



# Significant of Antibiotic prophylaxis for diabetic patients with periodontal disease, 1 hour before phase 1 periodontal therapy

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## ABSTRACT

People with diabetes are more likely to have periodontal diseases than people without diabetes. Periodontal disease is often considered a complication of diabetes. On the other hand, severe periodontal disease can increase blood glucose levels. Special care and management protocol need to be addressed to patients with diabetes during periodontal therapy. Systemic antibiotics in conjunction with scaling and root planning can offer an additional benefit over SRP alone in the treatment of periodontitis. This review aims to evaluate the significance of antibiotic prophylaxis for diabetic patients with the periodontal disease before 1 hour/ 1-2 days of phase 1 periodontal therapy. The goal of antibiotic prophylaxis is to prevent the onset of infections through the entranceway provided by the therapeutic action. But currently, no established guidelines are in place for antibiotic prophylaxis before periodontal therapy.

**KEYWORDS:** Antibiotic prophylaxis, Diabetic patient, Periodontal disease, Phase 1 therapy

## INTRODUCTION

Diabetes Mellitus is a metabolic disease characterized by a change in carbohydrate, lipid and protein metabolism featuring increased blood glucose levels, resulting from either a defect in insulin secretion from the pancreas, changing insulin action or both.<sup>1</sup> The periodontal disease most commonly plaque-induced gingivitis and CP-gingivitis is defined as a group of conditions affecting the supporting structure of tooth which may consequence to loosening of teeth if untreated.<sup>2</sup> As enlisting the complication of DM, periodontitis has been recognized as the sixth one<sup>5</sup> indicating the bidirectional links between DM and CP.<sup>1</sup>

Both diabetes and periodontitis are chronic diseases with decreased collagen turnover, impaired neutrophil function, and increased periodontal destruction, diabetes adversely affects the periodontium. On the other hand, the release of pro-inflammatory cytokines from the inflamed periodontal tissue resulting from bacteria and bacterial products such as lipopolysaccharide from the subgingival plaque. When entering circulation and interfere with insulin signaling and causing insulin antagonism and pancreatic beta-cell destruction. plaque. When entering circulation and interfere with insulin signaling and causing insulin antagonism and pancreatic beta-cell destruction.<sup>1</sup>

Biofilms, microbial cells encased within a matrix of extracellular polymeric substance and their active by-products are the main etiological factors for gingival and periodontal diseases.<sup>3</sup> The most commonly involved species are porphyromonas gingivalis, treponema denticola and tannerella forsythia.

Antibiotics play a vital role in eliminating these pathogenic bacteria.<sup>4</sup> Numerous antibiotics could be employed but it is unclear with which antibiotic and when for the beneficial of

the patient. The discussion is concerned with antibiotic therapy in Diabetic patients.

## MATERIAL AND METHODS

This narrative review article was conducted following the guidance of the periodontology and oral pathology department, Update Dental College. **Focused Question:** "As the defense system remains suppressed in DM do we have to give antibiotic prophylaxis before Phase-1 periodontal therapy?"

**Inclusion Criteria:** To be included in the sample, the journals/articles had to be an article within the last 10 years, a study that included prophylaxis antibiotic therapy and disease periodontitis along with DM. **Exclusion Criteria :** Studies related to another dental disease rather than periodontitis, articles published before a decade ago and which doesn't include antimicrobial therapy were excluded.

**Search Strategy:** The articles from Pub med, hinari access of UPDC and Cochrane Central library of the review were searched up to November 2019 by two researchers using the keywords. "Prophylaxis antibiotic" "periodontitis" "Diabetes Mellitus" In doing so, we found 24 articles from Pub Med and from Cochrane Central Library<sup>1-24</sup>. **Data Extraction:** Among these identified articles, only five articles met the inclusion criteria after reading the abstract of individual articles first.<sup>1-5</sup>

## DISCUSSION

The foci of this study were to arbitrate whether antibiotic prophylaxis is mandatory or not during phase 1 therapy in patients with periodontitis associated with diabetes mellitus. The results in the current study demonstrated that up until today, only two studies in the literature show the necessity of antibiotic prophylaxis during phase 1 therapy in either controlled or uncontrolled diabetes mellitus patients. This study is published by Anoop Kapor(2012 Sep-Oct) mentioned that in patients with diabetes, periodontal procedures such as probing, scaling, root planning, subgingival placement of antibiotic fibers or strip, periodontal surgery are considered as high-risk procedures<sup>3</sup>.

Also study from Gutierrez JL mentioned all the dental procedures that induce bleeding will develop transitory bacteremia that will rarely persist more than 15 minutes which has been confirmed by blood cultures. And in patients with DM, the primary and secondary immune system remains suppressed. Thus use of antibiotic prophylaxis during phase 1 periodontal therapy in patients with DM, reduce the prevalence of infection.<sup>5</sup>

Whereas, others stated that adjunctive use of systematic antibiotics is accentuated to support the host defense mechanism in defense of the pathogenic microorganisms.

## CONCLUSION

We conclude that very few authentic sources mentioned that prophylaxis should be given to the patients with DM during or before phase 1 periodontal therapy and excluding that none of the articles has specified the use of antibiotic prophylaxis

during scaling and root planning. Hence, with more advanced methods of studies and research, they should urge to reach a particular conclusion.

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