

Public Health and Preventive Medicine

Preventable Dental Disease

PETER RANK, JD; JACK H. JULIEN, DDS, and DONALD O. LYMAN, MD, *Sacramento, California*

One of a series of articles from western state public health departments

A combined effort by medicine, dentistry, public health and consumers has begun to reduce the incidence of dental caries. Physicians now have encouraging news for their pediatric and adult patients. At the same time, the prevalence of periodontal disease is increasing as the population of older adults grows. Physicians share a responsibility with dentists to prevent cavities, periodontal disease and tooth loss. They also have an obligation to keep abreast of changes in dental care delivery as well as the state of the art of prevention.

Fluoridation of water supplies substantially reduces the prevalence of dental caries, especially among children, but is not effective against periodontal disease and subsequent tooth loss. Bohanon and co-workers¹ reported that DMF (decayed, missing and filled teeth) scores for children in areas with fluoridated water were about one-half those in nonfluoridated areas.

However, the reduction in caries during the past 30 years cannot be attributed solely to water fluoridation.² The prevalence of dental caries has decreased in communities with nonfluoridated water.³ From 1972 through 1979 the decline of caries in children living in nonfluoridated communities ranged from 17% in Ohio⁴ to 60% in Brockport, New York.⁵ The reduction is thought to be largely the result of fluoride ingestion and application through other modes including the unintentional use of fluoridated water in food processing and the increasing use of infant formulas with high fluoride content and of fluoride toothpastes.⁵ Also, many dentists apply fluoride topically to the teeth of children.

In addition, educators, school nurses and parents, with professional support from physicians and dentists, are providing school-based dental disease prevention programs. In California,⁶ for example, a state-funded program is available for children from kindergarten through sixth grade. Traditional health education and

fluoride mouth rinse programs have been augmented with supervised daily deplaqueing programs.⁷ The curriculum provides instruction regarding the relationship of dental caries to the frequent consumption of cariogenic foods, and emphasis is placed on personal responsibility. We suspect that such programs have contributed to the cumulative effect resulting in the decreased prevalence of dental caries. (This question is now being studied at the School of Dentistry, University of California, San Francisco.) Dental disease is preventable, yet it continues to be the most prevalent disease of school children. This antithesis continues to be a challenge.

Adults have an astounding prevalence of preventable gum disease and subsequent tooth loss. About 45% of the population older than 65 are edentulous and 60% older than 45 who have teeth have periodontal disease.⁵ With concerted preventive effort it should be possible to reduce these percentages. Physicians are in a favorable position to counsel patients about the importance of oral hygiene, good nutrition and the benefits of retaining natural teeth as long as possible. Inquiring about food preferences and snacking habits affords opportunities to instruct patients and to encourage them to adopt a noncariogenic diet. Children who learn and practice proper brushing and flossing will have far fewer dental problems throughout life. Adults who have not yet established these habits should understand that the accumulation of food debris, plaque and calculus on and between teeth and at the junction of teeth and gums leads to a chronic inflammatory condition with early loss of teeth.

Profound changes are occurring in methods of dental care delivery. Pressures are growing to lower costs and competition is increasing.⁸ More and more young dentists are accepting contracts or concessions in hospitals and health maintenance organizations, as well as department stores, shopping malls and other places formerly

Refer to: Rank P, Julien JH, Lyman DO: Preventable dental disease (Public Health and Preventive Medicine). *West J Med* 1983 Oct; 139:545-546. Dr Rank is Director; Dr Julien is Chief, Dental Health Section, and Dr Lyman is Deputy Director, Health Protection Division, California State Department of Health Services, Sacramento.

Reprint requests to Peter Rank, JD, Director, California State Department of Health Services, 714 P St., Sacramento, CA 95814.

considered unprofessional.⁹ New forms of dental practice may serve more people, including some busy people with one-stop shopping habits, but whether such services will be rendered at reduced cost and will reach many who are not now being treated remain moot questions.

Physicians have a fourfold responsibility for preventing dental disease. Examination of the teeth and gums is only the beginning. A holistic approach requires counseling that will promote lifelong dental health. Patients with dental caries, periodontal disease or severe malocclusion should be referred to a dentist for preventive education and treatment. Most important, physicians can give their support to state and local dental societies and community programs designed to prevent dental disease.

REFERENCES

1. Bohanon H, Klein S, Leona F, et al: Caries prevalence in the national preventive dentistry demonstration program. *J Dent Res* 1981; 60: abstract No. 199
2. DePaola PF, Sparker F, Allukian M, et al: Changes in caries prevalence in Massachusetts children over thirty years. *J Dent Res* 1981; 60: abstract No. 200
3. Zacherl WA, Long DM: Reduction in caries attack rate—Nonfluoridated communities. *J Dent Res* 1979, 58 Special Issue A, abstract No. 535. Program and abstracts of the 57th General Session of International Association for Dental Research, p 227
4. Leverett DH: Fluorides and the changing prevalence of dental caries: *Science* 1982 Jul 2; 217:26-30
5. Allukian M: Dentistry at the crossroads; the future is uncertain: the challenges are many. *Am J Publ Health* 1982 Jul; 72:653-654
6. California Health and Safety Code, chap 1134, article 4.5, sections 360-373, chap 2, part 1, div 1
7. Brush Up and Keep Smiling, A Teacher's Guide, Rev 1979 Sacramento, Dental Health Section, California Department of Health Services
8. Wotman S, Goldman H: Pressures on the dental care system in the United States. *Am J Publ Health* 1982 Jul; 72:684-689
9. Rovin S, Nash J: Traditional and emerging forms of dental practice, cost, accessibility, and quality factors. *Am J Publ Health* 1982 Jul; 72: 656-662

Medical Practice Questions

EDITOR'S NOTE: *From time to time medical practice questions from organizations with a legitimate interest in the information are referred to the Scientific Board by the Quality Care Review Commission of the California Medical Association. The opinions offered are based on training, experience and literature reviewed by specialists. These opinions are, however, informational only and should not be interpreted as directives, instructions or policy statements.*

Intravenous Streptokinase After Myocardial Infarction

QUESTION:

Is intravenous streptokinase therapy after myocardial infarction accepted medical practice or is it considered investigational?

OPINION:

In the opinion of the Scientific Advisory Panels on Chest Diseases and Internal Medicine, intravenous streptokinase therapy administered promptly after onset of myocardial infarction is not established medical practice. Because of the excessive risks of bleeding associated with this therapy and as yet inadequate comparisons with other therapeutic approaches to the management of acute myocardial infarction, intravenous streptokinase therapy in this setting should continue to be considered investigational.

The short-term and long-term benefits of this therapy are yet to be defined. Currently the National Heart, Lung and Blood Institute is conducting prospective, randomized clinical trials in multiple centers to assess the benefits and problems of both intravenous and intracoronary streptokinase treatment. Although individual reports as well as pooled results from other randomized trials indicate a reduction in immediate mortality after myocardial infarction was treated with intravenous streptokinase, most of those studies antedated the use of other modalities now considered to represent standard practice. Further, the various trials that were pooled retrospectively had not been designed with uniform protocols as a prospective study.

Further investigation is required to document the safety and greater efficacy of this treatment before establishing it as accepted medical practice.