

Periodontal Disease - Is Prevention Possible ?

Manohar B,¹ Humagain M²

Periodontitis has been reported to be the 6th most prevalent disease worldwide, with an overall prevalence rate of 11.2% and 743 million people affected by it. It is the major cause of tooth loss worldwide amongst the adult population. The individuals are at risk of multiple tooth loss, edentulism and masticatory dysfunction, thereby affecting their nutrition, quality of life and self-esteem as well as imposing huge socio-economic impacts and healthcare costs.

Age is directly proportional to the prevalence of periodontitis. There is a steep increase in the incidence of periodontal disease in adults aged 30-40 years. The burden of periodontitis will continue to increase with the growing ageing population also due to increased tooth retention globally.

A chronic non-communicable disease such as periodontitis shares the social determinants and risk factors with the major non-communicable disease that is responsible for two-thirds of deaths due to cardiac disease, diabetes, cancer and chronic respiratory disease. Tobacco consumption, obesity and nutritional deficiency and physical inactivity are also seen to be associated with an increased risk of periodontitis.

Plaque accumulation due to inadequately performed oral hygiene procedures, initiates the progression of periodontal disease in an individual with features which include gingival bleeding, recession of the gingival margin and halitosis. When the periodontal attachment is destroyed by periodontitis, the disease is complicated by an array of signs and symptoms that further impact on the quality of life of the affected individuals. Tooth migration and drifting, tooth hypermobility, tooth loss leads to masticatory dysfunction compromising nutrition and overall general health as subjects with masticatory dysfunction change their dietary habits usually incorporating more starch and fats and less fresh fruit and vegetables in their diet. As the early stages of periodontal disease are often symptomless, significant numbers of affected patients do not seek professional care.

The systemic health of an individual is affected by the haematogenous dissemination of both bacteria and bacterial products originating in the plaque biofilms and inflammatory mediators originating in the inflamed periodontium. Periodontitis interacts with various systemic diseases, notably diabetes, atherosclerosis, rheumatoid arthritis and pulmonary infections.¹

Low income and poor education are considered to influence periodontal status. Within the Asian region, many countries including India and Nepal, still have poor economic status, high illiteracy levels and a very low dentist to population ratios. With such conditions, it is expected that oral health may not be considered a high priority amongst the people and even for the government. Reports suggest over 50 dentists available per 1 lakh population in the high income countries, the respective figure in the low income countries is less than.²

The literature on the prevalence of periodontal disease in our countries is sporadic. National Commission on Macroeconomics and Health reported prevalence of periodontitis in India at 45% for the 15 and above age group. When minor periodontal diseases were included, 80-90% of the population above the age of 15 years was affected by periodontal disease.³ In one of the two hospital based study in Nepal, periodontal disease was reported to be the main reason for extraction in an age group of 51-60 years, which was contrary to reports from the developed countries and the other study concluded that 55.6% periodontal disease was the most common cause of extraction of the teeth in the age group of more than 30 years.^{4,5}

In the low income countries, the people are struggling hard to attain a basic living. In given circumstances, oral health is not given any priority though, a very high percentage of the people in these countries do perform oral hygiene practices. Toothbrushing is most commonly performed practice and from the data available, over 90% of the chinese population claim to brush at least once a day. The cleaning/chewing stick (Miswak) is used in rural India and Pakistan (21-70%). Despite the claim of everyday practice of oral hygiene, conditions are far less than satisfactory. 80-100% of these individuals had calculus or evidence of periodontal damage in the adult populations in all the countries. The situation among adolescents is not much better. Calculus or

periodontal damage was found in more than three quarters of the adolescent subjects surveyed in India. In the high income countries, the vast majority of the dentists work in the private sector under a well-developed oral health care system. In the middle income countries, the provision of dental care services to the adult population is usually through a combination of public and private services, whereas; in the low income countries, the oral health care system is usually poorly developed and dental care services are scarce in the rural areas.²

With professional care and long-term secondary prevention strategy, periodontitis can be easily diagnosed, successfully treated and prevented. For this the team has to include oral healthcare professionals, medical practitioners, educators, health officials, payers and the public to opportunities to improve periodontal health and general health.

Disease prevention tailored to individual needs through diagnosis and risk profiling has to be done. An individual's proactive role in oral health awareness, self-care measures, health promotion and disease prevention for optimal oral and general health in the course of life is of prime importance.

Gingival inflammation is reversible and can be successfully treated by adequate oral hygiene and professional plaque control. It can be prevented by effectively managing the disease and promoting healthy lifestyles at both individual and population levels.

Primary prevention aims at effective tooth brushing and inter-dental cleaning using mechanical and chemical aids for management and prevention of gingivitis along with professional mechanical plaque removal where required at individual level has to be employed. Secondary prevention aims at avoiding recurrence of disease in individuals treated successfully. The resolution of clinical signs of inflammation, gingival bleeding on probing, and elimination of pockets are the endpoints of active periodontal treatment. Customized supportive periodontal care based through an efficient recall system is necessary to establish the prerequisites for secondary prevention.

An integrated and population-based approach in health education is the need of the hour. The population has to be sensitized of the relevance and importance of proper individual oral hygiene as part of a healthy lifestyle that will avoid manageable risk factors. Early education in appropriate daily oral hygiene measures and the importance of certain risk factors, e.g. smoking, in the development of periodontal diseases, through the good teamwork of school teachers and other educators, medical professionals, dental hygienists and dentists, is of great importance. To facilitate patient communication and behavioural changes through oral hygiene practices, the incorporation of treatment goal setting, planning and self-monitoring may be useful.⁶

¹Dept of Periodontology, Kalinga Institute of Dental Sciences
Bhubaneshwar, India.

²Department of Periodontology and Oral Implantology,
Kathmandu University School of Medical Sciences, Dhulikhel, Kavre, Nepal.

REFERENCES

1. Tonetti MS, Jepsen S, Jin L, Otomo-Corgel J. Impact of the global burden of periodontal diseases on health, nutrition and wellbeing of mankind: A call for global action. *J Clin Periodontol*. 2017;44:456-62.
2. Corbet EF, Zee KY, Lo EC. Periodontal diseases in Asia and Oceania. *Periodontol*. 2000. 2002;29:122-52.
3. Shah N. Oral and dental diseases: Causes, prevention and treatment strategies in NCMH Background Papers - Burden of disease in India (New Delhi, India). National Commission on Macroeconomics and Health, Ministry of Health and Family Welfare, New Delhi: Government of India; Sep 2005.p. 275-98.
4. Upadhyaya C, Humagain M. The pattern of tooth loss due to dental caries and periodontal disease among patients attending dental department (OPD), Dhulikhel Hospital, Kathmandu University Teaching Hospital (KUTH), Nepal. *Kathmandu University Medical Journal*. 2009;7:59-62.
5. Dixit LP, Gurung CK, Gurung N, Joshi N. Reasons underlying the extraction of permanent teeth in patients attending Peoples Dental College and Hospital. *Nepal Med Coll J*. 2010;12:203-6.
6. Herrera D, Meyle J, Renvert S, Jin L. White paper on prevention and management of periodontal diseases for oral health and general health. FDI World Dental Federation. 2018.