XEROSTOMIA: DENTAL IMPLICATIONS AND MANAGEMENT.

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ABSTRACT

Xerorstomia or dry mouth is common among older adults and may be caused by systemic diseases, medications and head and neck radiotherapy. Individuals with Xerostomia complain of problems with mastication, phonetics, deglutition and wearing dentures. Lack of saliva may predispose one to oral infections such as Candidiasis and increased risk of dental caries. Dentists should be able to diagnose this condition and administer appropriate treatment to provide acceptable level of comfort and function to their patients.

KEYWORDS: ***Xerostomia, Saliva, Dental implications, Management.***

INTRODUCTION:

Xerostomia is defined as dry mouth resulting from reduced or absent salivary flow. Saliva plays a critical role in the preservation of oropharyngeal health and persistent dry mouth and salivary dysfunction can impair a person's quality of life. Xerostomia is a common complaint among older adults and according to a study 30 percent of population aged 65 and above experience this disorder[1]. Though salivary functions remain intact in healthy older people yet a plethora of systemic diseases, medications and head and neck radiotherapy cause Xerostomia particularly in elderly patients[2]. With increase in longevity, we have a much larger population of older adults and therefore it becomes even more important to understand problems associated with dry mouth and their treatment to improve the patient's oropharyngeal health and quality of life.

Common causes of Xerostomia

Xerostomia is a common complaint associated with several conditions, which include side effects of wide variety of medications[3,4], therapeutic radiation to head and neck, systemic diseases and diseases involving the salivary glands. Common causes are summarized the in the table below (Table 1)

Evidence suggests that salivary glands are vulnerable to deleterious effects of all these conditions in the elderly people which contribute to increased prevalence of salivary problems with age.

Clinical Manifestations of Xerostomia

Saliva is essential for the preservation of oropharyngeal health, and it serves many functions in the oral and gastrointestinal environment. Saliva aids in swallowing, oral cleansing, speech, digestion and taste. When salivary hypofunction and xerostomia occur, transient and permanent oral and extraoral disorders can develop[2]. Xerostomia is often a contributing factor for both minor and serious health problems. It can affect nutrition as well as psychological health. Individuals with Xerostomia complain of dry mouth and problems with eating, speaking and swallowing. There is oral burning or soreness and a sensation loss of or altered taste (Dysgeusia)[5]. Another manifestation is increased need to drink water while swallowing and dry crumbly foods are difficult to swallow.

Dental Implications

- Patients with Xerostomia experience various oral symptoms that are as follows:
- Increased susceptibility to periodontal disease: Xerostomia decreases the oral pH and increases the development of plaque and dental caries. Caries is a frequently occurring dental problem in such patients and this process is accelerated owing to reduction of salivary flow and inability to clear the food from oral cavity particularly sugary and acidic foods[5]. The developments of rampant caries particularly at cervical area have been observed have been observed within few weeks after radiation therapy to head neck[10].

- Reduced denture retention and generalized denture intolerance. Decreased salivary
- irritation and ulceration of already compromised mucosa[9].
- Decreased buffering capacity in the oral cavity with increased risk of opportunistic infections. Reduction of saliva predisposes the patient to an over growth of the fungus *C. albicans*[11]. This may be augmented by use of denture,by smoking or by presence of diabetes[12].
- Increased oral sensitivity, soft tissue erythema, burning mouth and intolerance to wearing of denture.
- Demineralization of tooth tissue, rapidly progressive dental caries and dental attrition[6].

Diagnosis

Diagnosis can be obtained from patients history and examination of oral cavity and/or sialometry i.e measuring the flow rate of saliva[13]. Four clinical measures, when concurrently identified on examination, have been shown to be reliable predictors of salivary gland hypofunction: dryness of the lips, dryness of the buccal mucosa, absence of saliva production during gland palpation, and decayed/missing/filled teeth (i.e, DMFT) score.[14] Sialography may be used to identify salivary gland stones and masses. Salivary scintigraphy can be used in assessing salivary gland function. Minor salivary gland biopsy is used for diagnosis of Sjögren's syndrome, HIV salivary gland disease, sarcoidosis and amyloidosis. Biopsy of major salivary glands is an option when malignancy is suspected.

Management of Xerostomia

Management should include identification of the underlying cause. Substances and habits that potentiate oral dryness, such as smoking, alcohol, and caffeine should be avoided.

When xerogenic drugs are implicated, alternative medication, dose reduction, or drug withdrawal should be considered. Another option is to alternate pharmaceutical regimens: nocturnal xerostomia can be minimized by taking the xerogenic drug during the day time when salivary production is optimal[9].

Caries prevention: A low sugar diet and daily use of topical fluoride, placement of sealants and antimicrobial mouth rinses are critical to prevent dental caries[15]. Patients should be instructed to

lubrication makes denture use unpleasant and painful and chronic denture movement results in drink plenty of fluids especially while eating dry and rough foods, but should avoid sugar containing

Table **1: Common causes of Xerostomia**

Medications	• Antihistamines • Antidepressants and antipsychotics • Antihypertensives • Antianxiety agents • Diuretics • Antiparkinsonism drugs • Antiematics • Bronchodilators • Sedatives
Diseases affecting the salivary glands	• Sjögren's syndrome • Sarcoidosis • Amyloidosis
Systemic Diseases	• Diabetes • HIV infections • Chronic graft-vs-host disease after allogenic bone marrow transplant • Emotional Stress and mental depression
Radiation Therapy (Causes permanent changes)	• Radiation therapy to head and neck region for Squamous cell cancers of oral cavity, oropharynx, naso pharynx and sinuses • Brain tumours • Tumours of salivary gland
Chemotherapy (causes temporary changes)	

juices and soft drinks. Topical fluorides may be useful when there is increased incidence of coronal caries, root caries or bothand may be helpful in prevention of caries as well as reversal of decalcification. Supplements containing sodium

fluoride, acidulated phosphate fluoride or sodium monofluorophosphate are available for professional application and for home use. These products are available in form of gels and rinses. Use of fluoride containing varnishes that provide prolonged fluoride exposure have also been advocated. In case of active caries, caries should be controlled and lesions should be properly restored.

Saliva stimulation and substitution: For patients with remaining viable salivary gland tissue, salivary stimulation may be helpful. Sugar free chewing gum,candies and mints can be used for stimulation of saliva. Pilocarpine hydrocholoride and Cevimiline hydrochloride are commonly used drugs for salivary stimulation and produce clinically significant increase in salivary flow in xerostomic patients[16]. These drugs are contraindicated in patients with uncontrolled asthma, narrow angle glaucoma or iritis. Varieties of salivary substitutes are available and are effective in decreasing oral dryness. They are useful for patients in whom saliva can not be stimulated.

Treatment of oral candidiasis: Oral candidiasis is a frequent complication in xerostomic patients and is treated with topical antifungal agents in the form of oral rinses, ointments and troches. Systemic antifungal therapy is indicated in cases of active infection or in immunocompromised patients.

Prosthodontic Management of Xerostomia patients

Fixed prosthothesis. In the dry oral environment, fixed non tissue bearing prosthesis are preferred where indicated. Fixed partial dentures should have full coverage retainers and easily cleaned pontics and connectors. The margins of retainers should be supragingival.

Removable partial denture In case of partially edentulous patients using removable prosthesis special attention should be given to residual teeth and periodontal tissues. The use of gingivally approaching clasps should be avoided as it tends to catch on the cheeks. Whenever possible tooth supported denture with minimal tissue coverage should be used. Metal denture bases are preferred due to their better wettability.

Complete denture treatment When considering complete denture treatment for xerostomic patient, close attention should be given to clinical and laboratory procedures aimed at optimizing denture retention and stability. Dentures incorporating metal bases may exhibit improved accuracy of fit and effective wetting contributing to better retention[17,18]. Metal based prosthesis are also easier to clean and have less plaque accumulation. Soft denture liners may be used to improve comfort. Dentures adhesives can be used to augment retention in Xerostomic patients. In addition to improved retention and stability, use of a well hydrated denture adhesive provides cushioning and lubricating effect[19]. Denture patients are more prone to Candida albicans infections. Therefore frequent recalls are necessary and if infection is present systemic anti-fungal treatment is required. Dentures supporting tissues can be treated locally with antifungal agents by coating the tissue surface of the denture prior to placement. The use of dental implants to support both fixed and removable prosthesis is a now a routine treatment option for restoration of edentulous and partially edentulous patients. Patients wearing implant supported dentures report improved oral comfort and function when compared with conventional, mucosa-supported prosthesis[6].

Regular review Patients with xerostomia should be made to understand the importance of regular recall visits every three months to prevent uncontrolled caries and denture patients should be reviewed at regular intervals to prevent candida infections and problems associated with denture wear in xerostomic patients.

CONCLUSION

Xerostomia is a common problem encountered in older adults and if not recognized and treated can have significant effect on patient's quality of life. Dental practitioner should be able to diagnose dry mouth disorder in their elderly patients and provide preventive and definitive treatment to achieve acceptable levels of comfort and function.

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