

Menopause and the oral cavity

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ABSTRACT

Menopause is associated with a large number of symptoms ranging from physical to psychological. These symptoms may unfavorably affect oral health and treatment needs requiring dentists to be aware of the symptoms and health care needs of peri-menopausal/menopausal/postmenopausal women. This article attempts to provide an insight into the multifarious oral manifestations at menopause along with the relevant prosthodontic implications.

Key words: Menopause, oral cavity, osteoporosis, prosthodontic implications

INTRODUCTION

"A time losing prime getting into the grime of age that appears slime"

The slippers and newspaper lifestyle traditionally adopted by women of a certain age is normally attributed to the world of weariness and lethargy. However, symptoms as often cited as being hallmarks of female menopause are very often rendered a lukewarm reception. Menopause is associated with a multitude of specific and nonspecific symptoms, ranging from physical to psychological, which may not be understood by the health care provider. These symptoms may adversely affect oral health and treatment needs necessitating dentists to be aware of the symptoms and health care needs of peri-menopausal/menopausal/postmenopausal women.

Menopause refers to the permanent cessation of menstruation owing to loss of the ovarian follicular activity.^[1] A diagnosis of natural menopause is made retrospectively

following 12 months of amenorrhea with no pathologic association.^[1,2] Menopause may however be artificially induced by radiation, surgery, and chemotherapy.^[2]

Although the terms menopause and climacteric are often used synonymously, the two differ in that menopause refers to the date of the last menstrual cycle and embodies a shorter and defined period of time while climacterium or perimenopause suggests a longer period with various events eventually leading to loss of female reproductive capacity.^[3]

The onset of menopausal transition beginning in the fourth decade of life is heralded by a decrease in the menstrual flow that is gradually followed by missed menses.^[4] In some women, three contiguous months of amenorrhea or average menstrual cycle lengths greater than 42 days are suggestive of approaching menopause.^[2] The stages of reproductive aging workshop (STRAW) have proposed a model delineating seven stages of reproductive aging that explains events occurring during menopausal transition.^[2]

Menopause archetypically occurs in the fifth decade of life in women.^[3] Factors that affect the age at onset of menopause include the body mass index, family history, ethnic origin, parity, menarche, and previous oral contraceptive use.^[2] Obese or overweight women experience menopause later in life with fewer climacteric symptoms than thin women due to availability of estrogen in adipose tissues.^[3-5]

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ORAL CHANGES AT MENOPAUSE AND PROSTHODONTIC IMPLICATIONS

The oral alterations noted at menopause are frequently related to hormonal changes although a physiological aging of the oral tissues also plays a contributing role.^[6] The following are the oral manifestations noted at menopause:

Burning mouth syndrome

Burning mouth syndrome (BMS) also known as glossodynia, stomatodynia, stomatopyrosis, glossopyrosis, glossalgia represents a common oral abnormality that manifests as intense pain and spontaneous burning sensation affecting various areas of the oral cavity in the absence of any identifiable organic abnormalities.^[3] It is chiefly bilateral and affects the tongue, lips, palate, gingival, and areas of denture support. According to a study conducted by Wardrop and co-workers, 33% of postmenopausal women studied reported oral discomfort in the absence of other oral changes. Furthermore, the prevalence of oral discomfort was found to be appreciably higher in peri/postmenopausal women than in premenopausal women (43% *vs.* 6%).^[7] Accompanying oral alterations include dysgeusia, dry mouth, dysphagia, and oro-facial/dental pain.^[3,6]

The underlying etiology remains ambiguous with hormonal changes and small-fiber sensory neuropathy of the oral mucosa suggested as probable underlying causes.^[6] Variable results have been obtained following treatment of BMS in menopausal women with hormone replacement therapy (HRT), low-dose topical/systemic clonazepam, psychological counseling, and tricyclic antidepressants.^[3,6,7]

Xerostomia

Hyposaliva, xerostomia or dryness of mouth is yet another symptom frequently manifested by menopausal women.^[3,8,9] Although few studies conclude that salivary flow decreases in menopausal women with increase in salivary IgA and total proteins, others have not been able to delineate any alterations in salivary volume/composition.^[3] Some studies further implicate decreased salivary flow as a cause for increased incidence of root caries, oral discomfort, taste alterations, oral candidiasis, and periodontal disease in menopausal women.^[3,6,4,8] In addition, Sjogren's syndrome an autoimmune disorder leading to xerostomia, keratoconjunctivitis sicca, vaginal dryness and dyspareunia is found to occur with a higher frequency in menopausal women.^[3,4,6,8] Management includes frequent sipping of water, artificial salivary substitutes, sugar free-gums/lozenges, xylitol tablets and sialogogues such as pilocarpine, bromhexine, cevimeline, and bethanecol.^[3,6,10] Use of toothpastes, gels/varnishes containing fluorides is advisable for prevention of dental caries.^[6] Chlorhexidine reduces plaque and enables prevention of root caries.^[3]

Mucosal changes

The oral mucosa is in several ways akin to the vaginal mucosa.^[8] The oral mucosal changes may thus range from a condition referred to as “*menopausal gingivostomatitis*” to an atrophic pale appearing mucosa.^[4,8] Menopausal gingivostomatitis is characterized by gingiva that bleed readily, with an abnormally pale dry/shiny erythematous appearance.^[4,8] Owing to an atrophic mucosa, denture should be fabricated as smooth as possible to avoid traumatizing the fragile mucosa.^[11] Other oral mucosal disorders include candidiasis, pemphigus vulgaris, benign mucosal pemphigoid, lichen planus, and oral ulcerations following mechanical trauma due to abnormal oral habits and chronic denture-induced irritation.^[3,4,6,8] These symptoms necessitate a scrupulous assessment of denture fit and evaluation of the status of underlying tissues to eliminate chronic irritation.^[3] If fungal culture proves positive, topical antifungal agents such as clotrimazole or nystatin may provide relief from symptoms.^[3] Hormonal therapy with estradiol in patients with identifiable estrogen receptors at the oral epithelial level may be beneficial.^[3,8]

Neurological disorders

Trigeminal neuralgia is also known to occur frequently in postmenopausal women owing to compression of superior cerebellar artery on any one of the branches of trigeminal nerve.^[4] The same is characterized by severe unilateral, lancinating, “electric-shock” like pain usually in the middle and lower third of the face.^[4] Apart from this other neurological disorders such as Alzheimer's disease and atypical facial pain/neuralgia may affect postmenopausal women. Neurological disorders influence impression making procedures, jaw relation records, and denture retention.^[11] Thus, employment of anxiety and stress-reduction protocols is suggested in menopausal women during treatment procedures.^[11]

Osteoporosis and periodontitis

The susceptibility to progressive periodontitis and osteoporosis enhances following menopause.^[12,13] The exact pathogenesis remains unclear although increased accumulation of bacterial plaque and estrogen/serum osteocalcin deficiency have been suggested as etiological factors.^[3,6,13] Systemic osteoporosis leading to generalized bone loss may make the jaws susceptible to advanced alveolar bone loss, decreased bone mineral density (BMD) of alveolar crest/subcrestal alveolar bone and to a smaller extent ligamentous attachment loss.^[3,4,9] The exact relationship between osteoporosis, periodontal pathosis and edentulism remains however controversial.^[13]

According to a study conducted by Kribbs, women with advanced osteoporosis were thrice more susceptible to be

edentulous than healthy age-matched controls.^[14] Thus, the probability of a Prosthodontist treating menopausal women would be high, making a knowledge of the oral and systemic symptoms in women of menopausal age imperative. Methods of diagnosing systemic osteoporosis in postmenopausal women have been developed by oral and maxillofacial radiologists employing dental/panoramic radiographs.^[4]

The correlation between residual ridge resorption and menopause remains contentious. Although some studies report a positive relationship between the two, other studies have found no such association. A study was conducted by Ortman to determine the association between the degree of residual ridge resorption, sex, and the age of the patient.^[15] Panoramic radiographs were used to measure mandibular resorption as described by Wical and Swoope.^[15] Four hundred and fifty-nine radiographs of edentulous patients were randomly selected and measured to assess the amount of residual ridge resorption.^[15] Although analysis of data demonstrated a significantly larger percentage of women with class 3 (severe) residual ridge resorption (P less than 0.01), the difference could not be linked to the occurrence of menopause.^[15]

Another recent study conducted by Imirzalioglu evaluated the liaison between residual ridge resorption and radiomorphometric indices along with demographic factors.^[16] The authors concluded that residual ridge resorption was not affected by gender ($P > 0.05$), but was more commonly seen in patients over the age of 50 compared with those below 49 years of age ($P < 0.001$).^[16]

Postmenopausal women endure greater residual ridge resorption following dental extractions than premenopausal women making construction of conventional dentures and placement of implants difficult.^[4] Experimental studies have found that estrogen deficiency and ensuing bony alterations causes a minor decrease of contact between implants and cortical bone posing a risk factor for implant failure although the same has been disputed/remains controversial.^[4]

Apart from maintenance of a meticulous oral hygiene, several studies have indicated that estrogen therapy builds up mandibular bone mass and diminishes the severity of periodontal disease in postmenopausal women.^[13] Bisphosphonates prevent systemic bone resorption and decrease the incidence of vertebral and nonvertebral fractures in postmenopausal women.^[13] Alendronate and Risedronate have found to improve periodontal status in particular.^[13] Numerous cases reports have associated use of bisphosphonates to osteonecrosis of the jaws.^[3,10]

However, according to the doses of bisphosphonates for treating osteoporosis as recommended by the US Food and Drug Administration, the chances of developing jaw osteonecrosis is rare.^[13]

Eating disorders

psychological distress in menopausal women may lead to eating disorders. Oral changes may crop from self-induced vomiting and resultant regurgitation of gastric contents.^[9] Smooth erosion of enamel, perimolysis, enlarged parotid glands, trauma to oral mucous membrane and pharynx resulting from use of fingers, combs, and pen to induce vomiting, angular cheilitis, dehydration, and erythema may be observed in menopausal women suffering from eating disorders.^[9]

CONCLUSION

An improved comprehension of the systemic and oral manifestations at menopause shall facilitate an improved response of the physician, gynecologist, endocrinologist, as well as dentist, to the needs of the patients. Taking into account the age of menopausal women and expected tooth loss it is very likely that a prosthodontist may encounter such patients. An understanding of the symptoms may thus help appropriate referrals to a gynecologist for apposite therapy alleviating to some extent the distress menopausal women are going through. This article is thus an attempt to improve the health of postmenopausal women by improving interspecialty understanding and collaboration.

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