The necessity for effective dental health service in cardiology

In almost all ailments of the heart caused by bacteria the source of the infection is known to be the pathologic and infected environment of the teeth. Bacteria are driven into the blood stream (bacteremia)[1-4] from such foci by extractions, other operative procedures, and even by hard chewing. Subacute bacterial endocarditis is perhaps the best example. Kerr's monograph,[5] listing 800 references, provides an excellent key to the literature relative to this disease. From 80 to 90 per cent of the cases occur in persons whose heart valves and endocardium have been damaged by rheumatic heart disease.[6-9] Congenital heart disease[6,7,9,10] and congenial anomalies[10-12] account for a few cases.

The two principal diseases involving the teeth and their surrounding tissues—caries and periodontoclasia—are, for all practical purpose, entirely preventable. Prevention of these dental diseases should also prevent those diseases of the heart in which the infection comes from such foci. Under these circumstances the health welfare, and even life itself, of persons who have heart conditions which predispose to infection may depend upon prevention and control of dental disease. It is the responsibility of the cardiologist to know that this is possible and necessary and to make sure that the risk, in his patients, is thus reduced or eliminated.

Caries is a source of bacteremia only, and then temporarily, from advanced-stage lesions involving infection of the pulp. Bacteria in the periodontal pocket and in the diseased periodontal tissues are the source of almost all bacteremia from the environment of the teeth.

Periodontoclasia is a universal disease of man, originating as gingivitis in childhood, continuously advancing during adulthood, and never ending so long as any teeth remain. With the exception of those few persons who have learned and continuously follow the only entirely effective method of personal oral hygiene ever known, every dentulous adult now has demonstrable, active, advancing periodontoclasia ("pyorrhea") lesions in some stage about most or all of his or her teeth. This includes all heart patients and, incidentally also, all dentulous cardiologists.

Both caries and periodontoclasia are caused by microscopic organisms; the lesions at first are microscopic in extent, they advance microscopically, the tissues involved are composed of microscopic elements, and the destructive processes are microchemical. Employing techniques and methods acquired through many years of medical laboratory teaching and research concerned with microorganisms and microscopic pathologic conditions, I secured, and have published (listed in Reference 13), accurate essential information as to the important microscopic etiological and pathologic conditions at the particular locations where the lesions of caries and where those of periodontoclasia[14-16] originate and advance. Some vital parts of this information had not been clearly recognized or definitely understood theretofore.

On the basis of this factual information, and after much microscopically controlled experimentation, I designed and have taught and published[17,18] the method of personal oral hygiene which, according to all that is now known, is absolutely necessary, and which for all practical purposes is entirely effective, for the prevention and control of these two diseases. The teeth must be effectively cleaned daily with the right kind of both toothbrush and dental floss, at the specific locations where the lesions of these diseases originate and advance.

This necessary method of personal oral hygiene is different from, and in some vital particulars is quite the opposite of, other methods generally taught and followed, all of which are inadequate and unsuccessful. Witness the great prevalence of these diseases. It has not been taught in the dental schools.[19] Indeed, some of the facts as to the exact local microscopic etiological conditions involved, which have to be prevented, have not been recognized or taught. Therefore, those dentists who are now prepared to provide and promote the only entirely effective method of prevention presently known have had to obtain some of the necessary information since they graduated.

Each person must be instructed individually and must be shown the diseased or vulnerable locations on and around his or her teeth and exactly how to clean them at these particular locations. This can be done *only* by a dentist who knows how and understands why it is necessary, and who is willing and prepared to teach his patients as an important part

of his dental health service. He would be following this exact method in the home care of his own teeth.

The relationship of dentistry to cardiology has been recognized.[20,21] The cardiologist must have the cooperation of an informed dentist who has the necessary information for effective prevention and elimination of dental disease as a source of infection in especially predisposed patients.

The importance of dental health is emphasized in the Department of Medicine at the Tulane University Medical School. The instructor in oral hygiene, a dentist, shows each sophomore student the diseased and vulnerable locations in his own mouth and teaches him exactly how and why to clean them at these locations. Those who follow our method will be able to maintain the highest degree of oral cleanliness and dental health. Those who become cardiologists later will then know what their patients need in this regard.

Anyone who wishes to do so can confirm the factual information upon which the prevention of dental disease must be based. Clinical confirmation is easy. Persons can be found here and elsewhere who, by following our method of personal oral hygiene, have maintained the highest degree of dental health for years. I can point to a 90-year-old man who, for more than 15 years, has maintained practically 100 per cent oral cleanliness and dental health. The average medical student produces more pus ("pyorrhea") around some of his teeth in a day[22] than this old man produces around all of his teeth in a month.

Comment. I believe that, at some time in the future, leading cardiologists will wonder, in retrospect, how information so greatly needed by many of their patients could have been overlooked or neglected for so long.

Summary. The environment of the teeth is the principal source of infection in bacterial diseases of the heart. Periodontoclasia is a universal disease of all dentulous people. Therefore, persons who have damaged heart valves or are otherwise predisposed to bacterial heart disease now have demonstrable active periodontoclasia lesions about some or all of their teeth. This source of infection can be eliminated by dental health care which includes an effective method of personal oral hygiene, but not without it.

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