What's New in Dentistry

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Genetic factors contribute to differences in the oral health of adults. Genetic factors may contribute to one's response to dental plaque and the development of gingivitis or caries. How do researchers delineate the impact of environmental factors versus genetic factors in causing dental disease? In order to test this hypothesis, researchers evaluated and compared the responses to a questionnaire that was given to over 3000 twin pairs that were born between 1975 and 1979 in Finland. The results of their analysis were published in the *Journal of Dental Research* (2010;89:700–704). The average age of the participants was 24 years. When the subjects were questioned about gingival bleeding 26% of all respondents reported that they had noticed no gingival bleeding. In contrast, 68% reported noticing gingival bleeding occasionally and 6% weekly or more often. In addition, 16% of respondents reported having no filled teeth, 49% reported 1 to 4 filled teeth, 29% reported 5 to 10 filled teeth, and 6% reported more than 10 filled teeth. When the authors correlated the dental variables, they found that all monozygotic correlations were higher than dizygotic correlations. Monozygotic males and females showed no great differences between their correlations, but they did show significant differences in the magnitude of dizygotic males' and females' correlations and opposite-sex correlations were closer to dizygotic females' correlations than to males'. The authors conclude that there is a strong genetic component behind the number of filled teeth and a weaker genetic component affecting gingival bleeding. Therefore, genetic factors contribute to inter-individual differences in oral health among young adults.

Acupuncture is an effective intervention to reduce TMD symptoms. Temporomandibular disorders include a group of conditions that affect the temporomandibular joint, masticatory muscles and associated head and neck musculoskeletal structures. The pathogenesis of pain in TMD is unclear, with physical, biochemical and psychological factors all potentially playing a role. Currently management of TMD includes patient reassurance, physiotherapy, splint therapy, occlusal adjustment, surgery, pharmacological intervention and combined approaches. Alternative medicine such as acupuncture has been suggested as a means of reducing TMD symptoms. But could acupuncture be as effective as other treatments? A study published in the *Journal of Orofacial Pain* (2010;24:152–162), performed a systematic review of the existing literature to determine if acupuncture is effective at reducing TMD symptoms. These researchers performed a systematic search of several electronic databases to identify randomized clinical trials that had investigated acupuncture for TMD. Their search produced 19 studies that fulfilled the inclusion criteria. When the authors segregated the comparisons between acupuncture and other treatments they found that classical acupuncture had a positive influence beyond those of a placebo (three trials) and had positive effects similar to those of occlusal splint therapy (three trials). In addition, their systematic review found that acupuncture was more effective for TMD symptoms than physical therapy (four trials), indomethacin plus vitamin B (two trials), and a wait-list control (three trials). Only two RCT's addressed adverse effects and reported no serious adverse events. In conclusion, this systematic review noted moderate evidence that acupuncture is an effective intervention to reduce symptoms associated with TMD.

Obesity and physical fitness may affect periodontal health. Periodontal disease is a highly prevalent inflammatory disease. Many factors are associated with the incidence and exacerbation of periodontal disease. Obesity has received much attention as a risk factor for various lifestyle diseases. It is also known that exercise is an important element for lifestyle-related disease prevention, especially obesity. Could there be a relationship between obesity, physical fitness, and periodontal disease. This question was asked in a study that was published in the *Journal of Periodontology* (2010;81:1124–1131). Over 1000 adults aged 20 to 77 years participated in health examinations at a health center. Periodontal conditions were evaluated using the Community Periodontal Index (CPI), and subjects were classified according to their level of attachment loss. In addition, the authors evaluated the body mass index (BMI) and percentage of body fat as indicators of obesity. The

patients' maximal oxygen consumption during exercise was used as an indicator of physical fitness. These variables were compared among the sample. The authors found that the lowest level of body mass index and the highest level of physical fitness were inversely associated with severe periodontitis. In other words, the combined lowest level of BMI and the highest level of physical fitness had a significantly lower risk of severe periodontitis compared to subjects with other combinations. The authors conclude that obesity and physical fitness may have some interactive effect on periodontal health.

Higher prevalence of TMD in patients with gastroesophageal reflux. Gastroesophageal reflux disease (GERD) develops when reflux of the stomach contents into the esophagus causes symptoms such as heartburn or regurgitation. However, other symptoms of GERD affect organ systems beyond the esophagus. Could GERD be associated with temporomandibular disorders (TMD)? Although indirect evidence has suggested an association between these two diseases, no direct association has been found. However, a study published in the *Journal of Oral and Maxillofacial Surgery* (2010;68:1560–1564), evaluated that relationship. The authors conducted a prospective case-controlled study of 60 consecutive patients, who had previously been diagnosed as having GERD. In addition, 60 GERD-free subjects were matched by age and gender to the study group. Both groups underwent a thorough examination to identify any signs or symptoms of temporomandibular joint disease. Then the authors determined if there were any correlations or associations between these variables. The results of this study showed that of the 60 patients in the GERD group, 36% had TMD, compared with 18% in the control group. Most subjects with TMD in both groups were diagnosed with myofascial pain: 31% in the GERD group versus 15% in the control group. The authors conclude that TMD prevalence in patients with GERD should be explored further to better characterize the association between TMD and GERD. They also suggest that clinicians treating the two disorders should consider the clinical implication of this association.

Low-level laser therapy reduces TMJ inflammation. Inflammatory disorders of the temporomandibular joint are defined as a group of disorders in which internal and related structures of the TMJ become inflamed. Several different methods including behavioral therapy, soft diet, anti-inflammatory drugs, and physical treatment have been described for the treatment of inflammatory temporomandibular disorders. An alternative method of treating the inflammation could be with low-level laser therapy. But would this method be effective? That question was addressed in a study that was published in the *Journal of Orofacial Pain* (2010;24:293–297). This was an experimental study performed in rabbits. The purpose was to create an experimentally induced inflammation in the retrodiscal tissues of the rabbit TMJ that could be verified by scintigraphic imaging. Formalin was injected locally into the right and left TMJs of a sample of rabbits. Then low-level laser therapy was performed six times for two weeks to the left TMJ of all rabbits. The right TMJs were used as the control group. Scintigraphic images of the TMJs were taken at 24 hours, 7 days and 14 days after the beginning of the treatment. The images of all joints were then compared to determine if there were any differences between control and experimental groups. The results showed that there were significant differences found between normal and both the control and treatment TMJ groups. A reduction of inflammation in both treated and control groups was obtained, but there was no statistically significant difference between the groups. The authors conclude that low-level laser therapy did not produce a significant reduction in inflammation compared to the control sample.