

A SURVEY OF AWARENESS AND PRACTICE OF ANTIBIOTIC PROPHYLAXIS FOR INFECTIVE ENDOCARDITIS AMONG SRI LANKAN DENTAL SURGEONS

R.D. Jayasinghe and M.A.M. Sitheeque

Dept. of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Peradeniya

Introduction

Infective Endocarditis (IE) is an uncommon infection with high mortality and morbidity (Smith et al., 2007). Dental treatment was until recently universally considered as a possible causative factor for IE in patients with underlying cardiac risk factors. Both the American Heart Association (Wilson, et al., 2007) and the British Society for antimicrobial chemotherapy (Gould, et al., 2006) in recent times modified their recommendations for antibiotic prophylaxis against IE. In March 2008, UK National Health Services National Institute for Health and Clinical Excellence (NICE) issued new revolutionary guidelines for antibiotic prophylaxis (ABP) against IE which are still not widely adopted. The aim of this study was to assess the awareness and prescribing patterns of antibiotic prophylaxis for IE among dental surgeons practicing in Sri Lanka.

Materials and Methods

A postal questionnaire was used to collect data. The questionnaire was designed to obtain basic socio-demographic data (5 questions) and information regarding their knowledge and prescribing patterns of ABP against IE (9 questions). In addition the questionnaire aimed to assess their awareness about cardiac conditions,

the dental procedures that are at risk of causing IE and the available guidelines. The questionnaire was posted to a randomly selected sample of 1000 dental surgeons practicing in Sri Lanka with a prepaid reply envelope. A reminder was sent after 3 weeks. Chi square test was used for the statistical analysis.

Results

The response rate was 28.9%. The majority of dental surgeons were males (63.4%). Seventy four per cent were employed in the state sector. Eighty four respondents (30%) had postgraduate qualifications. Ninety two percent dental surgeons stated that they take a medical history from all patients. Four percent respondents believed that ABP must be given to every patient with a history of cardiac disease regardless of the type of disease. Even though patients with prosthetic heart valves and/or history of a previous episode of IE were considered as high risk individuals who needed prophylaxis, about 9% of respondents indicated that they did not use ABP for such patients.

The first line antibiotic, amoxicillin based on the UK/ US guidelines was chosen by 72.5% respondents either alone or in combination with other antibiotics. Surprisingly dental surgeons without postgraduate

qualifications fared significantly better ($p < 0.05$) than those with postgraduate qualification in selecting amoxicillin as the first line antibiotic (76.6% vs 63%). Similarly more female dental surgeons (81%) chose the correct first line antibiotic than males (67%). This difference also was statistically significant ($P < 0.05$). Recommended dose regimens based on USA or UK guidelines were used by only 51.5%. Recommended alternative antibiotics were used by about 50% of respondents and clindamycin was the drug most commonly used (48.8%). Around 40% of the respondents used erythromycin. Recommended alternative antibiotic dosage regimens were used by 33.3% of the respondents. In this regard too the gender difference was statistically significant ($p < 0.05$). Again, dental surgeons without post graduate qualifications were significantly better in awareness than those with postgraduate qualifications ($p < 0.05$). Just over 62% of respondents did not follow either the British or American guidelines for ABP against IE dated 2000 or later while 76.8 % of respondents were not aware of the NICE guidelines.

Discussion

This survey was carried out to assess the awareness and prescribing patterns of dental surgeons practicing in Sri Lanka with regard to IE prophylaxis. This study compares the awareness and practices of dental surgeons with different experience, education, working place and working area with regard to prophylaxis for IE. Infective endocarditis (IE) is considered as a disease with a very high mortality and morbidity (Smith et al., 2007). Expert

committees in many countries have recommended the use of ABP in order to prevent the occurrence of bacteremia following dental treatments that may lead to IE (Carmona et al., 2004). These guidelines are periodically updated after considering available scientific evidence. These recommendations would not serve any purpose in the prevention of endocarditis unless dental surgeons are aware of them and regularly update their knowledge about the changes in the guidelines. Postal questionnaire surveys provide a simple but useful method of data collection. Unfortunately the reliability of such surveys is weakened by a poor response rate that leads to the significant problem of non-respondent bias. The response rate of the present study was low (28.9%) but a comparable response rates were noted in similar studies (Lauber, et al., 2007) and lower values were reported in some studies (Epstein and Chong 2000). It is possible that some of the respondents may have consulted reference material before responding to the questionnaire. Hence there is no guaranty that respondents were sufficiently knowledgeable of current recommendations.

It is mandatory to use the proper drug and dosage regimen of ABP for IE but 27.5% of respondents in this survey did not use the recommended first line drug, 40% its recommended dosage regimen, 50% appropriate second line drug and 35% its correct dosage regimen. The percentage of the correct responses in this survey was lower than the figures reported in the literature (Lauber, et al., 2007, Epstein and Chong 2000). It is sad to note that

the number of dental surgeons incorrectly use erythromycin as the second line drug and this figure is much higher than the figures reported in the literature (Lauber, et al., 2007). On the other hand Carmona et al., in 2004 reported that about 70% of Spanish dental surgeons used Erythromycin as the second line drug, but this was before the introduction of the new guidelines. Most of the cardiac conditions which were considered as risk conditions for IE in the previous guidelines have been deleted in the recent guidelines of both American Heart Association (Wilson et al., 2007) and British Society for Antimicrobial Chemotherapy (Gould et al., 2006). Only a previous history of IE, prosthetic heart valves and some types of congenital heart disease are currently considered as risk conditions. The results of this survey demonstrate that many dental surgeons in Sri Lanka are outdated with regard to certain conditions that are not currently considered to be at risk of developing IE following dental bacteraemia. The results of this survey further show that many dental surgeons prescribed unnecessary antibiotics for certain medical conditions while some of them failed to prescribe adequate ABP.

Conclusions

The findings of this survey clearly indicate that the dental surgeons practicing in Sri Lanka exhibit a lack of awareness concerning the current guidelines on ABP for IE. However

our conclusion may have to be viewed with the caveat that the somewhat lower response rate of this survey could have caused a non-respondent bias.

References

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