

GP PERIO: THE ORAL-SYSTEMIC CONNECTION

for your PRACTICE

ORAL-SYSTEMIC LINKS

BY RICHARD H. NAGELBERG, DDS



Sometimes we should stop to think about all the things going on in the oral cavity. So many microbes are interacting with one another and with the tissues — hard and soft — and the ever-changing chemistry from ingestion of food and drink, blood sugar levels, xerostomia, and infection, to name just a few. If we are not vigilant about reducing the bioburden in the mouth, it reaches levels at which it becomes toxic and pathogenic.

Some of the same elements that are risk factors for periodontal disease also cause other issues such as bad breath. Anaerobic bacteria are operating when periodontitis develops and progresses; however, the gingival sulcus and periodontal pockets are not the only locations in which they cause trouble. Anaerobes are also the culprit in the most common source of halitosis,

the posterior dorsum of the tongue. The bacteria get trapped under layers of food debris, dead epithelial cells, postnasal drip, and assorted other crud. The anaerobic bacteria release volatile sulfur compounds that impart the rotten egg odor to the breath. Behavioral elements for periodontal disease, such as smoking, can also cause bad breath. Biological risk elements for periodontal disease, including xerostomia, can also contribute to bad breath. Elevated stress levels also contribute to dry mouth. Is there a unifying concept among all these events and conditions, or are these just some side effects or multiple effects of the contributors to gingivitis, periodontitis, and oral-systemic associations?

Bad breath is socially offensive, but it is not likely a direct contributor to gingivitis and periodontitis. The volatile sulfur compounds would have an acidifying effect on the pH of the oral cavity, which would then theoretically create a favorable environment for acid-loving bacteria. The periodontal pathogens favor a neutral pH, so does that mean that bad breath reduces the risk for the development of periodontal disease? Not likely since the factors that create bad breath, most notably poor oral hygiene, are direct contributors to periodontal disease development. Additionally, the saliva has a significant buffering effect. Patients with xerostomia lose this benefit from an inadequate production of saliva.

What about the effects of healthy habits? Frequent, effective biofilm control habits, including tongue cleaning, certainly would prevent the development of gum disease and bad breath. Xerostomia, especially if it is medication or stress induced, would be a more challenging situation. Dry mouth is a significant factor for people with bad breath. There is a multitude of prescription and OTC products that help ame-

liorate xerostomia, including antioxidant rinses and gels and mouthrinses that operate by varying mechanisms of action. Essential oil mouthrinses stimulate salivary flow due to the strong taste of the oils, despite the alcohol that solubilizes the oils. Other mouthrinses that contain enzymes and ingredients to moisturize the mouth address xerostomia directly.

According to current research, it appears as if the factors that lead to periodontal disease — including biofilm accumulation, xerostomia, and smoking — can also cause bad breath. Bad breath is a byproduct of anaerobic bacterial accumulation with or without xerostomia and/or smoking.

Elevated biofilm levels, including those on the dorsum of the tongue, elevate the risk for pneumonia. Many studies have demonstrated the role of aspirated oral bacteria in the development of pneumonia. A recent study (yaedailynews.com/.../link-found-between-pneumonia-and-oral-hygiene) indicated that poor oral hygiene is one of the most common risk factors for pneumonia, with the risk doubling for patients with severe periodontal disease. Other studies (Scannapieco, JADA 2006) indicate that oral biofilms are susceptible to colonization by respiratory pathogens. Aspiration of these pathogens into the lower airway can increase the risk for lung infections. Furthermore, aspiration of inflammatory products from periodontally diseased tissues can further insult the lungs.

Keeping biofilm at levels insufficient to cause periodontal disease can apparently have other beneficial effects. In addition to reducing the risk for cardiovascular and diabetic effects of periodontal disease and the direct effects of periodontal pathogens, the likelihood of developing aspiration pneumonia is reduced as well. Patient populations who particularly benefit from this knowledge include nonambulatory and institutionalized individuals with ventilator-associated pneumonia.

So, perhaps after all, we should view bad breath as more than an unpleasant condition. Perhaps it should serve as a warning that biofilm levels may be dangerously high, especially in certain patient populations and that emphasizing the critical importance of biofilm control is one of our primary responsibilities. **DE**

RICHARD NAGELBERG, DDS, has practiced general dentistry in suburban Philadelphia for more than 30 years. He is a speaker, advisory board member, consultant, and key opinion leader for several dental companies and organizations, and he lectures on a variety of topics centered on understanding the impact dental professionals have beyond the oral cavity. Contact him at gr82th@aol.com.