

## A SURVEY ABOUT AWARENESS OF PERIODONTAL DISEASE IN DIABETIC PATIENTS AMONG DENTAL INTERNS

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### ABSTRACT:

**Introduction:** Diabetes mellitus as a group of chronic metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both.

There is a bidirectional relationship between periodontal disease and diabetes.

In fact, periodontitis is often referred to as the sixth complication of diabetes.

**Objective:** To assess the awareness of periodontal disease in diabetic patients, among dental interns.

**Methods:** Across sectional survey containing 11 questions was answered by 150 dental interns from Aurangabad, Maharashtra.

**Results:** A substantial limited knowledge about the bidirectional relationship between periodontal disease and diabetes in interns.

**Conclusion:** The results of this survey indicate that dental interns have thorough knowledge about periodontitis; however, their awareness about periodontal disease in diabetic patients is limited.

**Keywords:** Diabetes, Periodontitis, Dental Interns.



### INTRODUCTION:

Periodontitis is a common chronic inflammatory disease characterized by destruction of the supporting structures of the teeth. It is highly prevalent (severe periodontitis affects 10–15% of adults) and has multiple negative impacts on quality of life.<sup>[1]</sup>

Periodontitis induces systemic inflammation, which can aggravate systemic diseases such as diabetes mellitus, pulmonary disease, cardiovascular disease, rheumatoid arthritis, adverse pregnancy outcome and many more.<sup>[2]</sup>

Periodontitis and diabetes are both highly prevalent conditions, and the

association between these two common diseases has been recognized by dental professionals for many years.<sup>[3]</sup>

There have been various studies which have demonstrated a bidirectional relationship between periodontal disease and diabetes.<sup>[4,5,6]</sup>

Arising from the epidemiological association, diabetes was thought to affect the periodontal status through direct effects of hyperglycemia and be indirectly modulated by advanced glycation end-products (AGEs), adducts from the glycation and oxidation of protein and lipids, leading to an overall

impairment of wound healing and changes in periodontal tissue.<sup>[7]</sup>

Periodontal disease has been reported as the sixth complication of diabetes, along with neuropathy, nephropathy, retinopathy, and micro- and macro vascular diseases.<sup>[8]</sup>

Diabetes is also recognized as an important risk factor for more severe and progressive periodontitis, infection or lesions resulting in the destruction of tissues and supporting bone that form the attachment around the tooth.<sup>[9]</sup>

Compared with the large number of studies that have investigated the role of inflammatory mechanisms in the link between periodontitis and diabetes, relatively few have investigated relationships between the oral microbiota and diabetes. In one study, recovery of several periodontal pathogens, including *Aggregatibacter actinomycetemcomitans*, *Campylobacter rectus*, *Capnocytophaga* spp, *Eikenella corrodens*, *Fusobacterium nucleatum* and *Prevotella intermedia*, was similar in both diabetic and non-diabetic participants, but significantly more individuals with diabetes harboured *P. gingivalis*<sup>[10]</sup>.

Hence the present study seeks to assess the knowledge of periodontal disease and awareness of its inter relationship with diabetes among dental interns, as they can also play an important role in preventing the further progression of periodontal disease in such patients.

## **AIMS & OBJECTIVES:**

- 1.To assess the knowledge of periodontal disease among dental interns.
2. To assess the knowledge of diabetes among dental interns.
3. To assess their awareness of periodontal disease in diabetic patients.

## **MATERIALS AND METHODS:**

A questionnaire survey containing 11 questions was used to assess the extent of awareness of periodontal disease in diabetic patients among dental interns. A Convenient sample size of 150 dental interns from Aurangabad, Maharashtra was chosen. Ethical clearance certificate was obtained from the institution for the same.

## **STATISTICAL ANALYSIS:**

Data obtained was analyzed using the SPSS (Statistical package for social sciences)version.

## **RESULTS:**

Among the 150 dental interns 90% of the interns considered in the present study were aware of the exact term of periodontitis (Fig.1). Only 10% of the interns have lack of knowledge about the periodontitis.

Many of them were having knowledge about the clinical manifestation of periodontitis, normal range of blood sugar level, test to detect blood sugar

level etc. (Fig.2,3,4,6,8). But only 23% of dental interns were aware about the relationship between periodontitis & diabetes. (Fig.11)

Only 28% of the interns knows that the periodontitis is a 6<sup>th</sup> complication of diabetes mellitus (Fig.5).61% of the interns asks the periodontitis patients about the presence or absence of diabetes mellitus (Fig..7) & 68% were treated the diabetic patient under antibiotic therapy. (Fig.10).

## DISCUSSION:

Periodontal disease is considered as a complex infectious disease which results from interplay of bacterial infections and host-responses to bacterial challenges which causes destruction of tooth supporting structures. The condition is very common, severe periodontitis affects 10–15% of adults in most population's studies. Moderate periodontitis is even more common, affecting 40–60% of adults. Periodontitis is therefore a highly prevalent.

Strong relationship between diabetes & periodontitis is proved in the literature long back. As a dental care professional, it's our duty to carry knowledge about this relationship & provide accurate treatment according to the need. & also this knowledge should be spread to medical professionals & general public so that they will come to know about oral health maintenance.

The present study shows that dental interns had limited awareness level in

regards to the periodontal disease in diabetic patients.

Similar survey was carried out by Al-Khabbaz AK et al(2011) in 510 general practitioners to know the knowledge about the association between periodontal diseases and diabetes mellitus: contrasting dentists and physicians and he found Dentists were significantly more aware of gingival bleeding, tooth mobility, and alveolar bone resorption than were physicians [11]

Arpita Gur et al(2011) was carried study out in 143 interns to study the level of awareness regarding systemic effects of periodontal disease among medical interns and concluded that the level of awareness in medical interns is limited. [12]

Allen EM, Ziada HM, O'Halloran D, et al.(2008)did study to looks at the knowledge and attitudes about oral health in people with diabetes Many participants were aware of their increased risk of cardiovascular and eye disease (84% and 98%, respectively); however, only 33% knew of their higher risk for periodontal disease. In the past year, 43% of the participants saw a dentist but only 43% were aware of the higher risk of periodontal disease. Of the participants who were cognizant of the increased risk of periodontal disease, one half received this information from a dentist. A total of 62% of the participants with poor metabolic control (hemoglobin A<sub>1c</sub> [HbA<sub>1c</sub>] > 9%), and 77% with

moderate metabolic control (HbA<sub>1c</sub> 7.5% to 9%) were not aware of their higher risk for periodontal disease.<sup>[13]</sup>

Wilder RS,et al.(2009) Surveys of the directors of both dental hygiene and dental school programs showed these directors believed nurses and physicians were not very knowledgeable about the periodontal-systemic disease connection. More work is needed to educate dental students on how to work with other healthcare providers to co-manage patients at risk for oral-systemic conditions. <sup>[14]</sup>

Above mentioned studies showed that limited awareness is present about diabetes & periodontal relationship. Present study showed similar type of results were survey was done on dental interns. As a periodontics, it's our duty to spread this knowledge in general dentist.

### CONCLUSION:

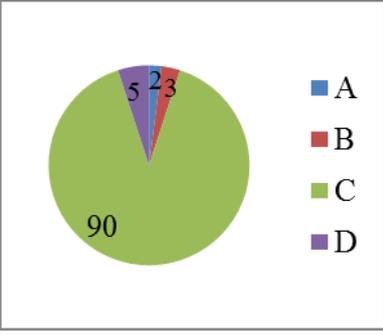
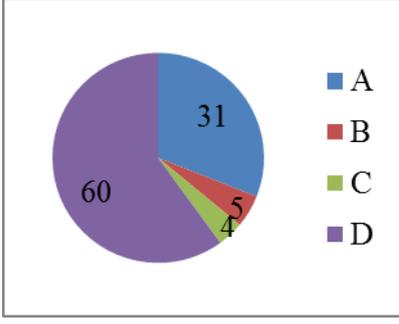
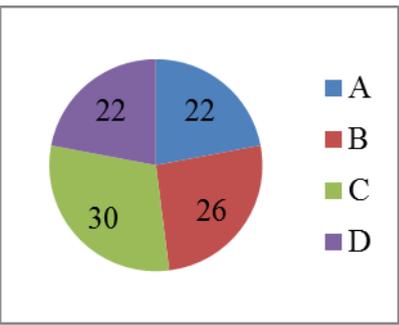
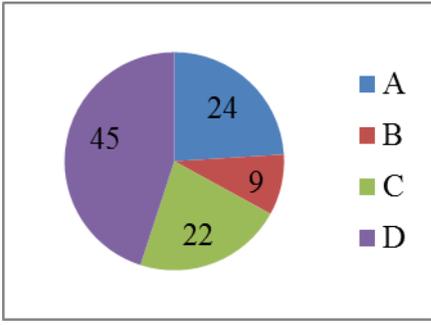
Majority of dental interns had good knowledge about periodontal diseases but most of them had inadequate awareness regarding the relationship between periodontal diseases and diabetes.

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**FIGURES:**

<p>1. What is Periodontitis?                  A .Inflammation of Dentin.                  B. Inflammation of Enamel.                  C. Inflammation of supportive tissues of teeth.                  D. Inflammation of tooth.</p>  <table border="1"> <caption>Data for Figure 1</caption> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>3</td> </tr> <tr> <td>B</td> <td>2</td> </tr> <tr> <td>C</td> <td>90</td> </tr> <tr> <td>D</td> <td>5</td> </tr> </tbody> </table> <p style="text-align: center;">Fig.1</p>	Option	Percentage	A	3	B	2	C	90	D	5	<p>2. What are the clinical manifestations in Periodontitis                  A. Bleeding gums.                  B. Mobile teeth.                  C. Gingival recession.                  D. All of the above.</p>  <table border="1"> <caption>Data for Figure 2</caption> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>31</td> </tr> <tr> <td>B</td> <td>5</td> </tr> <tr> <td>C</td> <td>4</td> </tr> <tr> <td>D</td> <td>60</td> </tr> </tbody> </table> <p style="text-align: center;">Fig.2</p>	Option	Percentage	A	31	B	5	C	4	D	60
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Option	Percentage																				
A	31																				
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<p>3. What is the range of normal fasting blood glucose level?                  A.50-69mg/dl.                  B.70-99mg/dl.                  C.100-125mg/dl.                  D. 126mg/dl or higher.</p>  <table border="1"> <caption>Data for Figure 3</caption> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>22</td> </tr> <tr> <td>B</td> <td>26</td> </tr> <tr> <td>C</td> <td>30</td> </tr> <tr> <td>D</td> <td>22</td> </tr> </tbody> </table> <p style="text-align: center;">Fig.3</p>	Option	Percentage	A	22	B	26	C	30	D	22	<p>4.Which is the most reliable test for detection of diabetes                  A. Fasting blood glucose test.                  B. Urine blood sugar test.                  C .Post prandial blood glucose test.                  D. Glycosylated hemoglobin test.</p>  <table border="1"> <caption>Data for Figure 4</caption> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>24</td> </tr> <tr> <td>B</td> <td>9</td> </tr> <tr> <td>C</td> <td>22</td> </tr> <tr> <td>D</td> <td>45</td> </tr> </tbody> </table> <p style="text-align: center;">Fig.4</p>	Option	Percentage	A	24	B	9	C	22	D	45
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5. Periodontitis is the --complication of diabetes Mellitus

- A . 1<sup>st</sup>
- B.2<sup>nd</sup>
- C.3<sup>rd</sup>
- D.6<sup>th</sup>

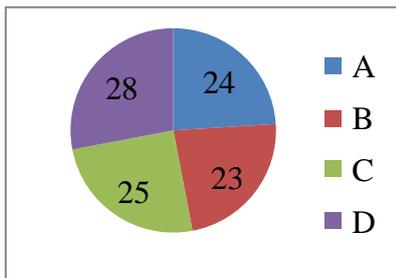


Fig.5

6. As per ADA fasting blood glucose test level which indicates diabetes is?

- A . 50-69mg/dl
- B. 70-99mg/dl
- C. 100-125mg/dl
- D. 126mg/dl or higher on separate tests.

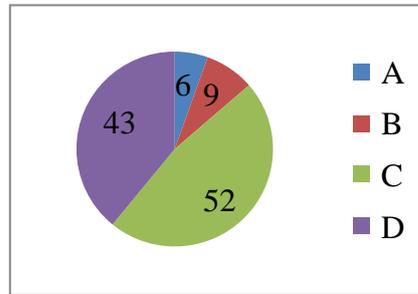


Fig.6

7. Do you ask to your periodontitis patients about the presence or absence of diabetes mellitus?

- A. Yes.
- B. No

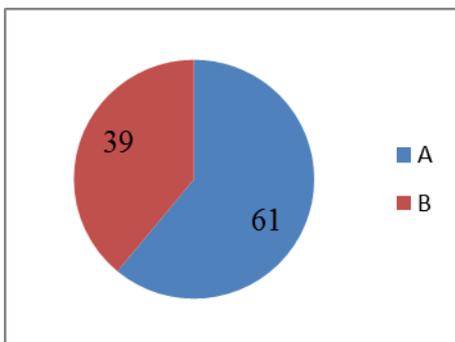


Fig.7

8. Which is the most common periodontal manifestation seen in an uncontrolled diabetic patient?

- A. Periodontal abscess
- B. Bleeding gums
- C. Ulcers
- D. Atrophic glossitis

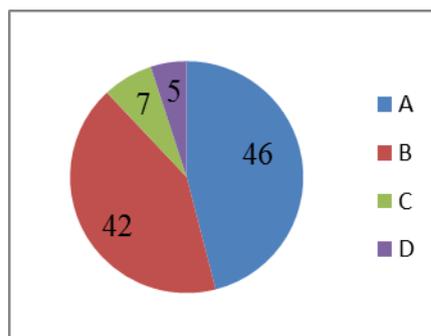


Fig.8

9. Rapid destruction of periodontal structures in poorly controlled diabetic is due to

- A. Increased collagenase activity
- B. Decreased collagen synthesis
- C. Decreased collagenase activity
- D. Both a & b

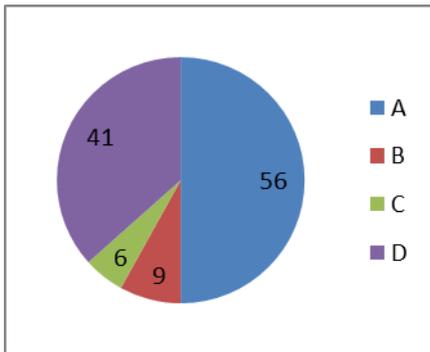


Fig.9

10. Weather you treat the diabetic patient under antibiotic therapy

- A. Yes
- B. No

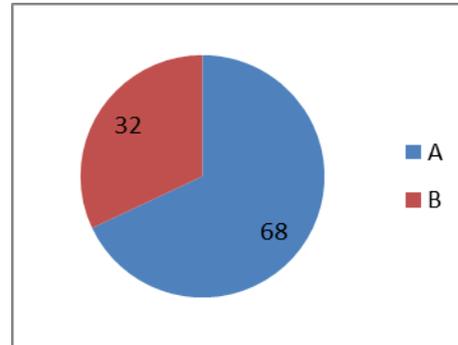


Fig.10

11. How would you rate your knowledge about periodontal disease and its association with systemic disease?

- A. Limited
- B. Moderate
- C. Good.
- D.No idea

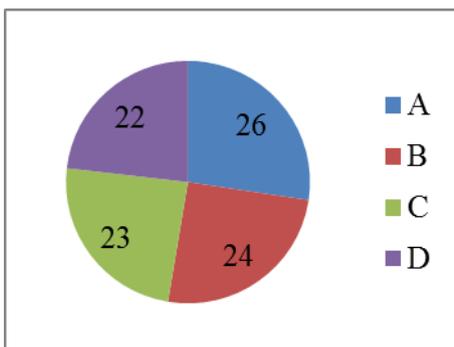


Fig.11