

Incidence Of Syncope in Diabetic Patients During Dental Extractions.

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Abstract: **Background:** Syncope is the most common medical emergency during dental treatment and may occur in diabetic patients undergoing tooth extraction. **Aim:** To assess the incidence of syncope in diabetic patients undergoing dental extraction. **Materials and Methods:** A retrospective study was conducted using DIAS records from 10 January 2023 to 10 June 2023. Diabetic patients aged 40–70 years with RBS >200 mg/dL were included. **Results:** Most patients did not experience syncope during dental extraction. Patients who developed syncope recovered with immediate supportive management. **Conclusion:** Syncope was uncommon among diabetic patients undergoing dental extraction. Careful preoperative assessment and prompt management are essential for safe dental treatment.

Keywords: Diabetics, extraction, syncope.

INTRODUCTION

Medical emergencies are an inevitable part of dental practice despite careful patient selection and comprehensive preoperative evaluation. Among these emergencies, syncope is the most frequently encountered event, accounting for approximately 50–60% of all medical emergencies reported in dental clinics (1). Syncope is defined as a sudden, transient loss of consciousness and postural tone resulting from temporary global cerebral hypoperfusion, followed by spontaneous and complete recovery (2). Although the majority of syncopal episodes are benign and self-limiting, prompt recognition and management are essential to prevent complications and ensure patient safety.

Dental procedures, particularly tooth extractions, can act as precipitating factors for syncope due to procedural stress, fear, anxiety, pain, prolonged chair positioning, and activation of the autonomic nervous system (3). Vasovagal syncope is the most common form encountered in dentistry and is characterized by increased parasympathetic activity and decreased sympathetic tone, resulting in bradycardia, hypotension, and transient cerebral hypoperfusion (4).

Diabetes mellitus is a chronic metabolic disorder characterized by persistent hyperglycemia caused by impaired insulin secretion, insulin action, or both. According to the International Diabetes Federation, the global prevalence of diabetes continues to increase, making diabetic patients an increasingly common population seeking dental treatment (5). Individuals with diabetes frequently require invasive dental procedures because of their increased susceptibility to periodontal disease, dental infections, and delayed wound healing (6).

Patients with diabetes are predisposed to medical emergencies during dental treatment because both hyperglycemia and hypoglycemia may affect cerebral function and cardiovascular stability. Hyperglycemia may cause dehydration, electrolyte imbalance, impaired autonomic regulation, and reduced cerebral perfusion, whereas hypoglycemia can rapidly progress from dizziness and sweating to confusion, loss of consciousness, seizures, and syncope if not recognized promptly (7). Furthermore, diabetic autonomic neuropathy may impair cardiovascular reflexes and increase the susceptibility to orthostatic hypotension and vasovagal episodes during stressful dental procedures (8).

Appropriate medical assessment before dental extraction is therefore essential in diabetic patients. Evaluation should include medical history, glycemic status, medication history, vital signs, and identification of risk factors that may predispose patients to medical emergencies (9). Scheduling dental treatment during periods of optimal glycemic control and minimizing procedural stress have been recommended to reduce the incidence of complications (10).

Although syncope is well documented as the most common medical emergency in dentistry, limited literature has specifically investigated its incidence among diabetic patients undergoing dental extraction. Identifying the occurrence of syncope in this population may contribute to improved risk assessment, patient preparation, and emergency management protocols. Therefore, the present retrospective study aimed to identify the incidence of syncope in diabetic patients undergoing dental extraction.

MATERIALS AND METHODS

This retrospective observational study was conducted using patient records obtained from the Digital Information Archiving System (DIAS). Patient records corresponding to the period between 10 January 2023 and 10 June 2023 were reviewed.

The study included diabetic patients aged 40–70 years who underwent dental extraction and had a documented random blood sugar (RBS) level greater than 200 mg/dL at the time of treatment.

Patients with known anxiety disorders, pregnancy, pre-existing cardiovascular disease, or any additional systemic comorbidities were excluded to minimize confounding factors that could independently predispose patients to syncope.

The variables extracted from the patient records included age, sex, random blood sugar level, and the occurrence

of syncope during the extraction procedure. The presence or absence of syncope was documented from the treatment records.

As this was a retrospective record-based study, no direct patient intervention was performed. Patient confidentiality was maintained throughout the study by analyzing anonymized data available within the institutional record management system.

The collected data were summarized using descriptive statistics. The occurrence of syncope was expressed descriptively according to the available records.

Patients who experienced syncope during dental extraction were managed immediately by placing them in the supine position until complete recovery of consciousness, followed by administration of oral rehydration solution according to institutional emergency protocols.

RESULTS

Patient records satisfying the inclusion criteria were analyzed.

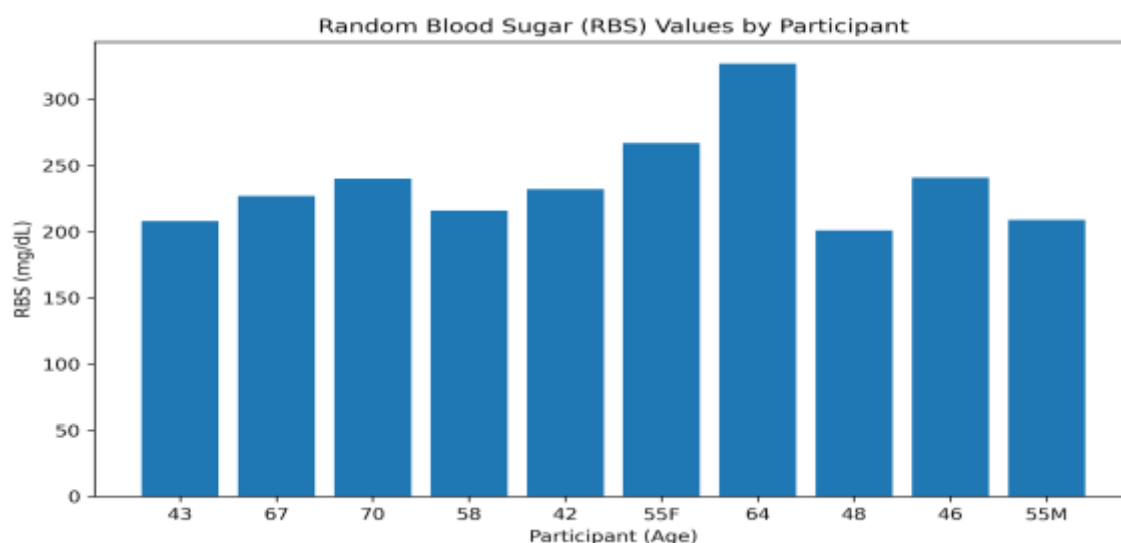
The available dataset demonstrated both male and female diabetic patients aged between 42 and 70 years with random blood glucose levels ranging from 201 mg/dL to 327 mg/dL.

Most patients did not develop syncope during dental extraction despite elevated blood glucose levels. A small proportion of patients experienced syncopal episodes.

Among the records displayed in the study data, syncope occurred in patients with RBS values of 227 mg/dL, 240 mg/dL, and 327 mg/dL, while the remaining patients completed the extraction procedure without any reported syncopal event.

Patients experiencing syncope recovered following immediate emergency management consisting of placement in the supine position and subsequent oral rehydration therapy. No additional complications were reported in the available records.

Overall, the findings suggest that syncope was relatively infrequent among diabetic patients undergoing dental extraction within the reviewed study period.



DISCUSSION

The present retrospective study evaluated the occurrence of syncope in diabetic patients undergoing dental extraction. Based on the available patient records, syncopal episodes were observed only in a minority of patients, whereas most diabetic individuals successfully underwent dental extraction without experiencing loss of consciousness. These findings suggest that although syncope is an important medical emergency, its incidence during routine dental extraction among diabetic patients appears to be relatively low.

Syncope remains the most commonly reported medical emergency encountered in dental practice worldwide (1). Vasovagal syncope is responsible for the majority of cases and is generally triggered by emotional stress, fear, pain, or anxiety associated with dental procedures (4). During a vasovagal episode, increased vagal tone causes peripheral vasodilation and bradycardia, resulting in transient cerebral hypoperfusion and temporary loss of consciousness (2).

Diabetes mellitus may increase the susceptibility to syncopal episodes through several physiological mechanisms. Chronic hyperglycemia contributes to dehydration, endothelial dysfunction, and autonomic neuropathy, whereas hypoglycemia directly compromises cerebral glucose metabolism, potentially resulting in dizziness, altered consciousness, and syncope (7,8). However, the findings of the present study indicate that elevated random blood glucose levels alone were not consistently associated with the occurrence of syncope, suggesting that multiple physiological and psychological factors contribute to its development.

The majority of patients included in the present study completed the extraction procedure without any reported syncopal episode despite having random blood sugar levels exceeding 200 mg/dL. Similar observations have been reported by Gazal, who emphasized that careful preoperative assessment and optimization of diabetic patients can allow dental extractions to be performed safely with minimal medical complications (10). Likewise, Salins et al. suggested that disturbances in glucose metabolism may contribute to vasovagal syncope; however, procedural stress and autonomic responses remain significant precipitating factors (11).

Immediate management of patients experiencing syncope in the present study consisted of placing the patient in the supine position until recovery of consciousness, followed by administration of oral rehydration solution. These measures are consistent with internationally accepted recommendations for the management of vasovagal syncope in dental practice, which emphasize restoring cerebral perfusion, maintaining airway patency, monitoring vital signs, and eliminating precipitating factors (3,9).

The findings of this study further highlight the importance of comprehensive preoperative evaluation in diabetic patients. Assessment of glycemic status, medical history, medication compliance, recent food intake, and existing diabetic complications should be considered before performing dental extractions (5,10). Stress reduction techniques, shorter appointments, adequate pain control, and appropriate patient reassurance may further reduce the likelihood of syncopal episodes (3).

The present study has several limitations. The retrospective design limits the ability to establish causal relationships, and only variables available in patient records could be evaluated. Important factors such as duration of diabetes, HbA1c levels, anxiety scores, medication history, duration of extraction, and autonomic function were not available for analysis. Furthermore, the relatively limited sample presented in the study reduces the generalizability of the findings.

Future prospective studies involving larger sample sizes and multicenter populations are recommended to identify independent predictors of syncope among diabetic patients undergoing dental extraction. Additional assessment of glycemic control, diabetic complications, autonomic dysfunction, and patient anxiety may provide a more comprehensive understanding of the factors contributing to syncope in dental settings.

Overall, the present study emphasizes that although syncope is relatively uncommon in diabetic patients undergoing dental extraction, dentists should remain prepared to recognize and manage this medical emergency promptly. Thorough preoperative assessment, optimal glycemic control, stress reduction strategies, and adherence to emergency management protocols remain essential for ensuring safe dental care.

CONCLUSION

Syncope during dental extraction among diabetic patients appears to be relatively uncommon but remains a clinically significant emergency. Proper medical evaluation, optimization of glycemic control, and adherence to emergency management protocols are essential to ensure patient safety during dental treatment.

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