REVIEW ARTICLE

Women Oral Health Issues and Community Based Prevention

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ABSTRACT

As eyes are the window to the soul similarly oral health is the window to overall health. The mouth is an obvious portal of entry to the body and oral health reflects and influences general health and well-being. Women have special oral health needs and considerations than men. Hormonal fluctuations have a surprisingly strong influence on the oral cavity. These fluctuations occur a lot during- Puberty, Periods, Pregnancy, Menopause, with use of contraceptive medications. Problems such as osteoporosis, Sjogren's disease, TMJ disorders, Thyroid disease are also more prevalent in the female population. All influence women's oral health and the way in which a dentist should approach their treatment. This article will review aspects of a woman's life when hormone fluctuations may affect oral tissues.

KEYWORDS: Hormones, Oral Health

INTRODUCTION

Oral health is inextricably linked to overall health maintenance and well-being across the life span. Historically oral health especially women oral health has not had the recognition or extent of study that other medical fields have received.[1] Previous research indicates differences in male and female experiences of state of health and disease due to hereditary, hormonal and metabolic variations.[2]

Women have special oral health needs and considerations than men.[3] They may be more susceptible to oral health problems because of the unique hormonal changes they experience throughout their lives. Plaque hormones affect the blood supply to the gingival tissue as well as body's response to the toxins resulting from build-up. Therefore, women are at utmost risk of developing periodontal diseases and other oral health problems. Hormonal fluctuations occur a lot during- Puberty, Periods, Pregnancy, Menopause, with use of contraceptive medications.

Interest in gender differences in health is growing, but for some specifically female health issues, more knowledge is required. General systemic differences may be found in oral health, and dental clinicians must be aware that some women may have gender-specific oral health requirement. For example, the saying "one tooth for every pregnancy", was not considered seriously from a professional point of view for a long time. Today, however, it is well known that hormonal changes during gravidity place women under greater risk of excessive tissue reactions. Intensified oral hygiene is therefore required during this period to adequately prevent oral diseases. Further, there are higher incidences of osteoporosis, arthritis, depression, temporomandibular disorders, burning mouth syndrome, thyroid disease as well as different oral hygiene behaviors in women compared to men.[4]

PUBERTY

At puberty girls have increase in production of sex hormones (estrogen & progesterone).[3]

Oral Manifestations: Increased hormonal levels during puberty affect gingival tissues and the sub gingival micro flora. [5] In particular, some gram-negative anaerobes such as *Prevotella intermedia* have the ability to substitute estrogen and progesterone for vitamin K, an essential growth factor. Another gram-negative bacterium, *Capnocytophagia* species, increases in incidence as well as in proportion. These organisms have been implicated in the increased gingival bleeding observed during puberty.[3]

Clinically during puberty there is nodular overgrowth of the gingiva in the areas where food debris, material alba, plaque, calculus are deposited. The inflamed tissues are deep red and may be lobulated which bleeds on brushing or mastication.[3]

***Dental Management*:** Local preventive care, including a vigorous program of good oral hygiene is vital. Mild cases respond well to scaling and improved oral hygiene whereas severe cases require aggressive treatment including antimicrobial therapy.[3]

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PERIODS

Women in their reproductive years experiences periods on a regular cycle. Fluctuations in sex steroid hormones which are also noticeable through the menstrual cycle of women, may impact periodontal health.[6]

Studies reveal an aggravated gingival inflammatory response in women with gingivitis during ovulation and pre-menstruation phase as compared to menstruation whereas women with healthy gingiva show minimal variations throughout the menstrual cycle. However, sub gingival micro biota shows no alterations.

Oral Manifestations: During this phase includes- Swollen erythematous gingival. Some females are not aware of any gingival changes at all, while others complain of bleeding and swollen gingival in the days preceding the onset of menstrual flow, which usually resolves once the cycle begins.[3]

Other oral changes that may occur-

- Activation of Recurrent Herpes Infection
- Apthous Ulcers
- Prolonged hemorrhage following oral surgery
- Swollen salivary glands particularly, Parotid gland

Dental Management: Local preventive care including oral hygiene program is important. Topical /systemic antiherpetic medication for patients experiencing recurrent herpetic outbreaks. Topical corticosteroids indicated for severe apthous ulcers. Topical analgesics also relive discomfort associated with apthous ulcerations and herpetic lesions.[3]

PREGNANCY

Pregnancy constitutes a physiological state characterized by a series of temporary adaptive changes in body structure, as the result of an increased production of estrogens and progesterone. Oral changes due to these complex physiological alterations will lead to an increase in oral vascular permeability and a decrease in host immune response, making the oral cavity more susceptible to infections.[8]

Oral health is essential to the health and well-being of both the pregnant mother and her baby. The Pregnancy Risk Assessment Monitoring System reported that just 23-43% of the pregnant women receive dental care during pregnancy. The rate is a half to two-thirds of the pregnant in the United States (67%).[9]

Changes during this period can adversely affect the oral health-

Caries: Studies suggest that pregnancy does not contribute directly to the carious process. It is most probable that when an increase in caries activity is noted, it can be attributed to an increase in local cariogenic factors. Pregnancy causes an increase in appetite and often a craving for unusual foods. If these cravings are for cariogenic foods, the pregnant woman could increase her caries risk at this time.[3]

Untreated dental caries in mothers increases the risk of caries development among their children, as maternal transmission and early childhood caries (ECC) has been established. The transmission of Streptococcus mutans from mother to offspring has been well documented. Mothers with compromised oral health and high levels of cariogenic bacteria are more prone to affect their children at an early age.[13, 14]

Therefore, decreasing the maternal cariogenic bacterial load is vital to the prevention or delaying of the infant developing ECC. [10]

Acid erosion of teeth (perimylolysis): Acid erosion rarely occurs as the result of repeated vomiting associated with morning sickness or esophageal reflux. Women can be instructed to rinse the mouth with water immediately after vomiting so that stomach acids will not remain in the mouth.[3]

Gingival inflammation: Gingivitis is the most prevalent oral manifestation associated with pregnancy, reported to occur in 60 to 75 percent of all pregnant women.

Gingival changes usually occur in association with poor oral hygiene and local irritants, especially plaque. However, the hormonal and vascular changes that accompany pregnancy often exaggerate the inflammatory response to these local irritants.

Gingival changes are most noticeable from the second month of gestation, reaching a maximum in the eighth month. Gingiva becomes inflamed, fiery red in color with smooth shiny surface, loss of resiliency and a tendency to bleed easily.

Pregnancy may also cause single, tumor-like growths, usually on the interdental papillae or other areas of frequent irritation. This localized area of gingival enlargement is referred to as a Pregnancy Tumor, Epulis Gravidarum Or Pregnancy Granuloma. The lesion occurs most frequently on the labial aspect of the maxillary anterior region during the second trimester. Generally, the lesion will regress postpartum however; surgical excision is often required for complete resolution. Before parturition, scaling and root planning, as well as intensive oral hygiene instruction, may need to be initiated to reduce the plaque retention.[3]

Tooth mobility: May also occur during pregnancy due to periodontal disease disturbing the attachment apparatus but it reverses after delivery.[3]

Xerostomia: Hormonal alterations associated with pregnancy attribute to dryness of mouth. Frequent consumption of water and sugarless candy and gum may help alleviate this problem.[3]

Ptyalism/Sialorrhea: Excessive secretion of saliva. It is a rare finding among pregnant women which may begin at 2-3 weeks of gestation and may cease at the end of first trimester. It may continue until the day of delivery.[3]

Periodontal Disease and Preterm Low Birth Weight Infants- Research over the past several years has

demonstrated an association between maternal infection and PLBW. Additional research suggests that periodontal disease may represent a previously unrecognized risk factor for PLBW. Oral health care for the pregnant woman should include an assessment of her periodontal status and if diagnosed, at a minimum should include prophylaxis or scaling and root planning to decrease the infection and subsequent inflammation caused by the disease.[3]

Role of Dentist: Dentists may play a significant role by following ways[11]:

- Explain the importance of oral hygiene and oral health care.
- Explain that oral health care during pregnancy is safe and effective and that it is essential for the pregnant woman and the fetus.
- Tell women that diagnosis (including necessary dental X-rays) and treatment for conditions requiring immediate attention are safe during first trimester of pregnancy.
- Inform women that necessary treatment can be provided throughout pregnancy; however, the period between the 14th and the 20th week of pregnancy is the best time to provide treatment. Advise women that delaying necessary treatment could result in significant risk to the mother and indirectly to the fetus.
- Educate women and encourage behaviors that support good oral health: Brushing teeth twice daily with fluoridated toothpaste, especially before bedtime and flossing daily. Promoting use of prenatal vitamins like folic acid to minimize the risk of birth defects such as cleft lip and palate, intake of food rich in protein, calcium, phosphorus and vitamins A, C and D.
- Chewing xylitol containing gum or other xylitol containing products, two to three times a day.
- Position Pregnant Women Appropriately During Treatment: Keep the head at a higher level than the feet. Place a small pillow under the right hip or have women turn slightly to the left to avoid dizziness or nausea.

Another area of concern involves drug therapy, because any drug given to a pregnant patient can affect her fetus by diffusion across the placental barrier. In most cases, it is safe practice to use a local anesthetic with a vasoconstrictor (1:100,000). Analgesics, including acetaminophen and aspirin (except during the third trimester, when bleeding problems can occur during or after delivery) are also safe. Certain drugs occasionally prescribed by dentists are known to cause complications during pregnancy and therefore should be avoided. These include diazepam (Valium), chlordiazepoxide (Librium), flurazepam (Dalmane), meprobamate (Miltown), streptomycin, and tetracycline. Nitrous oxide should not be administered during organogenesis (first trimester), and neither general anesthesia nor intravenous sedation should be used at all during pregnancy.[3]

ORAL CONTRACEPTIVES

They act by elevating hormonal levels to simulate pregnancy and prevent ovulation. So, women taking oral contraceptives may show similar gingival changes as seen during pregnancy. Unfortunately, most of the clinical studies investigating oral contraceptive use were performed in the 1960s. Recent reports depict that the use of contraceptive formulations with lower concentrations may not affect the inflammatory response of the gingiva to dental plaque.[12,13]

MENOPAUSE

The cessation of menses is a normal physiologic event experienced by women. It is not an illness or a deficiency and 30 to 50 percent of women have no symptoms as they transition through this phase of their life. [3] On average, it occurs at the age of 50 ± 3 years, and is preceded by the postmenopausal phase. During the age-related ovarian degeneration, ovarian estrogen production and secretion is reduced for 1 to 2 years and then stops. Estrogen deficiencies in women cause a more pronounced increase in osteoclast activity, reduced calcium plasma levels, and enhanced loss of calcium and hydroxyprolin in urine and faeces ultimately leading to bone loss/Osteoporosis.[4]

Oral manifestations: Dryness of mouth, Burning sensation, altered taste sensation.

The number of women using hormone replacement therapy (HRT) to cope with the hormonal changes is increasing. Women do not only take HRT to avoid climacteric symptoms but also to protect themselves from cardiovascular diseases and osteoporosis.[14]

Effects of HRT on the periodontal tissues:[15]

- Minimal tooth loss
- Reduced gingival bleeding
- Less prone to edentulism
- Reduction in the risk of edentulisim

The use of HRT has received much publicity; however, when the results from large population studies and controlled trials were published showing that the benefits of using HRT for the prevention of other diseases than menopause-associated symptoms may not be warranted.[14]

OSTEOPOROSIS

It is reduction in bone mass with deformity, pathologic fractures and sometimes associated pain. Since osteoporosis is a systemic skeletal disease, investigators have questioned its relationship to decreased bone mass in the maxilla and mandible and its possible effect on periodontal disease. Generalized bone loss from systemic osteoporosis may render the jaws susceptible to accelerated alveolar bone resorption.

When considering the relationship between osteoporosis and periodontitis, it is believed that osteoporosis is not an etiologic factor in periodontitis but may affect the severity of disease in pre-existing periodontitis

Dental Management: A concern for dentists, especially with regard to removable prosthodontics, is the condition of the mandibular residual ridge. Postmenopausal osteoporotic women may require new dentures more often after age 50 than women without osteoporosis. The bone loss may become so severe that fabrication of a functional prosthesis may become difficult. Bone regeneration techniques and dental implants may be of significant benefit to an osteoporotic patient who has experienced decreased function of a denture.[3]

TEMPOROMANDIBULAR DISORDERS

Temporomandibular disorders (TMD) represent a spectrum of conditions, including masticatory myalgias, arthritis of the temporomandibular joint (e.g., osteoarthritis, rheumatoid arthritis) and internal derangement of the articular disc. Studies indicating these disorders as more common in women with up to a 5:1, female to male ratio, of patients seeking treatment for TMD symptoms.

Studies have suggested that the association between these disorders and its manifestations among females may have a hormonal etiology. Although more studies are needed on the safety and effectiveness of most TMD treatments, researchers strongly suggest using the most conservative, reversible treatments possible before considering invasive treatments.[3]

THYROID DISORDERS

Thyroid disease occurs with much greater frequency in women than in men. Between 10 and 20 percent of women will have thyroid dysfunction following pregnancy called postpartum thyroiditis. Only 10 percent of these women are left with permanent dysfunction. Hypothyroidism occurs most frequently in women entering menopause, which typically occurs in their late 40s and early 50s. As many as 17 percent of women have an underactive thyroid by age 60.[3]

Dental Management- If undiagnosed thyroid disease is suspected, women should be referred for medical evaluation prior to undertaking elective dental treatment. Initiating treatment for thyroid gland dysfunction can improve the quality of life of the affected woman.[3]

For uncontrolled hyperthyroid women, epinephrine should be avoided and only emergent procedures should be performed. Brief appointments and stress management are important. Nonsteroidal anti-inflammatory drugs should be used with caution and aspirin should be avoided as these may increase circulating T4 levels and lead to thyrotoxicosis.[3]

COMMUNITY BASED PREVENTION OF WOMEN ORAL HEALTH ISSUES

Since prevention is better than cure. So, community based prevention of oral diseases is of utmost importance. Awareness among different age groups of female population will play a pivot role in dealing with women oral health issues.

The mission of community based programs is to prevent and control oral diseases and conditions by building the knowledge, tools and networks that promote healthy behaviors and effective public health practices and programs. Various oral health care programs should be organized in the rural areas where the health of women is neglected the most. A picture of oral health-window to overall health with emphasis on the hormonal link can reduce apprehensions of women while she passes through different stages of her life.

It's the duty of a dentist to safely treat women during pregnancy as pregnancy itself is not a time to postpone preventive or therapeutic dental care. In this period women may become more receptive to oral health information and treatment. For some women with low socioeconomic status this may be the only time to receive dental care coverage. These simple attentions during pregnancy can help uplift oral hygiene status of mother as well as the offspring.[16]

Consequently, the incorporation of periodontal care with obstetric management may improve pregnancy outcomes and overall periodontal health in women the gender-specific oral health concerns must be addressed by the primary health care professionals through various medical and dental continuing education programs and scientific sessions between medical professionals so as to provide quality health care services to the community.[5] Hence community health programs should be encouraged as they tend to promote oral health for women by providing a healthy environment for women to interact with the health specialists. Health care center's established in various areas aims at the elimination of women health issues and raises the level of living by health promotion at different levels.

CONCLUSION

Healthy women, having sound physique and mental development provide a firm foundation for the national developments. So, every effort should be made to address the special needs and considerations regarding women health issues. A dentist should understand the hormonal link during different phases of women's life and should deal with the conditions accordingly among all of the health care professionals its gynecologist whom women visit more often. This creates a unique opportunity for an obstetrician to educate women throughout their lifespan, including during pregnancy, about the importance of good oral hygiene and dental care services. Balancing individual patient needs with scientific soundness is a necessary step in providing oral health care.

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