergistically with tobacco, greatly increasing cancer risk²⁵. In many populations, especially in India, areca nut and betel quid chewing further elevate the risk. Additional factors such as chronic irritation from ill-fitting dentures, poor oral hygiene, nutritional deficiencies, immunosenescence (age-related decline in immune function), and systemic diseases may also predispose elderly individuals to malignant transformation.²⁶ Human papillomavirus (HPV) infection is increasingly recognized as an etiological factor, although it is more common in oropharyngeal cancer. Biopsy and histopathological evaluation remain the gold standard for diagnosis²⁷. Imaging modalities such as CT and MRI are used to assess tumor extent and nodal involvement. Staging is done using the TNM classification system, which guides treatment planning. Management of oral cancer in geriatric patients requires a multidisciplinary approach. Treatment options include surgery, radiotherapy, chemotherapy, or combined modalities. However, treatment planning must consider the patient's general health status, nutritional condition, cognitive function, and ability to tolerate aggressive therapy. Elderly patients may experience more treatment-related complications, such as mucositis, xerostomia, osteoradionecrosis, and impaired wound healing. Therefore, preventive dental care, elimination of potential sources of infection, and careful oral rehabilitation are essential components of management. Prevention and early detection are crucial in geriatric oral health care. Regular oral screening, patient education regarding risk factor cessation, and monitoring of potentially malignant disorders such as leukoplakia and oral submucous fibrosis can significantly reduce mortality. Dentists play a vital role in identifying early lesions and promoting healthy aging through comprehensive oral care²⁸

Aging and tooth decay:

In previous decades, loss of teeth as a result of dental cavities was common. Autoimmune disorders, medication side effects, and radiation therapy to the head and neck have all resulted in reduced saliva flow and increased susceptibility to cavity formation.²⁹ However, current clinical practice emphasises minimal intervention, with fluoride supplementing the remineralisation process, resulting in maintaining more of the natural dentition and improving patients' quality of life through better overall health. There is a high correlation between advancing age and increased incidence of root caries. Additional populations such as institutionalised older adults are at even greater risk due to their increased consumption of refined carbohydrates with fewer opportunities for an adequate level of oral hygiene.³⁰

Age changes in TMJ:

The majority of older adults will show radiographic evidence of TMJ disorders, yet only a small percentage will have significant symptoms. This phenomenon could potentially be attributed to the increased functional demand placed on the TMJ relative to its capacity for repair and the remodeling of the joint, resulting in joint degeneration. The most appropriate course of action for patients with minimal clinical symptoms and mild radiographic evidence of a TMJ disorder would be to perform conservative treatment methods, as these patients will typically have self-limiting conditions.

The age-related decrease in the capacity of cartilage and subchondral bone to adapt to increased loading predisposes these patients to further degenerative changes in their TMJs despite their ongoing minimal symptoms. Therefore, it is important to utilize a non-surgical, symptom-oriented approach to treatment, focusing on maintaining function and improving quality of life, rather than utilizing proximal surgical procedures.³¹

Aging and edentulism:

Edentulism reflects limitations in preventive and restorative dental care services. Beyond the loss of teeth, it significantly affects chewing efficiency, dietary intake, speech, facial appearance, and overall general health.

Research suggests that tooth loss may be associated with increased morbidity and may even serve as an indicator of overall health status. In addition, edentulism has been linked to reduced quality of life due to compromised nutrition, social withdrawal, and psychological distress. Epidemiological studies show considerable variation in the prevalence of edentulism across countries.³² These differences are influenced by factors such as access to dental services, availability of public health funding, oral health awareness, socioeconomic conditions, and national oral health policies.

The prevalence of complete tooth loss is particularly high among elderly populations. Studies conducted in different countries have reported varying rates of edentulism among individuals over 70 years of age.

However, in some developed nations, the prevalence has shown a declining trend over the past few decades, likely due to improved preventive strategies and better oral healthcare systems. Severe tooth loss is often observed to increase significantly after the age of 60–65 years.³³ Recognizing its impact, many countries have implemented public health initiatives aimed at preserving natural dentition. For example, certain national campaigns promote the retention of a minimum number of natural teeth into advanced age to maintain functional independence and nutritional adequacy. Collaboration between dental professionals, public health authorities, and community organizations plays a vital role in achieving these goals.

The consequences of edentulism become more pronounced when masticatory function is not restored with appropriate prosthetic rehabilitation.³⁴ Evidence indicates that at least 20 well-distributed functional teeth, ideally in opposing pairs, are necessary to maintain effective chewing ability. Individuals who wear dental prostheses may experience complications such as denture stomatitis, mucosal irritation, and traumatic ulcers, especially when oral hygiene and nutritional status are inadequate. Overall, edentulism remains a significant public health concern, particularly among aging populations. Emphasis on preventive dentistry, early intervention, patient education, and accessible restorative care is essential to reduce its prevalence and associated complications.³⁵

Impact of oral health and mastication and nutrition:

Oral health has a significant influence on mastication and overall nutritional status, especially in elderly individuals. Efficient chewing depends on the presence of healthy teeth, adequate salivary flow, proper occlusion, and coordinated muscular activity. When oral diseases such as dental caries and periodontal disease are left untreated, they may lead to pain, tooth mobility, and eventual tooth loss, all of which reduce chewing efficiency. A decrease in the number of functional teeth, particularly when there are no proper opposing pairs, lowers bite force and limits the ability to grind fibrous or hard foods effectively.³⁶ In addition, conditions such as xerostomia, commonly seen in older adults and individuals taking multiple medications, interfere with food lubrication and swallowing, making mastication uncomfortable and less effective.

Compromised chewing ability often alters dietary habits. Individuals with poor oral health tend to avoid hard foods like fresh fruits, vegetables, and meats, preferring soft, easily chewable items that are frequently rich in refined carbohydrates and fats. This shift in diet can result in inadequate intake of essential nutrients, including proteins, vitamins, and minerals. Over time, such deficiencies may contribute to weight loss, reduced immunity, anemia, muscle weakness, and worsening of systemic diseases such as diabetes and cardiovascular disorders. Poor oral function has also been associated with decreased quality of life, as difficulty in eating can reduce meal enjoyment and social interaction.³⁷ Although prosthetic rehabilitation can partially restore chewing function, its success depends on proper fit, patient adaptation, and maintenance of oral tissues. Even with dentures, masticatory efficiency may not fully match that of

natural dentition. Therefore, maintaining natural teeth through preventive care, early treatment, and regular dental visits remains the most effective strategy for preserving adequate mastication and ensuring balanced nutrition. Overall, oral health plays a crucial role in supporting proper dietary intake, systemic health, and general well-being.³⁸

Systemic considerations:

Systemic considerations in oral health recognize the close relationship between the mouth and the rest of the body. Oral conditions are not isolated; they can both influence and be influenced by systemic diseases such as Diabetes mellitus, Cardiovascular disease, and HIV/AIDS. For example, periodontal disease may worsen glycemic control in diabetic patients, while certain medications can cause xerostomia, increasing caries risk. Effective dental care therefore requires comprehensive medical history taking, risk assessment, and interprofessional collaboration. Understanding systemic health enables dental professionals to provide safe treatment, prevent complications, and promote overall well-being through integrated, patient-centered care.

Cardiovascular disease:

Cardiovascular disease (CVD) refers to a group of disorders affecting the heart and blood vessels. It includes conditions such as Coronary artery disease, Hypertension, Heart failure, and Stroke. CVD is commonly caused by atherosclerosis, lifestyle factors, and genetic predisposition. It is a leading cause of morbidity and mortality worldwide, but many cases are preventable through healthy living and early management.

Dental management of elderly patients with cardiovascular disease should emphasize stress reduction and adequate analgesia to prevent adverse hemodynamic changes. Cardiac reserve is the potential capacity of the heart to function well, beyond its basal level, in response to alterations in physiological demands. Anxiety during dental procedures can result in release of endogenous epinephrine with high blood pressure and precipitate an angina.²³ The use of 2 mL of 2% lignocaine with 1:100,000 epinephrine is considered safe in patients with mild to moderate cardiac disease, as it does not significantly alter blood pressure or heart rate. If angina occurs during treatment, the procedure should be stopped immediately and a short-acting nitrate administered, with supplemental oxygen given for prolonged chest pain. Elective dental treatment should be deferred for at least six months following myocardial infarction due to myocardial instability.³⁹ Patients with valvular heart disease require antibiotic prophylaxis to prevent infective endocarditis. Careful assessment and physician consultation are essential when

treating elderly patients on anticoagulants to balance bleeding and thrombotic risks.⁴⁰ Aspirin should be stopped at least 8 to 10 days before to any surgical procedure to avoid the risk of bleeding. As metronidazole may inhibit the coumarin's effect and penicillin counteract coumarin's effect.

Diabetes mellitus:

Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels due to defects in insulin secretion, insulin action, or both. It mainly includes Type 1 diabetes, Type 2 diabetes, and gestational diabetes. Persistent hyperglycemia can lead to complications affecting the eyes, kidneys, nerves, heart, and blood vessels. Early diagnosis, proper glycemic control, healthy lifestyle habits, and regular monitoring are essential to prevent complications.

Diabetes apparently increases the incidence of oral infections, dental caries, xerostomia, and delayed wound healing because of increased levels of glucose in both saliva and crevicular fluid. However, the vast majority of well-controlled diabetic patients generally tolerate dental procedures without complications if correct protocols are implemented; thus, it is recommended that dental appointments should take place in the morning hours to reduce the stress and anxiety created by the appointment itself, which is thought to result in increased hyperglycemia due to these stress factors.^{39,40} In addition to adhering to proper appointment scheduling practice, it is paramount that prior to treatment initiation, a detailed medical history (including current blood glucose levels and all medications taken for management of diabetes) is obtained from the patient; the patient should also be advised to take their meal and medication as scheduled.⁴¹

Blood glucose should be checked immediately before treatment initiation; in the event of an uncontrolled blood glucose level, all elective procedures will need to be rescheduled and performed at a later date when the patient's glucose level has been sufficiently corrected. The most frequent medical emergency that occurs in the dental clinic setting is the development of hypoglycemia secondary to the patient not eating prior to their treatment after taking insulin; therefore, appropriate and immediate responses receive priority follow-up care, including oral carbohydrates and intravenous glucose or glucagon.⁴²

Hypertention:

Hypertension is a chronic medical condition characterized by persistently elevated blood pressure in the arteries. It is often called the “silent killer” because it may not produce noticeable symptoms. Uncontrolled hypertension increases the risk of heart disease, stroke, kidney failure, and other complications.

It is essential to identify and treat hypertension early, as many patients with hypertension are unaware that they even have it until they receive a routine evaluation. Dental treatments generally require a patient to recline back in the chair, and a sudden change in position can result in orthostatic hypotension. To avoid this condition, the dental provider should gradually elevate the patient's chair to an upright position.⁴³

Patients who are treated with antihypertensive medication will often experience oral side effects such as dry mouth (xerostomia), lichenoid reactions, a burning sensation in the mouth, altered taste sensation, and gingival hyperplasia. There are several different classes of antihypertensive medications, each of which causes a unique set of oral side effects. Diuretics cause dryness in the mouth (i.e., xerostomia),

adrenergic inhibitors can cause dryness, ulcers, and secondary infection, calcium channel blockers can result in gingival hyperplasia, and ACE inhibitors may result in changes in taste and lesions in the oral mucosa. Ibuprofen and naproxen, nonsteroidal anti-inflammatory drugs (NSAIDs), should be avoided when possible because they may interfere with the effectiveness of thiazide diuretics.⁴⁴

Neurological disorder:

Neurological disorders are conditions that affect the brain, spinal cord, and peripheral nerves. They include diseases such as Epilepsy, Parkinson's disease, and Multiple sclerosis. These disorders can impair movement, cognition, sensation, or behavior, significantly affecting quality of life.

Parkinson Disease and Alzheimer's are two neurological disorders that may affect the ability to smell and taste, as well as create other challenges for those with Parkinson Disease who experience tremors and involuntary movement of the jaw when providing dental treatment to these patients.⁴⁵ Therefore it is important that patients with dementia receive individual treatment plans from their dentists, as they are key members of the health care team to help maintain oral health, proper speech development, and aesthetics for these patients. As cognitive and neuromuscular decline can make performing routine oral hygiene dependent on the assistance of caregivers, other considerations should include avoiding the use of local anesthetics containing vasoconstrictors for patients being treated with tricyclic antidepressants in order to avoid potential drug interactions.⁴⁶

Preventive dental care:

Preventative measures against oral diseases continue to be a major initiative for elders given that they generally have greater difficulty with daily plaque control. When oral hygiene habits are supported with specialized toothbrushes and the guidance of occupational therapists, the outcomes of oral care can be enhanced. Individuals who have a diminished capability for self-care should receive increased frequency of professional prophylactic services on a consistent basis. Frequent evaluations of oral health are necessary for all patients, especially individuals who are edentulous, to monitor the presence and extent of lesions related to dentures as well as those seen in other types of oral mucosal tissues that are often found in this population.⁴⁷

The elderly people utilize dental services directly and indirectly in 4 categories, such as illness and health related factors, socio-demographic factors, service-related factors, attitudinal or subjective factors. Counselling and education is very important in elderly patients.

Tell---Show---Do

1. Tell or explain the procedure
2. Show or demonstrate the procedure
3. Finally, the patient can be skilled to do or master the skill without any doubts and mastered

to do on their own

The last step is the most important one if the learner is to develop proficiency.⁴⁷

Counselling and education:

Counseling and education are essential components of preventive dental care for geriatric patients. These approaches focus on improving awareness, promoting healthy behaviour, and enabling elderly individuals to actively participate in maintaining their oral health. Effective communication between the dental professional, the patient, and caregivers plays a crucial role in achieving long-term oral health benefits.

Education involves providing clear and relevant information about oral diseases, their causes, risk factors, and methods of prevention. It should be tailored according to the patient's level of understanding, cultural background, and functional ability. Teaching proper oral hygiene practices, denture care, dietary modifications, and the importance of regular dental visits helps elderly patients adopt healthier routines. Educational strategies may include verbal explanations, written instructions, visual demonstrations, and repeated reinforcement during follow-up visits.

A useful method in patient education is the tell–show–do technique. In this approach, the dental professional first explains the procedure or oral hygiene practice, then demonstrates it using models or clinical aids, and finally encourages the patient to perform the activity independently. This step-wise learning process enhances confidence, skill development, and compliance with recommended preventive measures.⁴⁸

Counselling focuses on motivating elderly individuals to maintain oral health by addressing their beliefs, fears, and misconceptions. It helps patients understand the relationship between oral health and overall well-being, including nutrition, speech, and quality of life. Counselling also supports behaviour modification by encouraging adherence to preventive advice and treatment plans. The involvement of family members, caregivers, and healthcare workers is often necessary to ensure consistent oral care, especially for dependent or medically compromised individuals.

Furthermore, organized oral health counselling programs can contribute to early detection and timely management of dental problems among the elderly population. Community-based education, home care guidance, and institutional support systems enhance accessibility and continuity of care. Overall, counselling and education empower geriatric patients to take responsibility for their oral health, thereby reducing disease burden and improving their functional and psychological well-being.

Mechanical Plaque Removal

Several studies have shown that the utilization of professional dental services is relatively low among elderly individuals, particularly those from socioeconomically disadvantaged groups. The preferred method of brushing for most older adults is the modified Bass (sulcular) technique using a soft-bristled toothbrush. Patients with gingival recession must be advised to use gentle pressure and soft brushes to prevent further recession and cemental abrasion. Plaque retention in the elderly is often aggravated by restorations, missing teeth, gingival recession, and the use of removable dentures. In addition, many elderly individuals experience difficulty in mechanical plaque removal due to reduced manual dexterity,

impaired vision, or systemic conditions such as stroke, Parkinson's disease, or severe arthritis. Therefore, they should be trained and assisted in developing effective brushing habits. Adapted manual toothbrushes or rotary electric toothbrushes may be beneficial for those with diminished dexterity.⁴⁸

Rinses

Therapeutic mouth rinses contain agents that are beneficial to the tooth surface and oral environment. These rinses may include chlorhexidine, sodium benzoate, sanguinarine, fluoride, and other remineralizing agents. They help improve oral health and should be recommended when indicated, particularly for elderly patients who require additional chemical plaque control.⁴⁹

Chlorhexidine

Chlorhexidine rinse is widely used in elderly patients and is primarily indicated for the management of gingivitis. It is effective against a broad range of plaque bacteria and enhances mechanical plaque control efforts. It is especially useful in patients with physical or mental disabilities who may not be able to maintain adequate oral hygiene independently. Additionally, chlorhexidine helps reduce oral mucositis and candidiasis in immunocompromised individuals, such as those undergoing chemotherapy.

Fluoride

Fluoride plays a significant role in preventing dental caries through multiple mechanisms. It becomes incorporated into developing enamel as fluorapatite, enhances remineralization of early carious lesions, and exhibits antibacterial activity. Fluoride can be delivered in the form of gels, varnishes, mouth rinses, or dentifrices. These applications are particularly important in elderly patients who are at high risk for coronal and root caries.

Remineralizing Rinses

Remineralizing rinses are beneficial for elderly individuals who frequently develop new coronal or root carious lesions, especially in cases of severe xerostomia. These agents help replace calcium and phosphate lost from enamel or cementum and are most effective when used in combination with topical fluoride therapy.^{49,50}

Plaque Control for the Elderly with Physical Limitations

Many elderly individuals face challenges in performing adequate plaque control due to reduced manual dexterity or restricted movement of the wrist, elbow, or shoulder. Their plaque removal efficiency can be improved through the use of electric toothbrushes or modified oral hygiene aids tailored to their needs.

Electric Devices

Electric toothbrushes are particularly valuable for elderly patients when used correctly. These devices often have enlarged handles that are easier to grip and are motor-driven, requiring minimal wrist or arm movement. They provide consistent cleaning action and some models are designed to stop automatically when excessive pressure is applied. However, caution is advised in patients with certain cardiac conditions, as improper use may cause soft tissue trauma.

Adaptive Aids

In elderly individuals with weakened grip strength, such as those suffering from arthritis, grasping slender toothbrush handles or floss holders may be difficult. In such cases, the handles can be enlarged or built up to allow easier and more comfortable handling, thereby enabling effective plaque removal.⁵⁰

Denture Care

Many edentulous elderly individuals mistakenly believe that oral care is unnecessary after tooth extraction. However, proper maintenance of dentures and the underlying tissues is essential for oral health. Patients should be instructed on appropriate home care practices and the importance of continued professional dental visits. Dentures should not be worn continuously; removal at night is necessary to prevent tissue damage. Cleaning and gently massaging the tissues beneath the denture at least once daily improves circulation and maintains tissue health.

Government policies and recommendations:

Healthcare providers need to perform systematic and methodical oral exams as well as complete physical exams at least once a year for every patient.

- Healthcare providers should refrain from using prescription drugs that produce dry mouth or, in the case that a prescription drug does produce dry mouth, provide an alternative to dry mouth-producing prescription drugs.
- Healthcare Providers must encourage elderly patients to keep their mouth moist by using water or artificial saliva. Healthcare Providers must implement regular oral health education programs for all elderly individuals and for the caregivers of the elderly.
- Healthcare Providers must encourage elderly patients and their caregivers to maintain a proper oral hygiene and denture hygiene routine.
- Healthcare Providers must encourage caregivers of the elderly to perform the oral hygiene and denture hygiene routines for elderly people.
- Healthcare Providers must encourage elderly patients to avoid excessive amounts of refined carbohydrates

Conclusion:

the ever-increasing global life span, there are many issues that come with getting older, such as oral disabilities or issues that will result from getting older; however, these should never take away from the overall quality of life for an older person. There are many variables surrounding how our health and our ability to perform daily activities will change with age.

Therefore, to provide the best level of care, all healthcare providers must have knowledge about both the dental needs and bodily changes of Seniors. Every provider will have to implement strategies to help promote resiliency and wellness so that each patient receives care tailored to the individual's unique needs and continues to live independently. By providing evidence-based, quality care to the elderly; healthcare

providers can help ensure that elderly patients can achieve their goals in regard to health and live an acceptable quality of life despite age-related impairments.

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