Birth cohort study confirms link between overweight and periodontitis

By DTI

ADELAIDE, Australia/PELOTAS, BRAZIL: Investigating the link between overweight and periodontitis, a team of researchers has found that people with a higher body mass index do indeed have an increased risk of developing periodontitis compared with individuals of normal weight. In the study, researchers from Australia and Brazil followed a group of 539 Brazilians from birth until the age of 31.

Owing to lifestyle changes, dietary habits, stress and lack of exercise, the prevalence of overweight and obesity has shown a gradual increase in many countries. Various studies have linked overweight and obesity with various systemic conditions, including a higher risk of periodontal disease. However, uncertainty persists regarding the causal relationship of such conditions.

In the study, researchers followed a birth cohort of 539 Brazilians for a period of 31 years. Over the course of the study, the participants underwent regular periodontal examinations comprising full-mouth probing at six sites per tooth using a PCP2 dental probe. In addition, the anthropometric measures and habits of each individual were assessed during the life-course.

Overall, periodontitis risk under no intervention was 33.3 per cent, 14.3 per cent and 14.7 per cent for any periodontitis, moderate or severe periodontitis, and combined bleeding on probing (BOP) and clinical attachment loss (CAL), respectively. Regarding the impact of weight, the results showed that overweight and obesity increased the risk of all outcomes. Specifically, the overall risk of periodontitis was 11 per cent higher in overweight individuals and 22 per cent higher in obese patients. As for moderate and severe periodontitis, the risk was 12 per cent and 27 per cent higher, respectively. Overweight increased the risk of CAL and BOP by 21 per cent and obesity by 57 per cent.

According to the researchers, the impact of overweight and obesity was even greater when combined with unhealthy habits. Based on the findings, it is worth emphasising that a common risk factor approach would be the most effective means of prevention and treatment of periodontal disease, lead researcher Dr Gustavo Nascimento from the Federal University of Pelotas told Dental Tribune Online.

Prof. Marco Peres from the University of Adelaide said that the study’s design in investigating the link between overweight and periodontitis is unique in the literature. “First it has a longitudinal design using a population-based cohort study; and secondly, it has a longitudinal data analysis by using a statistical technique—g-formula—which allows us to take into account time-varying confounders and to simulate different scenarios under hypothetical simultaneous conditions, such as obesity plus smoking, alcohol, inadequate diet, etc.,” he said.

Peres, who is also a councillor of the International Association for Dental Research’s Global Oral Health Inequalities Research Network for the Asia-Pacific region, presented the results of the study titled “Overweight and obesity impact on periodontitis: A Brazilian birth cohort”, on 23 June in Seoul in South Korea at the 94th General Session and Exhibition of the IADR.
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By DTI

NEW YORK, USA: Although electronic cigarettes, that is, battery-powered devices that typically deliver nicotine in the form of an aerosol, have gained breakthrough market share in recent years, the safety of aerosol mixtures emitted by these devices remains largely unknown. Now, New York researchers have received a grant to determine the adverse health effects of e-cigarette use on oral health for the first time.

“Based on compelling data from our preliminary research, we hypothesize that e-cig aerosol mixtures disrupt the oral cavity’s microenvironment, increasing vulnerability to periodontal disease,” said Dr. Deepak Saxena from the New York University College of Dentistry, which was awarded a four-year $1.6 million grant by the National Institute of Dental and Craniofacial Research (NIDCR).

“Smoking is a major risk factor for periodontal diseases, immunosuppression, and impairment of soft tissue and bone cell function,” added co-researcher Dr. Xin Li. “The prospective study we proposed to the NIDCR entails the enrollment of 120 individuals, including 40 non-smokers, 40 individuals who regularly smoke cigarettes but do not use e-cigs, and 40 individuals who exclusively use e-cigs and study the effect of e-cig aerosol on periodontal health.”

The researchers will recruit and stratify members of the e-cigarette group by the type of disposable e-cigarette and number of cartridges they consume per week. Saliva and subgingival plaque samples will be collected from all participants at baseline and after six months. After the second collection, a comparison to the baseline samples will be done to determine whether any dysbiosis in the oral microbiome has occurred. Oral examinations will be performed at both visits.

“This mechanism by which e-cig aerosol affects oral health will be investigated using a novel 3-D epigingival tissue model to mimic the oral microenvironment,” Li explained.

The grant received by Saxena and Li was one of seven awarded by NIDCR to promote and improve understanding of how aerosol mixtures emitted by e-cigarettes affect the oral cavity.

According to statistics from 2014 published by the Centers for Disease Control and Prevention, 12.6 percent of U.S. adults have tried an e-cigarette and about 3.7 percent currently use e-cigarettes.

Study to investigate effects of electronic cigarettes on oral health

By EMS

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Drs. Xin Li (left) and Deepak Saxena testing a machine designed to accept a variety of e-cigarette vaping delivery devices. (Photograph: Leo Sorel/NYU Photo Bureau)
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By DTI

SAN FRANCISCO, USA: New research has shown that assessment of individual risk of developing dental caries can help dentists effectively tailor prevention and treatment efforts. The study focused on how providers implemented a protocol that combines risk assessment with personalized preventive care and regular monitoring. The researchers also investigated how risk assessments affected patients' course of treatment and oral health.

The Caries Management by Risk Assessment (CAMBRA) protocol was developed at the University of California, San Francisco School of Dentistry. In the current study, a baseline sample of 3,810 pediatric patients at UCSF were assessed using a 17-item form that records multiple environmental and behavioral factors known to contribute to caries, such as the patient's access to fluoridated water, frequency of snacking, and socioeconomic status. The predictive value of these risk assessments was then evaluated in a follow-up group of 1,353 patients from 6 months old to 6 years old from a largely low-income urban population.

The researchers found that dental care providers' risk assignments were correlated with the risk of future decay, said study author Dr. Benjamin Chaffee, assistant professor and Director of the Global Oral Health Program at the dental school. At the follow-up visits, only about 20 percent of the low-risk patients presented with tooth decay; however, nearly 70 percent of those in the high-risk group had decay.

“Risk assessment is predictive—it tells you what kinds of outcomes are going to occur in a patient population,” Chaffee said. “Together with other studies, our work has shown that providers are willing and able to use CAMBRA accurately, that it doesn’t take a lot of time to do it, and that it is effective.”

Caries risk assessments like CAMBRA help providers account for factors known to influence oral health and to then tailor their approaches to care according to the designated risk level. For example, a patient considered as being at a high risk of developing dental caries may require more frequent radiographs and dental checkups than a patient designated low risk.

“Dental caries, like so many chronic diseases, follow a social gradient,” Chaffee further explained. “We want providers to recognize that our patients who come to us from a lower socioeconomic position are more likely to face a heavier burden of disease. It’s important to consider that what is going on beyond the dental chair is contributing to the health status of our patients.”

CAMBRA has the potential to fundamentally change dentistry, but this will be gradual, Chaffee said. “The traditional approach to dental caries for the last 500 years has been when a dentist sees a cavity to fill it and restore the tooth’s function, and that’s a critical aspect of what dentists should be doing. But in and of itself, this approach doesn’t do anything to prevent the disease from occurring again. It treats the symptoms—the consequences of disease—but it doesn’t get after the causes of the disease,” he concluded.

“More than half of the schools and colleges of dentistry in the US have adopted CAMBRA in one form or another as part of their standard curriculum,” said Dean of the School of Dentistry Prof. John Featherstone, who led the research teams that developed the protocol. “There are also increasing numbers of face-to-face and online courses that teach the CAMBRA methods. I am encouraged by the accelerated adoption of CAMBRA in the field.”

According to the Centers for Disease Control and Prevention, approximately 23 percent of children aged 2–5 had dental caries in their primary dentition in 2015. Untreated tooth decay in primary teeth among children aged 2–11 was twice as high for Hispanic and non-Hispanic black children compared with non-Hispanic white children. In addition, about three in five adolescents aged 12–19 had experienced dental caries in their permanent dentition and 15 percent had untreated tooth decay.

The study, titled “Caries risk assessment item importance: Risk designation and caries status in children under age 6,” was published online and in the July print issue of the JDR, Clinical and Translational Research, a new offshoot of the Journal of Dental Research.