Journal of Dental and Oral Health

ISSN: 2369-4475 Editorial

New Era of Perio Systemic Interrelationship

This article was published in the following Scient Open Access Journal:
Journal of Dental and Oral Health
Received March 29, 2016; **Accepted** : April 5, 2016; **Published** : April 11, 2016

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Since ancient time oral cavity is considered as a mirror of body. Many systemic diseases are having oral manifestations and can be diagnosed successfully by careful oral examination. As lord Krishna showed whole universe in his mouth, we dentist can diagnose early signs of many systemic diseases from oral cavity and help other fraternity of medicine for prevention and treatment.

Diabetes, low birth weight of baby, respiratory system, myocardial infarction and stroke are some of the common systemic conditions, correlated with periodontitis, makes it's a complex multiphase disease. The concept that periodontal disease might influence systemic health is not new. Miller originally published his focal infection theory in 1891 [1] suggesting that microorganisms or their waste products obtain entrance to parts of the body adjacent to or remote from the mouth.

Taylor and colleagues have shown that type 2 diabetic patients with severe periodontitis are having six fold increase risk of poor glycemic control than control subjects who are having healthy periodontal status [2]. Along with poor glycemic control it is possible that poor periodontal status can lead to insulin resistance and periodontal treatment can restore insulin sensitivity over time and improve glycemic control [3].

Infection is now considered one of the major causes of pre term low birth babies. In pregnant women suffering from periodontitis, the plaque microorganism or endotoxins can get into the bloodstream leading to premature labor and low-birth-weight (PLBW) babies. Hence, periodontal disease appears to be an independent risk factor for PLBW [4].

Janket, et al. performed a meta-analysis of nine cohort studies of periodontal disease as a risk factor for future cardiovascular and cerebrovascular events and found an overall 19% increased risk of such events in individuals with periodontitis [5].

Jeffcoat, et al. estimated the effects of periodontal therapy on medical costs and hospitalizations among individuals with diagnosed type 2 diabetes, coronary artery disease, cerebral vascular disease, rheumatoid arthritis, and pregnancy in a retrospective observational cohort study. He found independent and potentially valuable evidence that simple, non-invasive periodontal therapy (NSPT) may improve health outcomes of other systemic conditions and decrease medical expenses [6].

Arbes and colleagues [7] valuated the link between periodontal and chronic heart disease in the NHANES III, and found that the odds of having history of heart attack increased with the severity of periodontal disease after adjusting for age, sex, race, poverty, smoking, diabetes, hypertension, BMI, and serum cholesterol level.

Boxi Zhang et al. recently studied the role of *P. gingivalis* infection in the modulation of Angiopoietin 1 and Angiopoietin 2 in human aortic smooth muscle cells. He demonstrated that gingipains are crucial to the ability of *P. gingivalis* to markedly increase the expressed Angpt2/Angpt1 ratio in aortic smooth muscle cells, and their involvement in the development of atherosclerosis.

These findings further support the association between periodontitis and cardiovascular disease and establishing direct cause and effect relationship between cardiovascular disease and periodontal disease [8]. It's beginning of new era for perio-systemic interrelationship.

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