Dontal Manipulations as the Predisposing Factor of Bacterial Endocarditis

By

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Introduction:

In bacterial endocarditis the question often arises regarding the circumstances that permit bacteremia. It is a well recognized fact that it is often impossible to tell when the original invasion of bacteria took place, since the disease begins in most instances, in an insidious manner, not preceeded by any previous noticeable infection that could serve as a focus of entry. However there are now on record a number of cases of subacute bacterial endocarditis, in which the disease first asserted itself following the extraction of teeth or tonsilectomy. (Keefer, 1937). Wedgewood in 1955 emphasized the importance of dental pathology in the pathogenesis of SBE, Weiss in 1934 established that the common portal of entery of streptococci is from the foci of infection, the mouth or upper respiratory tract.

Purpose of Study:

The purpose of this work was to study the bacteriology of bacterial endocarditis patients, with reference to the predisposing factors.

Material and Methods:

Blood for culturing was taken from patients admitted as suspected cases of infective endocarditis. Patients history was taken as regards to the predisposing factors and correlation was made with the results of blood cultures.

Results:

Predisposing factors :—

Table I shows that a total of 26 patients were studied as suspected endocarditis cases. Out of these 4 gave history of dental manipulations which gives a percentage of 15.38%. These 4 patients were all seen to be infected by streptococcus viridans.

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TABLE—I:

Infecting Organism and Dental History

Total patients = 26

Patients with dental history: = 4 (15.38%).

Organisms.	*No. of Patients*	*Patients with Dental History.*
Streptococcus viridans.	13	4
Streptococcus faecalis.	1	—
Staphylococcus aureus.	3	—
Staphylococcus albus.	1	—

Discussion:

In our work 15.38% of patients had history of dental caries which is comparable to the study done by Lerner and Weinstein, (1966), in which 13% of the patients had dental problems that might have predisposed them to infection of the heart valves. Cates and coworkers (cited by Bender et al, 1958) have shown that in patients already having rheumatic heart disease dental manipulation account for 50% of the cases. Harvey & Copone 1961 also indicate that 10 to 50% of the cases of bacterial endocarditis are probably related to dental form of infection.

It was seen in the present study that in patients who had dental manipulations streptococcus viridans was the causative agent, which explains that the invasion of bacteria must have taken place from the mouth. Moreover it was seen that in Ugandan population endocarditis caused by streptococcal source is uncommon which may be explained on the basis of the generally healthy state of the teeth and rarity of dental manipulation in the Ugandan population. This well explains the low prevailance of a dental source of endocarditis (Somers et al., 1972).

Since many cases of subacute bacterial endocarditis have followed a known cause of bacteremia; prophylaxis might have prevented a number of these. This should alert the dental practitioners to attempt to prevent bacterial endocarditis in patients with congenital or acquired heart disease who are likely to have bacteremia. Prophylaxis in such patients would be aimed at microorganisms resident in the mouth, nasopharynx and upper respiratory tract, and is usually directed against viridans streptococci. Therefore the recommendations of the American Heart Association (1977) of the use of parenteral prophylaxis with bactericidal drugs should be practised. The American Heart Association recommend parenteral pencillin one to two hours before dental manipulations.

Summary:

Blood for culturing was taken from suspected cases of infective endocarditis. 26 such patients were studied as regards the predisposing factors. 3 blood cultures were taken from each patient. Out of these 26 patients 4 gave history of dental manipulation, as the causative predisposing factor which gives a percentage of 15. 38%. These four patients were all seen to be infected by streptococcus viridans.

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