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Research Article

**ANALYSIS OF BLOOD GLUCOSE CONCENTRATION IN  
DIABETES TYPE II PATIENTS UNDERGOING TOOTH  
SURGERY**<sup>1</sup>Dr Sara Zahid, <sup>2</sup>Dr Huma Siddique, <sup>3</sup>Shafaq Batool

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**Abstract:**

**Introduction:** Many of the patients who seek dental care present systemic diseases, including diabetes, which are often unknown and not controlled.

**Aims and objectives:** The basic aim of the study is to find the level of blood glucose in diabetic patients undergoing dental procedures.

**Material and methods:** This cross sectional study was conducted in health department Punjab during June 2019 to December 2019. The patients selected for this study were those who suffered from diabetes. The sample included only the patients who presented blood glucose levels and HbA1c demonstrating that diabetes was under control.

**Results:** There is no statistically significant difference between the groups, regarding the evaluation period ( $p > 0.05$ ). 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:**

Many of the patients who seek dental care present systemic diseases, including diabetes, which are often unknown and not controlled [1]. 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 [2].

The successful use of local anesthesia is essential for good dental treatment as well as dentist and patient interaction in order to help anxious or dental phobic patients to achieve confidence. When pain is unexpectedly caused, there may be significant physiological changes during the dental procedures. With the evolution of local anesthetic solutions, their efficacy and clinical safety have been improved [3]. Nevertheless, there is still the possibility of systemic complications due to accidental intravascular injection, anesthetic inadequate choice, anesthetic overdose of salt or vasoconstrictor, unwanted drug interactions and more rarely, methemoglobinemia. Tooth extraction is one of the most common and frequent dental procedures, which is considered a stressful and painful intervention [4]. If patients' pain can be soothed, therapeutic procedures will be carried out in a more acceptable situation and patients' pain threshold will increase. Lidocaine is the most common local anesthetic material in dentistry [5]. Lidocaine was introduced by Nils Lofgren in 1943 and used for the first time as a local anesthetic material in 1948.

One of the most important concerns about local anesthetic injection is its systemic effects [6].

**Aims and objectives:**

The basic aim of the study is to find the level of blood glucose in diabetic patients undergoing dental procedures.

**MATERIAL AND METHODS:**

This cross sectional study was conducted in health department Punjab during June 2019 to December 2019. The patients selected for this study were those who suffered from diabetes. 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:**

Student's t-test was performed to evaluate the differences in roughness between groups. A chi-square test was used to examine the difference in the distribution of the fracture modes (SPSS 19.0 for Windows, SPSS Inc., USA).

**RESULTS:**

There is no statistically significant difference between the groups, regarding the evaluation period ( $p > 0.05$ ). 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
P values	0,3760	0,8813	0,9256	

**DISCUSSION:**

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. Diabetes mellitus (DM) is one of the most frequent pathologies that dentists encounter. Its clinical importance springs from the possible occurrence of acute complications, whose severity could mean an immediate risk for the diabetic patient's life and require urgent diagnosis and treatment. DM includes a group of diseases characterized by impaired action or secretion of insulin, or both. There are four

etiologic types of diabetes, although the most frequent are type 1 (90%) [8]. Prevalence of diabetes in adults worldwide was estimated to be 4% in 1995, and is predicted to rise to 5.4% by the year 2025. The countries with the largest number of people with diabetes are India, China and the U.S. In developing countries, the majority are in the age range of 45–64 years. In the developed countries, the majority of people with diabetes are aged 65 years. There are more women than men with diabetes. Besides that there was no statistically significant difference in blood glucose levels of patients undergoing both treatments suggesting the clinical feasibility of epinephrine or

felypressin administration for patients with this profile [9].

### CONCLUSION:

It is concluded that periodontal disease is the main oral clinical manifestation in diabetic patients. The anxiety level of patients neither varied significantly nor showed any correlation with the investigated hemodynamic parameters and glucose levels, regardless of whether local anesthetics were used.

### REFERENCES:

1. Becker DE, Reed KL. Essentials of local anesthetic pharmacology. *Anesth Prog.* 2006;53:98–108. 10.2344/0003-3006(2006)53[98:EOLAP]2.0.CO;2
2. Nakamura Y, Matsumura K, Miura K, Kurokawa H, Abe I, Takata Y. Cardiovascular and sympathetic responses to dental surgery with local anesthesia. *Hypertens Res.* 2001;24:209–14. 10.1291/hypres.24.209
3. Mandel L, Patel S. Sialadenosis associated with diabetes mellitus: a case report. *J Oral Maxillofac Surg.* 2002;60:696-8
4. Nobre F, Giorgi DM. Diagnóstico e classificação. *Diretrizes Brasileiras de Hipertensão VI. Rev Hipertensão.* 2010;13(1):12-19.
5. Santos-Paul MA, Neves IL, Neves RS, Ramires JA. Local anesthesia with epinephrine is safe and effective for oral surgery in patients with type 2 diabetes mellitus and coronary disease: a prospective randomized study. *Clinics.* 2015;70(3):185-9. doi: 10.6061/clinics/2015(03)06
6. Andrade ED, Ramacciato JC, Motta RHL. Interações medicamentosas adversas. In: Andrade ED. *Terapêutica medicamentosa em Odontologia.* 3a ed. São Paulo: Artes Médicas; 2014, p. 78-91.
7. Khawaja NA, Khalil H, Parveen K, Alghamdi AM, Alzahrani RA, Alherbi SM. An influence of adrenaline (1:80,000) containing local anesthesia (2% Xylocaine) on glycemic level of patients undergoing tooth extraction in Riyadh. *Saudi Pharm J.* 2014 Dec;22(6):545-9.
8. American Diabetes Association. Diagnosis and classification of diabetes mellitus. *Diabetes Care.* 2010 Jan;33(Suppl 1):S62-9.
9. Malamed SF. Knowing your patients. *J Am Dent Assoc.* 2010 May;141(Suppl 1):3S-7S. doi: 10.14219/jada.archive.2010.0350.