Guest Editorial

Breath odor research: New approaches to an old problem

The Third International Conference on Breath Odor was held in Vancouver, British Columbia, in August 1997, and as a co-organizer, I am grateful to Quintessence for making the papers presented at the conference available to a wide audience through the medium of *Quintessence International.* Breath odor research can best be thought of as an emerging field of research whose progress has been steady. Nevertheless, the proceedings of the previous conferences in Hersliya, Israel,[1] and Leuven, Belgium,[2] contain papers that have not been superseded by subsequent research. Perhaps the most striking feature of breath odor research is the breadth of approaches that are necessary for exploring the problem.

Because some speakers had prior commitments for publication of their material or could not bring the information to publishable form in the time available, this issue of QI does not contain all the papers presented at the conference; it does, however, illustrate the remarkable range of considerations, from molecular biology to psychiatry, that inform breath odor research.

At the molecular level, Dr Nancy Rawson of the Monell Chemical Senses Center reviews the cell and molecular biology of olfaction, a level of knowledge that will be required to design molecules to mask or enhance specific olfactory sensations. Although bad breath is often thought of only in terms of being a social nuisance, Drs Paul Johnson and Hope Lancero demonstrate, by use of sophisticated techniques of biochemistry, cell biology, and molecular biology, that volatile sulfur compounds (VSCs, the primary cause of oral malodor) have significant effects on cell physiology; an implication of their work is that VSCs are better removed than masked. Another laboratory-based study on the VSC-production from oral samples or from pure cultures of some periopathogens is reported by Drs Marc Quirynen, Geertrui Delanghe, Curd Bollen, and their colleagues. Among other findings, this group found that samples of tongue microbiota taken from individuals with higher oral malodor ratings produced more VSCs in vitro than did samples taken from those with less objectionable breath. An often-used approach to developing efficacious products for clinical use is modeling, and Drs Israel Kleinberg and Milroy Codipilly present an in vitro model for the systematic and quantitative study of antimalodor agents.

Moving to actual effects of products in vivo, Dr Walter Loesche reviews the effects of antimicrobial mouthrinses on oral malodor and their status relative to Federal Drug Administration regulation. On a practical plane, many consumers use chewing gum in an attempt to control bad breath, and because chewing gum can stimulate saliva production, there is good reason to suspect that it may be effective. Dr Yves Reingewirtz and coworkers present a systematic approach to investigating the effects of chewing gum on oral malodor.

Perhaps the question of most interest to readers of this journal would be how to deal with the diagnosis and management of bad breath. This issue presents the experience of breath odor clinics associated with universities in the United States, Belgium, Israel, and Canada. Drs Mirdza Neiders and Brigette Ramos outline the evidence-based approach used at the State University of New York at Buffalo. A problem widely observed by clinicians is that some patients who attend oral malodor clinics are not able to assess their breath odor objectively. Dr Mel Rosenberg and his coworkers, who have studied this problem extensively, report the results of a study in which the ability of patients to assess their own malodor was determined during a 1-year period. The multidisciplinary approach of the clinic, headed by Drs Louw Feenstra and Daniel van Steenberghe at the Catholic University Leuven, involves specialists in periodontics, ear-nose-throat, internal medicine, and psychiatry. Despite this high level of clinical expertise, a significant proportion

of people attending the clinic were dissatisfied and lacked belief in the effectiveness of treatments, even though it could be determined objectively that their breath was not malodorous.

Also of interest to clinicians is the article by Drs Ken Yaegaki and Jeffrey Coil from the University of British Columbia, who provide a questionnaire for the diagnosis and treatment of halitosis. Finally, Drs Yaegaki and Coil also provide some suggestions on dealing with psychosomatic patients who are convinced they have bad breath despite objective evidence to the contrary. An important lesson emerging from this university-based research is that dentists who operate breath odor clinics can expect a significant proportion of their clients to be dissatisfied even if effective treatments are being offered.

This issue of QI provides a wide-ranging view of the emerging and diverse field of breath odor research. What these proceedings cannot capture, however, is the spirited discussion that took place in the oral and poster sessions. Issues that sparked intense debate included the effectiveness of various products relative to their claims, the accuracy and reliability of various instruments claimed to measure bad breath, and the usefulness of various surrogate approaches that do not directly measure breath odor but do measure factors, such as plaque on the tongue, that are associated with the production of oral malodor. Nor do the printed pages necessarily capture the ambiance of the presentations, where, for example, the witty delivery of Dr Neiders had the audience roaring with laughter, while Dr van Steenberghe's formal presentation of life membership in the International Society for Breath Odor Research to Dr Joe Tonzetich for his outstanding and pioneering contributions to the field produced a respectful silence followed by warm applause.

If the meat of the conference diet was the scientific presentations, then the cultural dessert was the tour of the University of British Columbia's outstanding Museum of Anthropology, which features extensive exhibits on the culture of the aboriginal peoples of the Pacific Northwest. Perhaps these cultures can give us another perspective on dealing with odors. Historians Kew and Goddard, in describing the practices used to prepare oil from the eulachon, noted that "it was customary to allow the fish to decay somewhat" and that "the Indians are not prejudiced against the odor or taste of slightly putrid fish oil."[3] Thus, for odors, as for many other problems, tolerance can provide an acceptable answer. In any case, it is clear that much remains to be learned about breath odor, and there are no shortages of strong investigational methods being applied. There is every reason to anticipate interesting and informative sessions at the Fourth International Conference on Breath Odor, organized by Dr Michael Newman of the University of California at Los Angeles, which will take place in Los Angeles, August 20–21, 1999.

Finally, it should be noted that a conference of this kind, with speakers drawn from around the globe, could not be offered to participants at a reasonable registration fee without financial support from interested organizations. The local organizing committee of the Third International Conference on Breath Odor, comprising Drs Brunette, Coil, Tonzetich, Wateffield, and Yaegaki are grateful for such support from:

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References

1. Rosenberg M (ed). Bad Breath: Research Perspectives. Tel Aviv: Ramot, 1995.
2. van Steenberghe D, Rosenberg M (eds). Bad Breath: A Multidisciplinary Approach. Leuven: Leuven University Press, 1996.
3. Kew D, Goddard PK. Indian Art and Culture of the Northwest Coast. Vancouver, BC: Hancock House Publishers, 1974:40.