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Oral Health Condition in Relation to Selected Salivary Physicochemical Characteristics among a Sample of Pre and Postmenopausal Women (Comparative study)

A Thesis

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Abstract

Background: Menopause in women is a physiological state that gives rise to adaptive changes at both systemic and oral level. Literally means “without estrogen”.

Aims of study: The study done to assess dental caries status, oral cleanliness, gingival health, periodontal health condition and oral dryness (xerostomia) in relation to salivary flow rate and the levels of salivary estradiol and Interleukin-17.

Subjects, Materials and Methods: The total sample was 90 women aged 48-52 years (45 post-menopausal women as study group and 45 premenopausal women as control group) attending Heath care Centers and College of Dentistry/ University of Baghdad. Unstimulated salivary samples were collected to measure salivary flow rate, and analyzed biochemically to determine the levels of salivary estradiol and Interleukin-17 by enzyme-linked immune sorbent assay. Dental caries experience and severity was recorded by using Decay, Missing and Filled surface index by (Manjie *et al.*, 1989). Dental Plaque index was measured by (Silness and Löe, 1964). Calculus index by (Ramfjord, 1959). Gingival health was assessed by using gingival index (Löe and Silness, 1963) and periodontal health status was determined by clinical attachment level (CAL) and probing pocket depth (PPD).

Results: Dental caries parameters were higher among post-menopausal women with significant differences ($p \leq 0.05$), and decay surfaces contributed the major component, while filling surfaces were significantly higher in pre-menopausal women ($p \leq 0.01$). Caries severity was higher in post-menopausal women in D3 & D4 with highly significant difference ($p \leq 0.01$). Plaque, calculus and gingival indices were higher among post-menopausal women group with highly significant difference ($p \leq 0.01$) in Calculus index, and the moderate gingivitis

was the most common in post-menopausal group. Mean of clinical attachment loss and periodontal pocket depth were higher in post-menopausal with highly significant differences ($p \leq 0.01$) and significant differences ($p \leq 0.05$) respectively. Xerostomia was higher range in postmenopausal with increasing severity of number of women with oral dryness feeling. Salivary flow rate and salivary estradiol were higher among pre-menopausal group with highly significant differences ($p \leq 0.01$), while interleukin-17 level was higher among post-menopausal group. Salivary flow rate was related negatively to Decay, Missing and Filled surfaces with statistically significant difference ($p < 0.05$) in D1 among post-menopausal group. In both group, salivary flow rate was related negatively to dental Plaque index, calculus index, gingival index, clinical attachment loss, probing pocket depth, and highly significant negative relation to xerostomia inventory scale (XI) ($p \leq 0.01$). Salivary estradiol was related negatively to clinical attachment loss and probing pocket depth with highly significant difference ($p \leq 0.01$) in both groups, while it was related positively to salivary flow rate with significant difference ($p \leq 0.05$) in pre-menopausal group. Salivary interleukin-17 was negatively related to salivary and positively related to clinical attachment loss and periodontal pocket depth with highly significant difference ($p \leq 0.01$) in post-menopausal group.

Conclusion: After menopause, there is an increased severity of dental caries and gingival inflammation due to the relation of hormones level changing on oral hygiene and salivary variables (decreased salivary flow rate and estradiol level). Therefore, intensive educational and preventive programs should be directed for post-menopausal women.