

Peridontal Diseases in Menopausal Women

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Abstract :

The word periodontal means around the tooth and is used to refer to the chronic inflammation in the gums causing the gums, the bone structure and the tooth to fall prey to harmful repercussions. Our mouth is prone to bacterial attacks at all times. These bacteria can lead to tooth decay (Cavities), gum disease (Gingivitis) and *periodontitis*. Hormones are specific regulatory molecules that have potent effects on the major determinants of the development and the integrity of skeleton & oral cavity including periodontal tissues. Sex hormones have long been considered to play an important role in periodontal tissues ..wound healing & periodontal disease progression.

Keywords

Androgens, Hormones, Estrogen, Progesterone, Peridontium

INTRODUCTION

The main sex hormones exerting influence on the periodontium are estrogen and progesterone. Estrogen and progesterone can significantly influence different organ systems. For example, estrogen can influence the cyto differentiation of stratified squamous epithelium, and the synthesis and maintenance of fibrous collagen. Additionally, estrogen receptors in osteoblast-like cells provide a mechanism for direct action on bone while estrogen receptors in periosteal fibroblasts and periodontal ligament fibroblasts provide a mechanism for direct action on different periodontal tissues.¹ Estrogen, progesterone, and chorionic gonadotropin, during pregnancy, affect the micro circulatory system by producing the following changes: swelling of endothelial cells and pericytes of the venules, adherence of granulocytes and platelets to vessel walls, formation of microthrombi, disruption of the perivascular mast cells, increased vascular permeability and vascular proliferation.

MECHANISMS OF ACTION OF SEX STEROID HORMONE ON GINGIVA OF WOMEN

Sex steroid hormones have been shown to directly and indirectly exert influence on cellular proliferation, differentiation and growth in target tissues, including keratinocytes and fibroblasts in the gingiva. There are two theories for the actions of the hormones on these cells: a) change of the effectiveness of the epithelial barrier to bacterial insult and b) effect on collagen maintenance and repair.

Sex steroid hormones have also been shown to increase the rate of folate metabolism in oral mucosa. Since folate is required for tissue maintenance, increased metabolism can deplete folate stores and inhibit tissue repair.

Estrogen is the main sex steroid hormone responsible for alterations in blood vessels of target tissues in females, stimulating endometrial blood flow during the estrogen plasma rise seen in the follicular phase. Subsequently, endometrial blood flow decreased during the luteal phase of the cycle with waning estrogen levels. In contrast,

progesterone has been shown to have little effect on the vasculature of systemic target tissues. On the other hand, in gingiva and other non-periodontal intraoral tissues, more evidence has accumulated for progesterone affecting the local vasculature than for estrogen. In addition, progesterone has been shown to reduce corpuscular flow rate, allowing for accumulation of inflammatory cells, increased vascular permeability and proliferation.

INFLUENCE OF MENOPAUSE ON PERIDONTIUM OF WOMEN

The menopause and the lack of ovarian steroids are known to promote important changes in connective tissue. The mechanisms involved in this influence are not completely understood, but it is thought to be related to the action of estradiol on the connective tissue. The menopause triggers a wide range of changes in women's bodies, and the oral cavity is also affected. Although elevated levels of ovarian hormones, as seen in pregnancy and oral contraceptive usage, can lead to an increase of gingival inflammation with an accompanying increase in gingival exudates conversely, the menopause – the absence of ovarian sex steroids – has been related to a worsening in gingival health, and hormonal replacement therapy seems to ameliorate this trend.² Studies have shown that use of depot medroxyprogesterone acetate (DMPA) injectable contraception may be associated with periodontal diseases in women. An increase in gingivitis, periodontal disease, tooth loss and dry mouth has been reported ³ and hormone replacement seems to be associated with decreased levels of several indicators of the severity of oral disease as compared with estrogen-insufficient women. During the menopause estrogen deficiency is one of the most frequent causes of osteoporosis in women and a possible cause of bone loss and insufficient skeletal development in men. Estrogen plays an important role in the growth and maturation of bone as well as in the regulation of bone turnover in adult bone. During bone growth estrogen is needed for proper closure of epiphyseal growth plates both in females and in males. Estrogen deficiency leads to

increased osteoclast formation and enhanced bone resorption. In menopause estrogen deficiency induces cancellous as well as cortical bone loss.

BONE SPARING AGENTS FOR PREVENTION FOR BONE LOSS The use of bisphosphonate bone-sparing agents has been incorporated in the management of osteoporosis and other bone-resorptive diseases. Bisphosphonates are widely utilized in the management of systemic metabolic bone disease due to their ability to inhibit bone resorption. Recently, new uses of this unique class of pharmacological agents have been suggested. Given their known affinity to bone and their ability to increase osteoplastic differentiation and inhibit osteoclast recruitment and activity, there exists a possible use for bisphosphonates in the management of periodontal Treatments of periodontal diseases in postmenopausal women with oral Alendronate have shown improved periodontal status and more bone turnover. Risedronate therapy in women have shown significantly less plaque accumulation, less gingival inflammation, lower probing depths, less periodontal attachment loss, and greater alveolar bone levels. Healthcare professionals should be aware that systemic bone conditions impact the periodontium. Bisphosphonate drugs used for systemic bone loss affect the maxilla and mandible

CLINICAL SIGNIFICANCE

Regular dental examinations; regular professional cleaning to remove bacterial plaque biofilm under the gum-line where a toothbrush will not reach.

- Daily oral hygiene practices to remove biofilm at and above the gum-line including brushing twice daily with an ADA-accepted toothpaste.
- Replacing the toothbrush every 3–4 months (or sooner if the bristles begin to look frayed).
- Cleaning interproximally (between teeth) with floss or interdental cleaner.
- Maintaining a balanced diet.
- No smoking.

CONCLUSION

Female sex hormones are neither necessary nor sufficient to produce gingival changes by themselves. However, they may alter periodontal tissue responses to microbial plaque and thus indirectly contribute to periodontal disease.

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