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## REVIEW ARTICLE

### PALLIATIVE CARE DENTISTRY-A GRATUITY FOR GERIATRICS.

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#### Abstract

Palliative care concerns for dealing with patients in the end phase of their life. These patients should receive a treatment which focuses on the prevention and relief of suffering by means of early identification and assessment and treatment of pain and other problems, physical, psychosocial and spiritual. The Dental treatment alongwith consisting of straining curative treatment approaches, also focuses on the improvement of the quality of life. The aim of this paper is to give a view of general dental problems in geriatrics/old age people and their treatments that might not only relieve them of their disease but have a positive impact on their psychology, as during this phase of life our only aim should be to put back a smile on their face.

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#### Introduction:-

Dentists can play an important role in the care of geriatric patients by providing total comfort and care of the oral cavity. A functional oral cavity is very essential for patient's ability to thrive. Palliative care dentistry has been defined as the study and management of patients with active, progressive, far-advanced disease in whom the oral cavity has been compromised either by the disease directly or by its treatment; the focus of care is quality of life.[1] Several debilitating orofacial conditions occur in the elderly, pain being the most common.[2] Hence, alleviation of pain and prevention of infection in the oral cavity should be the main concern in providing total, active comfort for the patient. Through routine assessments and interventions by a dentist on the palliative care team, comfort and care for the patient may be improved by the maintenance of oral hygiene and procedures to hydrate the oral mucosa. In addition, routine dental assessments may recognize dental disease and facilitate dental interventions for caries, periodontal disease, oral mucosal problems or prosthetic requirements. This multidisciplinary approach to palliative care, including a dentist, may reduce the oral debilities that influence the patient's ability to speak, eat or swallow. The prevention of infections, treatment of problems like dry mouth or xerostomia, mucositis and candidiasis as well as the removal of sore spots are some of the important aspects of palliative oral treatment. They can have an immediate positive impact on the patient's personality and boost them with self confidence bringing back their lost

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smile. Changing demographics and improved medical management of disease are placing increasing demands on dental providers for increased knowledge of oral manifestations of systemic disease and their dental management [3].

### **Orofacial Age Changes:-**

‘Oral Cavity’ is a mirror of one’s health. Ageing not only affects the body but it can lead to oral disease, discomfort and poor appearance making older people susceptible to a wide array of discomfort and psychological trauma. Oral cavity shows various degenerative changes as age progresses. Few of these changes may be correlated to one or more diseases that a person has acquired over a life time or to drugs given to treat these diseases. However, some changes are physiological and result simply as a consequence of increasing age. Age-related oral changes are seen in the oral hard and soft tissues as well as in bone and the oral mucosa [4]. The different structures in the mouth, go through several changes as enumerated below:

### **Teeth:-**

Normally absorption of certain elements from saliva keeps a tooth strong enough, healthy and able to oppose diseases. As age increases, enamel undergoes attrition, and this results in alteration in the mechanical characteristics of the tooth, which consequently leads to changes in diffusion conditions leading to lesser absorption by the tooth [5]. This ultimately results in weaker and brittle teeth that are more prone to fracture and decay. With advancing age, wearing away of the surfaces of teeth by attrition and erosion leads to sensitivity to hot and cold. The age-induced changes occurring in dentine are much more obvious, the biological properties of this hard substance being fundamentally altered. Dentine of older people is characterized by the continuous narrowing of the lumen of the dentinal tubule, increasing calcification, reduction in the amount of peritubular fluid and reduced sensitivity [5]. This is more aggravated by the fact that lowering blood supply and increasing collagen content weaken the response of the tooth tissue to any kind of injury and its ability to repair or heal itself. Because of these changes, hard foods that did not cause any problems before cause cracks in the teeth and bits to be scraped off. Gradual narrowing of the circumference of the pulp volume, decrease in pulp density and dystrophic or degenerating calcifications are also noted alongside compression of collagen fibres [6]. With increasing age, people become less able to practice proper dental care because of disabilities, which can contribute to further problems like pulpal pathology and caries. The above mentioned changes in the aged tooth add on to the effects of cancer therapy in a geriatric cancer patient. Patients undergoing head and neck radiotherapy are at life-long risk of developing osteoradionecrosis; subsequently, dental management protocols prior to radiation often entail aggressive approaches such as extractions [7]. Also, many older people have more plaque build-up on their teeth. This is not because of their age. It’s related to other physical changes that can make it more difficult to brush and floss every day. For example, people with arthritis or neurological problems may not be able to clean their teeth as well, or they may forget to do it.

### **Adaptative changes in oral mucosa:-**

Tissues within the buccal cavity also undergo changes with ageing, which are observable in clinical practice [8]. Changes occur in arteries of the oral mucosa. With age oral mucosa loses its elasticity and becomes inflexible. However, gradual loss in substance of tissue in the insides of the mouth and jaw bone with age can cause increasing difficulty in the form of denture instability for denture wearers.

### **Mucositis:-**

Mucositis is the painful inflammation and ulceration of the mucous membranes lining the digestive tract, usually as an adverse effect of chemotherapy and radiotherapy treatment for cancer [9]. Cancer treatment may often lead to oral mucositis. In older age, because of some oral or paraoral diseases, patient might receive chemo or radio therapy which along with unhealthy nutrition can lead to mucositis and stomatitis causing generalised soreness of oral mucosa and changes in sense of taste and smell. Chemotherapy acts on tissues that have a high rate of mitosis, and the oral cavity is frequently affected. Oral mucositis affects almost all patients undergoing high-dose chemotherapy and Hematopoietic Stem cell Transplantation (HSCT), 80% of patients with malignancies of the head and neck receiving radiotherapy, and a wide range of patients receiving chemotherapy [11]. Reducing mitosis causes atrophy of tissues leading to ulceration, which may be further complicated by microbial invasion [12]. Mucositis occurs within 5–7 days of chemotherapy with drugs such as 5-fluorouracil and methotrexate, which are potent mucositis agents. With 5-fluorouracil (5-FU), up to 40% cancer patients get mucositis [11]. Radiotherapy to the head and neck is associated with Grade 3 and Grade 4 oral mucositis in which the patient is unable to eat solid food and unable to

consume liquids respectively [11]. The above mentioned changes in the oral cavity combined with several factors like medications and denture wearing in geriatric cancer patient further results in a loss of appetite.

#### **Candidiasis:-**

The incidence of candidiasis in palliative care patients has been estimated to be 70% to 85% [1]. poor oral hygiene, xerostomia, immunosuppression, use of corticosteroids or broad-spectrum antibiotics, poor nutritional status, diabetes and the wearing of dentures may often predispose to oral candidiasis. *Candida albicans* is the most common infectious organism encountered in candidiasis. It is a natural inhabitant of the oral cavity whose overgrowth is normally suppressed by other nonpathologic microorganisms and natural host defense mechanisms. The mere presence of a positive culture without clinical symptoms is not indicative of *Candida* infection [13]. In palliative care patients, candidiasis is primarily a result of xerostomia. Results of a previous study done to determine the epidemiology, aetiology, clinical features and microbiological aspects of oral candidosis in a cohort of cancer patients receiving specialist palliative care showed 66% of the patients had microbiological evidence of oral yeast carriage, whilst 30% of the patients had combined clinical and microbiological evidence of oral candidosis [14]. Oral candidosis is relatively common in community-based patients with advanced cancer. Hence, such patients should be screened for oral candidosis and should also be screened for reversible factors that predispose to oral candidosis, such as poor dental hygiene and salivary gland dysfunction

#### **Xerostomia:-**

Dry mouth is very common in older people. It is usually a side effect of medicines. Hundreds of medicines can cause dry mouth. Salivary flow is decreased in old people causing a condition known as Xerostomia. Also radiotherapy to treat cancers of the head and neck results in xerostomia due to destruction of the salivary tissues within the treatment zone. The decrease in lubrication and the protective agents in saliva render the tissues more susceptible to trauma and invasion by pathogens. The tissues become ulcerated and erythemic [1]. Because of the ageing population, and the concomitant increase in medicated individuals, dentists can expect to be presented with xerostomia in an increasing number of patients in the coming years and therefore should be familiar with its diagnosis and treatment [16]. Oral soft tissues become thinner, are less hydrated and elastic, are more susceptible to infection, and require a longer time to heal as age progresses.

#### **Bone:-**

Loss in bone mass can result with age, which can cause osteoporosis (reduced bone formation). Loss of alveolar bone (part of the jaw that contains teeth) causes loss of facial height which makes a person look older than he/she is. The loss of bone also makes the lips fall in causing wrinkles to appear around the lips, making smile lines deeper and making the face sag. This appearance is more pronounced in people who have lost all of their teeth or a great number of them. Dental practitioners need to be able to identify what is considered to be within the normal physiological limits of the ageing oral tissue and hence what is abnormal and requires further investigation to facilitate appropriate referral. Osteonecrosis of the jaw has been described in geriatric patients taking bisphosphonates after oral surgery procedures, including the placement of dental implants [17]. Long term administration of bisphosphonates, especially intravenous preparations results in a condition called Bisphosphonate-Related osteonecrosis of the Jaws (BRONJ) [18].

#### **Psychological Changes:-**

One should keep in mind that any kind of pain or discomfort has a huge negative impact on the patient's psychology. Along with treatment of pain, what is required in such patients is a psychosocial counselling as in such phase of life; even the slightest of discomfort can make one think of big problems. It is also important for the dentist to counsel the patient before and after the treatment and educate them about the care to be taken from their side. Nowadays, novel approaches to hospital palliative care are formulated that suggest an expanded role for counsellors. It is unique in that the approach has a strong counselling base in providing the palliative service, rather than major reliance on advance practice nurses or palliative physicians. The counsellors spend the hours needed to assist families in making difficult end-of-life decisions.

#### **Medications and Oral Side Effects:-**

Older adults are likely to take medications that can impact oral health and affect dental treatment. Hundreds of common medications - including antihistamines, diuretics, pain killers, high blood pressure medications and antidepressants - can cause side effects such as dry mouth, soft tissue changes, taste changes, and gingival overgrowth. A chief medicine that leads to xerostomia is, to mention a few, Antihypertensive, diuretics,

antidepressants, antihistaminic and radiation therapy too. Unfortunately these drugs are prescribed to adults very often and hence xerostomia is considered as a disease of geriatric patients.

#### **Concerns for Older Women:-**

Women who are menopausal or post-menopausal may experience changes in their mouths. Recent studies suggest that estrogens' deficiency could place post-menopausal women at higher risk for severe periodontal disease and result in tooth loss. In addition, hormonal changes in older women may result in discomfort in the mouth, including dry mouth, pain and burning sensations in the gum tissue and altered taste, especially salty, peppery or sour. Women considering Hormone Replacement Therapy (HRT) to help fight osteoporosis should note that this may help protect their teeth as well as other parts of the body.

#### **Syndromes Affecting in Old Age:-**

##### **Eagles syndrome:-**

Eagles syndrome is a medical condition in which the styloid process is abnormally long, extending over 1.18 in (30mm), and the stylohyoid ligament has undergone calcification. Eagle syndrome has been linked with aging and trauma and is more common in females than males. The condition may present symptoms of chronic dull pain, or sharp pains when swallowing, stretching the tongue, or turning the head.

##### **Burning mouth syndrome:-**

Oral mucosal conditions are more prevalent in older patients and many orofacial pain disorders, such as burning mouth syndrome are more common in patients over the age of 50 years [19]. This is a painful, burning sensation localized in the tongue affecting other areas of the oral mucosa. The description of the symptoms varies from patient to patient, which may be pain, burning, tingling, or numbness. Burning Mouth Syndrome or Glossodynia may occur as an isolated symptom or as one of a group of oral symptoms, such as taste abnormality and various oral dysesthesias, including dull, deep, continuous pain of the atypical facial pain variety. It can be seen in different dental as well as medical conditions and can be seen in any age group but is more common in females than middle aged or old aged females. It can be related with menopause or some kind of allergy, dry mouth or some nutritional deficiencies.

##### **Trigeminal neuralgia:-**

Trigeminal Neuralgia is also known as tic douloureux. It is a pain syndrome recognizable by the patient's history; it is a painful neurological condition that occurs as a result of damage to or pressure on the fifth cranial nerve, also called the trigeminal nerve. It causes sudden, severe pain, usually on one side of the face. Contact with a stimulus (i.e., a touch) often can trigger a painful attack in patients who have tic douloureux. According to the National Institutes of Health (NIH), trigeminal neuralgia is more common in people over the age of 50, although the condition can occur at any age. Trigeminal neuralgia affects more women than men. It is less well known that pain which seems to be due to idiopathic trigeminal neuralgia is occasionally due to dental causes. For this reason it is suggested that such cases should be given very careful dental and oral examination before the commencement of drug therapy or surgery. Such an examination must be meticulous and may be tedious as well as time consuming. It should therefore be done by a dentist who is especially interested in pain and who is preferably associated with a centre for pain relief. A few cases may then have their pain relieved by such procedures as fillings, extractions or occlusal adjustment [20].

#### **Palliative Care Treatments:-**

##### **Burning mouth syndrome:-**

Removal of local oral irritants, construction of plastic retainers to cover irregularities of the occlusion that magnify the side-effects of tongue habits, treatment of the muscular tension by correction of the malocclusion or by muscle relaxants such as diazepam, or treatment of the systemic disease, such as a connective tissue disease or diabetes mellitus are some of the treatment modalities. Some studies have also shown a greater percentage of patients taking clonazepam reporting either partial or complete relief of symptoms compared to diazepam [21]. Neurosurgical exploration of the lingual nerve for glossodynia of neuropathic origin may relieve some of the more distressing symptoms, especially if there is a nodule of scar tissue or neuroma formation at the site of damage to the lingual nerve. Some numbness may persist. Some relief from symptoms of Burning Mouth Syndrome also is usually obtained from the use of topical analgesics such as 0.5% aqueous diphenhydramine alone or mixed with 0.5% dicyclonine or lidocaine or other analgesic ointments applied to the affected area. Cancerophobia (an excessive fear of cancer) may be a prominent feature of patients with Burning Mouth Syndrome. So, psychological counselling

should be given. There are few self used home remedies to relieve the pain and the symptoms of Burning Mouth Syndrome.

- These are Avoid hot and spicy food.
- Do not use the mouth wash which contains alcohol. These can aggravate the symptoms of Burning Mouth Syndrome.
- Sip water frequently. One can chew ice chips when the symptoms of Burning Mouth Syndrome are acute.
- Sugarless gums can be chewed by the persons having Burning Mouth Syndrome.
- Avoid citrus fruits and juices as one should avoid the food which is acidic.

#### **Mucositis and stomatitis:-**

Treatments are primarily aimed at relieving pain. Xylocaine and dyclonine topical anesthetics provide comfort but must be used with caution as they will block the gag reflex and increase the risk of aspiration. Dyclonine has been shown to have anti-inflammatory activity in addition to its anesthetic qualities [22]. The use of diphenhydramine hydrochloride 5% as a rinse to relieve pain has been used for herpetic stomatitis. Benzydamine is a non steroidal analgesic with anti-inflammatory properties. It has been reported to relieve radiation induced stomatitis [23]. It should be prescribed in geriatric cancer patients only after consulting a physician. Before any of the above measures is initiated, it is important to identify local traumatic factors such as fractured restorations or teeth, or an impinging removable prosthesis. Patients should also be advised to avoid spicy foods, smoking and alcohol [24].

#### **Oral candidiasis:-**

Candidiasis may be treated by a amalgamation of topical and systemic applications. One topical agent is nystatin, which can be administered via different methods. Nystatin suspension ketoconazole and Clotrimazole troches, the fungicidal activity of nystatin depends directly on contact time with the oral tissues. Nystatin suspension also has high sugar content and must, therefore, be administered cautiously in the xerostomic dentate patient. Nystatin may occasionally cause gastrointestinal effects such as nausea, vomiting and diarrhea [27]. Angular cheilitis can be treated with a cream made up of 0.5% triamcinolone and 2% ketoconazole. Clotrimazole troches may be dissolved slowly in the mouth; however, they contain sucrose, which can increase caries. Troches are more efficacious than suspensions due to their longer oral contact time [28]. Clotrimazole vaginal cream may be applied as a thin coat on the tissue side of the denture.

#### **Mouth dryness or Xerostomia:-**

In such conditions certain steps should be taken to prevent the worsening of the conditions

1. Sucking on sugar free lozenges or sugar free gum to stimulate saliva production
2. Keeping hydrated by sipping water frequently
3. Using a humidifier while patient sleeps
4. Avoiding caffeinated drinks
5. Avoiding chewing tobacco

Treatment is indicated in extreme cases like xerostomia caused by radiation treatment. Pilocarpin is the drug of choice and can be consumed for a long period.

#### **Denture care:-**

Denture wearers should avoid plaque buildup on the denture as it can irritate the tissues under the dentures. Dentures should be thoroughly cleaned daily and removed at night to avoid bacterial growth. Elevated salivary Candida levels are more frequently encountered in denture wearers than in dentate patients [29]. The use of commercial hydrogen peroxide releasing agents has been found to be ineffective in the disinfection of the denture [30,31]. Soaking the denture in bleach (15 ml) and water (250 ml) for 30 minutes will help purge the denture of odours. Partial dentures should not be soaked in bleach solution, as it will lead to metal fatigue. Dentures can also be soaked in benzalkonium chloride (1: 750) for 30 minutes. Benzalkonium chloride should be formulated daily as Gram-negative bacteria can proliferate within 24 hours. Boiling the denture will cause denture base distortion [32]; however microwaving it in water at high power for 5 minutes can disinfect the denture base. Repeated microwaving can result in hardening of PermaSoft denture linings [33]. Dentures should be stored in well-identified vessels in solutions of water, mouthwash, 0.12% chlorhexidine, Listerine antiseptic or 100 000 IU of nystatin suspension [34]. Candidiasis may be treated by a combination because mouths constantly change; dentures need to be checked for proper fit to avoid irritation, increased bone loss and infections.

**Ulcers:-**

Aphthous ulcers are common and can be treated by topical corticosteroids or tetracycline mouthwash. Severe viral infection (herpes simplex or zoster) will need aciclovir 200 mg every 4 hours for 5 days. Malignant ulcers are often associated with anaerobic bacteria that produce a foul odour; this responds to metronidazole, either as 400-500 mg taken orally or rectally every 12 hours or as a topically applied gel.

**Infected mouth:-**

Topical corticosteroids-Betamethasone 0.5 mg in 5 ml water as mouthwash or triamcinolone in carmellose paste is very effective in such cases and also Tetracycline mouthwash, 250 mg every 8 hours (contents of one capsule dissolved in 5 ml water) can also be used for treating such conditions.

**Patients with gum problems:-**

Elder Patients suffering from periodontal problems are tending towards total extraction and dentures. They must be explained all advanced periodontal treatments which may increase the life of their teeth. Preserving natural teeth by any means will help in preserving alveolar bone. There are quite a few geriatric cases where they have a few upper and few corresponding lower teeth and they don't find any problem of chewing. They must be explained, of possible bone loss to an extent that, they cannot have in future, good prosthesis. All possible methods of replacements i.e. Crowns. Bridges or Implants are accessible to them.

**Missing natural teeth:-****Dental implants:-**

A dental implant is an artificial tooth root placed into your jawbone to hold a replacement tooth or bridge in place. While high-tech in nature, dental implants are actually more tooth-saving than traditional bridgework, since implants do not rely on adjacent teeth for support. When teeth are missing, the bone which previously supported these teeth begins to depreciate. This can result in remarkable changes in one's appearance, such as increased wrinkles around the mouth and lips that cave in and lose their natural shape. More and older people are selecting dental implants over dentures as an alternate option for lost teeth. Older adults have similar success rate with implants compared with younger people provided they are free of any systemic disease and cancer free. Currently, dental implants are contraindicated in patients being treated with intravenous bisphosphonates. All patients treated with bisphosphonates must have the risk of possible loss of implants and the risk of suffering a bony necrosis of the operated jaw explained to them, and give their informed consent prior to dental implant surgery [17].

**Pain free or flexi dentures:-**

Many patients wearing conventional hard dentures experience pain because of the hard acrylic material of the denture or because of the sensitivity of mucosa with age. In all such cases, dentist can provide flexible dentures that are quite flexible because of the nylon base it is made off.

**Conclusion:-**

Factors that may make older people more prone include general health status, diminished immune status, medications, depression, deteriorating memory, reduced salivary flow, functional impairments and variations in financial status. These are factors that are not in the hands of the practitioner as among these are several factors that are bound to come with age. But as practitioners it is to ease these geriatric patients of pain and distress and give them a treatment that improves their quality of life. A geriatric cancer patient with a maxillectomy or mandilectomy defect, apart from feeling psychologically depressed, goes through numerous problems like eating, swallowing and inability to regurgitate. In such an end phase of patient's life, we must try our best to deliver treatments that make their remaining life worth living. Treatments like dentures, implant prosthesis, obturators for closing defects, speech aid prosthesis etc along with proper counselling would be a boon for such patients.

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