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## Infective Endocarditis and Dentistry: Outcome-Based Research

(L'endocardite infectieuse et la dentisterie : recherche fondée sur les résultats)

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L'antibiothérapie prophylactique est depuis longue date recommandée pour prévenir l'endocardite infectieuse chez les patients qui reçoivent des soins bucco-dentaires. Deux études de cas ont montré que les traitements dentaires ne causaient guère de risque aux patients atteints d'endocardite. Il est primordial que les directives thérapeutiques se fondent sur les résultats (les cas échéant), la sûreté, l'efficacité et, de plus en plus, la rentabilité.

**Mots clés MeSH :** antibiotic prophylaxis; dental care; endocarditis bacterial/prevention and control.

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For years, guidelines for the prevention of bacterial endocarditis have recommended antibiotic prophylaxis for certain patients receiving dental care. The guidelines are revised from time to time, with the most recent revision completed in 1997. These guidelines have been based on animal studies and reports of individual patients where infective endocarditis has developed. Over the years, case reports and potential legal implications have motivated health care providers, including physicians and dentists, to recommend and institute antibiotic prophylaxis before dental procedures for individuals with specific heart conditions, particularly those with valvular disease, valve replacement or valvular regurgitation.

The most recent guidelines for the prevention of infective endocarditis and their implications for dental practice were recently

reviewed in a paper published in the *Journal*.<sup>1</sup> That paper highlighted that infective endocarditis is an extremely rare condition and that the attendance for dental management is common in Western society. Correlation between dental visits and subsequent endocarditis does not prove cause and effect, especially in light of the fact that dental treatment is a possible cause of very few cases of infective endocarditis.

Two important outcome studies have recently been published.<sup>2,3</sup> These two outcome-based studies have similar findings and indicate that the current guidelines, which are not based on population-based outcome studies, require further review.

A Dutch study<sup>2</sup> assessed 427 patients with endocarditis and found that 64% of these patients would have been eligible for antibiotic prophylaxis based on

previously known cardiac conditions. Twenty-three per cent had undergone a procedure that would have indicated prophylaxis within one-half year of onset of endocarditis, and 11% had undergone a procedure within 30 days of onset. It was thought that prophylaxis may have prevented 17% of cases within 180 days of onset, a period of time that extends beyond what many believe to be the appropriate incubation period, and 11% of cases within 30 days, representing only 5.3% of cases. Therefore, even if antibiotic prophylaxis was 100% effective and was provided for all at-risk patients receiving dental treatment, only a small fraction of cases of endocarditis (5.3%) would be potentially prevented.

A more recent study assessed patients in 54 hospitals in the Philadelphia area.<sup>3</sup> A total of 287 cases of endocarditis were

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identified; excluded from analysis were patients with endocarditis associated with intravenous drug use. It was found that in the three months preceding the diagnosis of endocarditis, dental treatment was no more frequent in these patients than in non-infected age- and sex-matched control patients. Of the 273 patients with endocarditis, 38% knew of cardiac conditions; of the control patients, only 6% were aware of cardiac conditions. Patients with endocarditis had a history of mitral valve prolapse, congenital heart disease, valve surgery, rheumatic fever or heart murmur more frequently than did control patients. In the at-risk patients with known cardiac lesions, dental therapy was significantly less common than among the control patients. In this study, dental treatment was not seen to represent a risk for infective endocarditis, even in patients with cardiac valve abnormalities. However, the presence of cardiac valvular abnormalities did represent a risk factor. No dental procedures other than tooth extraction in the two months prior to hospital admission were identified as risk factors; however, dental extractions were uncommon. Of the patients with endocarditis who had a known cardiac valvular abnormality and dental treatment (10.6%) in the previous three months, those who had dental therapy one month prior to diagnosis of endocarditis (4.4%) were found to be at no significantly increased risk from dental treatment, although the number of at-risk patients was small. The statistical risk for endocarditis did not change regardless of whether antibiotics were used in dental treatment. Very few cases of infective endocarditis would be prevented even if antibiotic prophylaxis was provided for dental procedures and was 100% effective.

It is important to recognize that failures of prophylactic antibiotic regimens have been recorded and indeed have been used to assist in modifying guidelines for prophylaxis coverage. Additional concerns about antibiotic prophylaxis include cost effectiveness and the

increased risk of resistant bacteria in society.<sup>1,4</sup>

It is imperative that guidelines for therapy be based on outcome studies (when available) and on evidence of safety, efficacy and, increasingly, cost effectiveness. The new data available about infective endocarditis, including the limited risk associated with dental treatment, the time of incubation and the increasingly available outcome-based evidence, require continual review of the current historically and empirically based recommendations. Current recommendations are essentially based on animal models and limited human studies. As these guidelines adapt to current information, it becomes increasingly important that the medical, dental and legal professions and the public be informed and up-to-date about knowledge and guidelines. ■

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ment), mais je sais bien aussi que Revenu Canada atteste constamment que les dentistes sont les deuxièmes à obtenir le revenu d'emploi le plus élevé par profession (les médecins étant les premiers).

Le Dr Christensen est d'avis que «des changements véritables s'imposent dès maintenant si nous voulons empêcher que s'effondre le système des barèmes d'honoraires». Pour ma part, je suis d'avis qu'un débat de cette nature ne peut avoir lieu «en vase clos parmi les dentistes.» L'énoncé de mission du Collège royal des chirurgiens dentistes de l'Ontario (l'organisme de réglementation professionnelle de tous les dentistes de l'Ontario) est de «Protéger le public et guider la profession dentaire.»

Il n'entre pas dans le meilleur intérêt du public de songer sérieusement à augmenter les honoraires des dentistes, quoi qu'il adienne aux États-Unis. S'il y avait un critère pour juger si le niveau actuel de leurs honoraires est convenable, ce devrait être : Les honoraires sont-ils abordables pour les Canadiens et permettent-ils aux dentistes de bien couvrir leurs frais généraux? La décision ne devrait pas s'appuyer sur les honoraires que les dentistes américains exigent.

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envie  
d'uriner.»

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peut-être un signe de diabète.

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