

## Prophylaxis in dental patients with pacemakers for infective endocarditis and its awareness amongst the Pakistani society

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Madam,

Infective endocarditis is a condition posing a significant threat to life, affects the inner lining of the heart, known as the endocardium. It is particularly common among individuals with pre-existing cardiac conditions, especially following invasive dental procedures. The progression of infective endocarditis subsequent to dental treatments involves a series of events. This includes the disturbance of the oral mucosa, resulting in temporary bacteraemia, which ultimately becomes a key factor in the development of infective endocarditis.<sup>1</sup> However, this disease has a low incidence but a high mortality rate worldwide. It is estimated that in developed countries 3 to-9 cases per 100,000 are reported with a mortality of about 15to-22 %.<sup>2</sup>

In patients with pacemakers very few cases, 0.13% to 7% are reported.<sup>3</sup>

Although the occurrence of infective endocarditis in pacemaker patients is rare but the matter of concern is the lack of awareness among dental professionals and patients regarding the cautions that are required to prevent such a condition, especially in a country with a mediocre healthcare system like Pakistan. According to a cross-sectional study conducted in Pakistan only 62.5% of healthcare professionals were aware that prophylactic measures are to be taken when dealing with patients at risk for infective endocarditis. Although dentists were seen to be aware of the need for prophylaxis, most dentists (58.82 and 55.4%) were unaware of the dose and dosage of azithromycin and clindamycin in patients with penicillin allergies.<sup>4</sup> The study also highlighted the need for education and training in dental schools regarding

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antimicrobial stewardship. Most of the patients in Pakistan are from a low socioeconomic background and are unaware of such guidelines, this warrant to conduct surveys and educate the general public through different means on the precautions cardiac patients need to take and the importance of providing healthcare professionals with adequate histories.

The outcome of IE could be highly fatal in most cases and these worrying statistics and facts call the need for intervention to be done while training medical/dental professionals and awareness among cardiac patients. It is crucial for healthcare providers to recognize the significance of comprehensive patient history-taking, a skill that should be instilled at an early stage of training. Integrating antibiotic prophylaxis education into medical school curricula, covering regimens, alternatives, and indications, is paramount. Cardiologists should ensure patients under their care to understand the precautions essential for dental procedures. Moreover, the adoption of tele dentistry holds promise in disseminating knowledge among dental patients, facilitating care, education, and research, especially in remote or underserved areas.<sup>5</sup> Educating cardiac patients on optimal oral hygiene and pre-treatment protocols is vital given their heightened susceptibility to IE.

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### References

1. Hiro-O ITO. Infective endocarditis and dental procedures: evidence, pathogenesis, and prevention. *J Med Invest.* 2006; 53:189-98. doi: 10.2152/jmi.53.189.
2. Gupta K, Kumar S, Kukkamalla M, Taneja V, Syed G, Pullishery F, et al. Dental Management Considerations for Patients with Cardiovascular Disease—A Narrative Review. *Rev Cardiovasc Med.* 2022; 23:261. doi: 10.31083/j.rcm2308261.
3. Klug D, Lacroix D, Savoye C, Goullard L, Grandmougin D, Hennequin JL, et al. Systemic Infection Related to Endocarditis on Pacemaker Leads. *Circulation.* 1997; 95: 2098–107. doi:

- 10.1161/01.cir.95.8.2098
4. Qadir M, Mustafa W, Nizami AA, Iqbal H, Shahzad M, Ali A, et al. Unveiling the Knowledge Gap Regarding Standard Antibiotic Prophylaxis for Infective Endocarditis Among Physicians, Dentists and Cardiologists in Pakistan: A Cross-Sectional Study. *Cureus*. 2024; 16:e52938. doi:10.7759/cureus.52938
  5. Chaudhary FA, Ahmad B, Javed MQ, Mustafa S, Fazal A, Javaid MM, et al. Teledentistry awareness, its usefulness, and challenges among dental professionals in Pakistan and Saudi Arabia. *Digit Health*. 2022; 8: 1-10. doi: 10.1177/20552076221089776.
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