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Research Article

**ASSESSMENT OF LEVEL OF BLOOD GLUCOSE IN TYPE-2
DIABETIC PATIENTS UNDERGOING DENTAL
TREATMENTS**Dr Abdul Samad Tayyab¹, Dr Khair Ul Inam², Dr Umme-i-Hani³¹THQ Hospital, Haveli Lakhan²MO at DHQ Hospital, Shangla³WMO at Indus hospital Manawa

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Abstract:

Aims and objectives: The main objective of the study is to analyze the level of blood glucose in type-2 diabetic patients undergoing dental treatments. **Material and methods:** This cross sectional study was conducted in THQ Hospital, Haveli Lakhan during March 2018 to November 2018. The data was collected from 100 diabetic patients who undergo dental procedures and treatments. Venous blood sample was collected from each patient and then centrifuged this sample for the separation of serum. The sample included only the patients who presented blood glucose levels and HbA1c demonstrating that diabetes was under control. They should also be under continuous oral hypoglycemic drugs treatment, medical supervision and no dose alterations. **Results:** The data was collected from 100 diabetic patients. There is no statistically significant difference between the groups, regarding the evaluation period ($p > 0.05$). For heart rate, there was no statistically significant difference between the groups regarding the evaluation period ($p > 0.05$). However, regarding the comparison between the periods statistically significant differences were observed ($p < 0.05$) for the T1 and T2 values for group. However, when comparing the periods statistically significant differences were observed ($p < 0.05$) for T2 and T3 values for group. **Conclusion:** It is concluded that periodontal disease is the main oral clinical manifestation in diabetic patients.

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INTRODUCTION:

Diabetes mellitus is a complex and pernicious syndrome. It is characterized by abnormalities in carbohydrate, lipid and protein metabolism that result either from a profound or an absolute deficiency of insulin, related to autoimmune destruction of the insulin-producing pancreatic beta cells (type 1, or insulin-dependent diabetes mellitus), or from target-tissue resistance to its cellular metabolic effects, related commonly to obesity (type 2, or non-insulin-dependent diabetes mellitus) [1]. Type 1 diabetes represents no more than 5 percent of primary diabetes cases, whereas type 2 represents the remainder of the primary cases. Under most circumstances, it is impossible to provide effective dental care without the use of local anesthetics and vasoconstrictors [2]. Although these drug classes have a history of safety and efficacy, they have the potential to produce significant toxicity if used carelessly. Whereas local anesthetics produce peripheral vasodilatation, which contributes to hypotension, even small doses of vasoconstrictors can influence cardiovascular function, causing an increase in cardiac output and stroke volume as well as alterations in heart rate and arterial blood pressure [3]. Diabetes mellitus, a world-wide increasing disease, is related to a heterogeneous group of metabolic disorders characterized by hyperglycemia resulting from either defects in secretion or insulin action or even both [4]. Many of the patients who seek dental care present systemic diseases, including diabetes, which are often unknown and not controlled. For these risk patients, thorough anamneses are recommended in order to recognize their biological conditions and establish the clinical risks during the intervention. Moreover, the most critical the patient's systemic condition, the more important is the effective anxiety and pain control [5].

Aims and objectives

The main objective of the study is to analyze the level of blood glucose in type-2 diabetic patients undergoing dental treatments.

MATERIAL AND METHODS:

This cross sectional study was conducted in THQ Hospital, Haveli Lakhan during March 2018 to November 2018. The data was collected from 100 diabetic patients who undergo dental procedures and treatments. Venous blood sample was collected from each patient and then centrifuged this sample for the separation of serum. The sample included only the patients who presented blood glucose levels and HbA1c demonstrating that diabetes was under control. They should also be under continuous oral hypoglycemic drugs treatment, medical supervision and no dose alterations. Blood pressure was measured using a digital sphygmomanometer and pulse oximetry and heart rate measured by pulse oximetry.

Statistical analysis

The data was collected and analyzed using SPSS version 21.0. Student's t-test was performed to evaluate the differences in roughness between groups. Two-way ANOVA was performed to study the contributions.

RESULTS:

The data was collected from 100 diabetic patients. There is no statistically significant difference between the groups, regarding the evaluation period ($p > 0.05$). For heart rate, there was no statistically significant difference between the groups regarding the evaluation period ($p > 0.05$). However, regarding the comparison between the periods statistically significant differences were observed ($p < 0.05$) for the T1 and T2 values for group. However, when comparing the periods statistically significant differences were observed ($p < 0.05$) for T2 and T3 values for group.

Table 01: Mean values and standard deviation of blood glucose (mg / dL) in the groups

| Groups | T1 | T2 | T3 | P values |
|-----------------|----------------|---------------|----------------|----------|
| G1 | 147.65 ± 40.18 | 149.9 ± 44.75 | 137.85 ± 35.86 | *0.0425 |
| G2 | 142.35 ± 34.83 | 144.1 ± 35.06 | 137.55 ± 38.66 | 0.0517 |
| <i>P values</i> | 0,3760 | 0,8813 | 0,9256 | |

Table 02: Mean values and standard deviation of heart rate (bpm)

| Groups | T1 | T2 | T3 | P values |
|-----------------|---------------|---------------|---------------|----------|
| G1 | 73.00 ± 12.47 | 77.90 ± 12.63 | 74.75 ± 13.03 | *<0.05 |
| G2 | 75.45 ± 12.49 | 77.35 ± 11.56 | 73.75 ± 11.86 | 0.5842 |
| <i>P values</i> | 0.4209 | 0.9108 | 0.3144 | |

DISCUSSION:

The oral complications of uncontrolled diabetes mellitus are devastating. These may include, but are not necessarily limited to, gingivitis and periodontal disease; xerostomia and salivary gland dysfunction; increased susceptibility to bacterial, viral and fungal (that is, oral candidiasis) infections; caries; periapical abscesses; loss of teeth; impaired ability to wear dental prostheses (related in part to salivary dysfunction); taste impairment; lichen planus; and burning mouth syndrome [7]. Most types of dental treatment can produce discomfort and pain at some level. Further, pain may influence or be influenced by anxiety levels related to dental treatment. The use of a LAVA (injection) can also produce extreme pain and fear, at least momentarily, in some patients. On the other hand, when a dentist judges that it is possible to go on with a procedure without the use of a LAVA, patients may also exhibit discomfort, anxiety, and pain. An ineffective form of pain control increases the risk of negative patient health outcomes due to increased levels of endogenous catecholamines, particularly norepinephrine, which may increase blood pressure and heart rate [8]. The purpose of this study was to determine if there was a significant correlation between anxiety levels, hemodynamics, and glucose parameters in patients undergoing dental treatment, regardless of whether or not they received a LAVA. No such relationship was found.

The dentist plays a major role in referral of patients with diabetes to physicians for additional evaluation [9]. Any undiagnosed dental patient who has the cardinal signs and symptoms of diabetes (that is, polydipsia, polyuria, polyphagia, weight loss, weakness), or who presents with an oral manifestation (for example, xerostomia or candidiasis), should be referred to a physician for diagnosis and treatment [10].

CONCLUSION:

It is concluded that periodontal disease is the main oral clinical manifestation in diabetic patients. The dentist plays a major role with allied members of the health team in helping a patient maintain glycemic control by properly treating oral infections, and by

instructing the patient with diabetes to maintain rigorous oral hygiene and a proper diet.

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