Guest Editorial *Periodontal Medicine in the Next Millennium*

Part 1 of the keynote conference address presented at Harvard School of Dental Medicine, June 12, 1999. Part 2 will appear in an upcoming issue of the journal.

It is interesting to note that the first American dental school, the Baltimore College of Dentistry, later to become the University of Maryland, opened its doors in 1840; that the first university-based dental school was here at Harvard; and that the first school of medicine was founded in America in 1765 at the University of Pennsylvania. Unfortunately, dentistry and medicine have, to a great extent, been somewhat separated during these last 160 years, despite the fact that they have the same patients in common. Henry M. Goldman, an alumnus of Harvard Dental School in the class of 1935, made important contributions in bringing medicine and dentistry closer together when he published his first text, *Periodontia,* in 1940 at the age of 29.

We have now reached a period in our history when research is bringing medicine and dentistry closer together with data that are cogent to physicians and dentists and, most importantly, to the patient. What is evolving from this research is a concept of periodontal medicine that is going to influence the examination procedures, diagnosis, and the treatment of oral problems, and may change the manner in which dentists and physicians are educated and interact.

A new paradigm is emerging with regard to susceptibility to periodontal disease, its etiology, and pathogenesis. Analytic methods have evolved to measure the relative risk of many innate and environmental factors. Risk factor assessment can help our professions select the optimal type and level of treatment for patients. Definite relationships between the oral diseases and systemic conditions show that some risk factors are a concern for periodontal disease and certain systemic diseases, such as cardiovascular disease.

Periodontal diseases and systemic diseases—we now know this is a two-way street, and the question once again arises: "Is this the old focal infection theory rearing its head?" The answer is no. This is not the same theory, for several reasons. First, we now know more about the oral flora involved in periodontal disease than ever before. Another major difference is that in the past, the proponents of oral focal infection recommended the empiric extraction of teeth as a means of helping or curing systemic problems. For example, extracting teeth with endodontic problems was often advocated as a means of treating arthritis. This practice still occurs today, but to a much lesser extent. Certain texts on alternative medicine still recommend tooth extraction in patients with systemic problems. An excellent review article on the subject was published in the *Journal of Dental Research* in 1996 by Hubert Newman. His final paragraph states:

> New knowledge this may not be, but we certainly now have the means of evaluating these rejected and now reawakened theories of focal infection. These may lead to a time when we will be true oral physicians, less preoccupied with the commonest of human diseases, and [devoting] more concern and time for their systemic implications. We certainly need to realize that there are links between oral and systemic health, and oral and systemic disease. For some, the evidence is strong, for others tenuous, and for many, indirect but intriguing. Only our research, in collaboration with other medical colleagues in their specialties, will enlighten. Let us prepare to broaden our minds.

Thanks to the contributions of numerous scientists we now have a better understanding of the pathogenesis of periodontal diseases, the microbiotic flora, and insight into the mechanisms that result in bacteremias that are associated with dental procedures. Even some of the early studies on diabetes and periodontal diseases indicate that the reduction or elimination of oral infections results in reduced insulin requirements for diabetic patients. This is not surprising; however, the means of eliminating the oral infection in most cases was the extraction of the involved teeth.

As we approach the end of the millennium, the dental profession can stand tall for many reasons. For instance, the 1990 American census showed that fewer individuals had lost all of their teeth than in 1980; interestingly, the 1980 report showed a similar improvement over the 1970 data, so the maintenance of the natural dentition in health and function remains an achievable goal. We have evidence that periodontal therapy is efficacious from the efforts of Hirschfeld and Wasserman in 1978, and others. This progress is occurring in an era when, since 1900, more years have been added to our life span than in the 5,000 years before. People are living longer and are keeping their teeth longer. Another important benefit of the research data that has been reported is that it will bring the medical and dental professions closer together for the betterment of patient care. This is a theme that will pervade any discussions about the link between oral and systemic health. Hopefully, we will see an end to the era when the physician takes a tongue blade and looks past the oral structures into the pharynx of his or her patient. It is becoming clear that the dentist needs to know more about systemic disease and the physician needs to increase his or her knowledge of oral diseases.

The first department of periodontics in the United States was established at New York University in 1925, only 74 years ago, and most dental schools did not start to teach this discipline until after World War II. We have made great progress in a relatively short time. This progress required a major revision in the way dental education is presented, because, for many decades, most curricula addressed only one oral disease—dental caries. In 1953, Lewis Fox offered an intriguing statement when he said, "Dentistry was conceived in the womb of prosthesis and it reflects the heritage thereof." He was hoping to see an end to the era of multitooth extractions and replacement with complete dentures. Today the other major oral disease, periodontitis, is taking its rightful place in the dental curriculum. Numerous institutions have changed their degree from DDS to DMD, Doctor of Dental Medicine, almost seeming to anticipate what would happen as a result of the research indicating a relationship between oral disease and systemic changes.

Our goal is to treat periodontal disease and preserve the dentition. What has also become patently clear is that the antimicrobial therapy involved in periodontal treatment is no longer exclusively mechanical. Although scaling and root planing is the keystone of this area of treatment, chemotherapeutics, recently renamed periceutics, is beginning to play a role in therapy. Pharmacology is becoming a much more important part of the dental curriculum, and the use of drugs to detoxify the periodontal lesion has the potential to become more prevalent. This is an area that requires close collaboration between the dentist and physician, especially because certain cardiologists are now prohibiting scaling and root planing procedures in patients who are at risk for coronary heart disease.

We may see an increase in oral microbiology testing for patients with periodontal disease, because these tests identify the flora and the drugs to which they are sensitive. We also will see more dentists doing glucose testing and hemoglobin AIC evaluations in their practices, now that a drop of blood from a finger prick will give the blood sugar in less than 30 seconds. With physicians and dentists working more closely together, more patients with systemic disease will be managed more successfully, and patients will benefit from predictable treatment regimens to save their dentitions.

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