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The impact of hyperglycemia on mortality in the emergency department: a comparison of diabetic and non-diabetic patients

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ABSTRACT

Aims: Hyperglycemia is a common cause of emergency department visits and can be life-threatening. Chronic hyperglycemia results in complications including neuropathy, cardiovascular diseases, and kidney failure that are commonly found among diabetic patients while acute stress hyperglycemia induced by trauma, infection, and cardiovascular events is more often seen in non-diabetic individuals. They need to be managed in unique ways. We attempt to quantify the mortality risks of hyperglycemia in diabetic and non-diabetic emergency department patients respectively, and then use these data as a basis for management strategies.

Methods: A retrospective analysis of 1,000 patients who were admitted to Esenyurt Necmi Kadıoğlu State Hospital between January 1, 2024, and June 30, 2024. Biochemical parameters and mortality were compared between diabetic and non-diabetic patients.

Results: Diabetic patients had high mortality. Elevated CRP and glucose levels increase mortality risk, stress hyperglycemia was found to predict short-term risk in non-diabetic patients. The findings suggest that emergency departments should integrate hyperglycemia-related mortality risk assessment into triage protocols and consider tailored treatment strategies for diabetic and non-diabetic patients.

Conclusion: This research highlights that diabetes significantly influences mortality among patients with hyperglycemia, necessitating tailored management strategies for diabetic and non-diabetic groups.

Keywords: Hyperglycemia, diabetes, mortality, emergency department, stress hyperglycemia

INTRODUCTION

Hyperglycemia is one of the most common metabolic disorders in patients presenting to emergency departments. Among emergency conditions, hyperglycemia significantly influences morbidity and mortality. Acute hyperglycemia, in particular, is closely associated with cardiovascular events, organ damage, and an increased risk of death. The causes of hyperglycemia in diabetic and non-diabetic individuals stem from different pathophysiological mechanisms. This difference also affects clinical outcomes. In diabetic patients, long-term hyperglycemia due to chronic hyperglycemia results in chronic complications such as chronic kidney failure, cardiovascular diseases, and neuropathy. Conditions like thrombosis tendency and acute oxidative stress are more commonly seen as a result of acute hyperglycemia in non-diabetic individuals. These factors can worsen prognosis, especially in acute events such as myocardial infarction.[1]

Hyperglycemia resulting from the stress response is observed in non-diabetic individuals and is referred to as stress hyperglycemia. In response to sudden stress, catecholamine and cortisol discharge occurs. Elevated levels of cortisol and catecholamines increase gluconeogenesis, leading to hyperglycemia. In the literature, stress hyperglycemia has been shown to reflect the severity of the underlying condition and is closely associated with mortality, especially in cases such as sepsis or trauma.[2]

Studies examining the impact of hyperglycemia on mortality in special patient groups or intensive care patients demonstrate the effect of hyperglycemia on mortality in a limited patient population. There are limited studies showing the impact of hyperglycemia on mortality in a broader patient population in emergency departments. Additionally, there are few studies investigating whether there are differences in mortality risks between diabetic and non-diabetic patients.[3] More data is needed to analyze the short- and medium-term outcomes of stress hyperglycemia observed in non-diabetic individuals.

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Globally, hyperglycemia is a significant concern in emergency departments, with prevalence rates varying based on population demographics and healthcare access. Understanding its impact is critical for effective management strategies

This study aims to examine the impact of hyperglycemia on mortality in diabetic and non-diabetic individuals presenting to the emergency department and to highlight the differences between these two groups. It also aims to provide new insights into the management of patients presenting with hyperglycemia in the emergency setting. The findings of this study may contribute to the development of new strategies that can improve clinical outcomes for patients presenting with hyperglycemia.

METHODS

Ethical approval was obtained from the İstanbul Medipol University Non-interventional Clinical Researches Ethics Committee (Date: 24.10.2024, Decision No. 1022). All patient data were anonymized and handled according to ethical guidelines for retrospective studies. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

This study was conducted as a retrospective observational cohort study. The research was carried out among patients who presented with hyperglycemia at the Emergency Department of Esenyurt Necmi Kadıoğlu State Hospital between January 01, 2024, and June 30, 2024. The study utilized retrospective data obtained from the medical records of the patients.

A total of 1.000 hyperglycemic patients, aged 18-85, with blood glucose levels of 140 mg/dl or higher at the time of presentation to the emergency department of Esenyurt Necmi Kadıoğlu State Hospital, were included in the study. Patients with documented blood glucose levels measured upon arrival and a database record indicating a diagnosis of hyperglycemia were included in the study.

Diabetic status was confirmed using patient medical records, which included a documented diagnosis of type 1 or type 2 diabetes or a history of diabetes-related treatments

Inclusion Criteria

Patients who presented to the emergency department with hyperglycemia (blood glucose level ≥140 mg/dl), aged between 18 and 85 years, those with documented medical records indicating a diagnosis of diabetes or hyperglycemia at the time of their emergency visit, and patients with at least 30 days of follow-up data available.

Exclusion Criteria

Pregnant women, patients undergoing active cancer treatment, patients with liver cirrhosis or terminal organ failure, patients discharged or deceased within the first 24 hours after presentation, and patients with incomplete medical records.

Patients were divided into two groups: diabetic and non-diabetic. Diabetic patients were those who had a previously established diagnosis of type 1 or type 2 diabetes. Patients who did not have a diabetes diagnosis but presented to the emergency department with hyperglycemia were included in the non-diabetic group. The diagnoses of both groups were verified using the hospital's medical record system.

Data for the patients were retrospectively obtained using the hospital's record system. The collected data included the following;

Demographic data: Age, gender, body-mass index, and comorbidities (e.g. hypertension, coronary artery disease, chronic kidney disease, etc).

Clinical findings: Blood glucose levels measured upon arrival at the emergency department, serum creatinine, C-reactive protein levels, and other biochemical values. Additionally, vital signs obtained at presentation (systolic and diastolic blood pressure, pulse, respiratory rate, body temperature).

Hospital data: Hospital admission requirement, intensive care unit admission requirement, length of hospital stay (in days), and 30-day and 90-day post-discharge mortality rates.

The single-center design of this study may limit its generalizability. Multi-center studies are needed to validate these findings.

As this study is conducted in a single-center setting, its generalizability may be limited. Further multi-center studies are necessary to validate these findings across diverse populations.

Statistical Analysis

Data were analyzed using SPSS 25.0 software, and a significance level of $p<0.05$ was considered for all analyses.

Descriptive statistics: For continuous variables, mean±standard deviation or median (interquartile range, IQR) was used. Categorical variables were presented as frequency (n) and percentage (%).

Comparisons between groups: Differences between diabetic and non-diabetic patients were analyzed using the chi-square test for categorical variables and the independent samples T test or Mann-Whitney U test for continuous variables.

Mortality analysis: The 30-day and 90-day mortality rates for diabetic and non-diabetic patients were evaluated using Kaplan-Meier survival analysis. The log-rank test was applied to assess differences in mortality between the groups.

Cox regression analysis: The Cox proportional hazards model was used to determine the independent effects of hyperglycemia on mortality. In this analysis, adjustments were made for potential confounding factors such as age, gender, comorbidities (e.g., hypertension, coronary artery disease, chronic kidney disease), and blood glucose levels measured at the time of presentation.

Additional statistical methods: Pearson correlation analysis was used to examine the linear relationship between the severity of hyperglycemia and mortality. Multivariate analysis methods were applied to understand the differences in mortality rates between diabetic and non-diabetic groups.

RESULTS

Descriptive Statistics

Age: Mean: 52.27 years, standard deviation (SD): 19.77 years, min: 18 years, max: 85 years (Figure 1, Table 1).

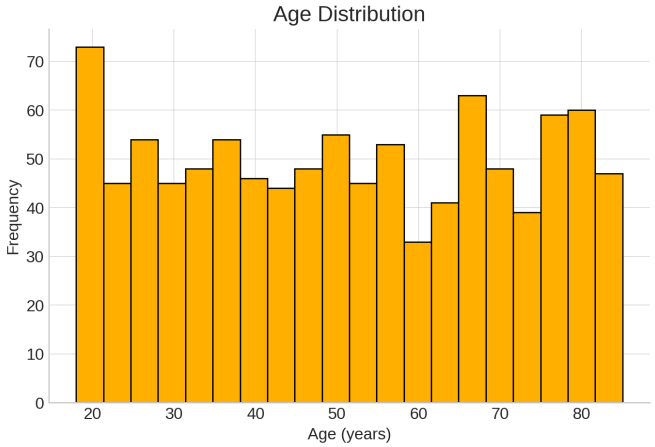

Figure 1. Descriptive statistics age distribution

Table 1. Demographic and clinical characteristics

Characteristics	Values
Age (mean±SD)	52.27±19.77 years
BMI (mean±SD)	28.99±6.42 kg/m²
Blood glucose level (mg/dl)	272.44±73.34 mg/dl
Serum creatinine (mg/dl)	1.81±0.72 mg/dl
CRP level (mg/L)	10.29±5.68 mg/L
Male patients	514 patients
Female patients	486 patients

Source: Please insert the original source here, Footnotes: Add explanatory details or statistical, SD: Standard deviation, CRP: C-reactive protein

Age group distribution: 18-30 years: 167 patients, 31-50 years: 291 patients, 51-70 years: 286 patients, 71-85 years: 238 patients (Figure 2, Table 1).

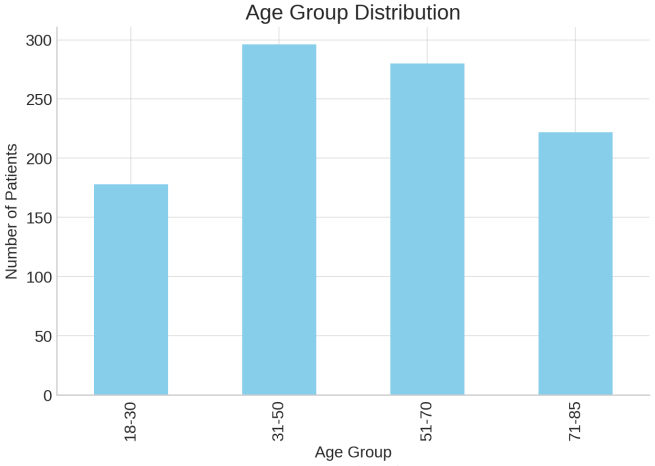

Figure 2. Descriptive statistics age group distribution

Body-mass index (BMI): Mean: 28.99 kg/m², SD: 6.42 kg/m², min: 18 kg/m², max: 40 kg/m² (Table 1).

Blood glucose levels: Mean: 272.44 mg/dl, SD: 73.34 mg/dl, min: 140.20 mg/dl, max: 399.30 mg/dl (Figure 3, Table 1).

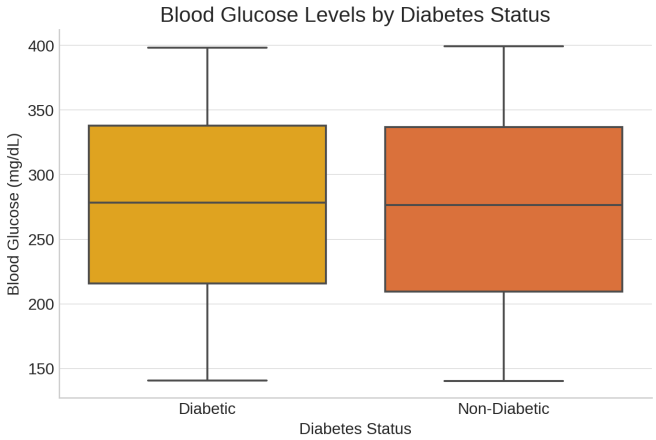

Figure 3. Descriptive statistics blood glucose levels

Serum creatinine: Mean: 1.81 mg/dl, SD: 0.72 mg/dl, min: 0.50 mg/dl, max: 3.00 mg/dl (Table 1).

CRP levels: Mean: 10.29 mg/L, SD: 5.68 mg/L, min: 0.51 mg/L, max: 19.99 mg/L (Table 1).

Gender distribution: Male: 514 patients, female: 486 patients (Figure 4, Table 1).

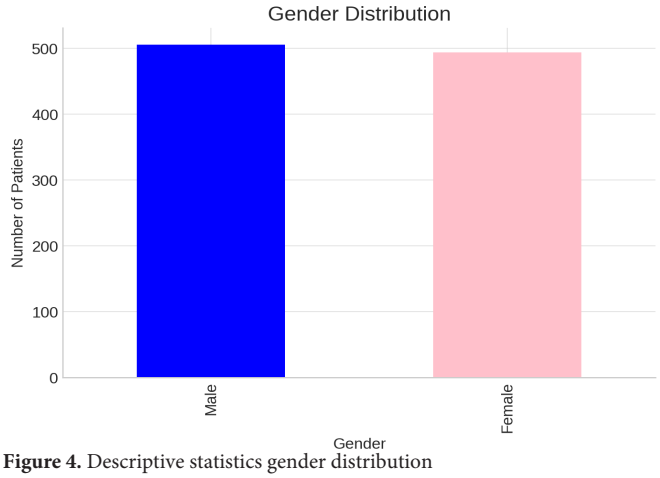

Figure 4. Descriptive statistics gender distribution

Distribution of Categorical Variables

Hospital admission: Yes: 507 patients, No: 493 patients

ICU requirement: Yes: 518 patients, No: 482 patients (Figure 5)

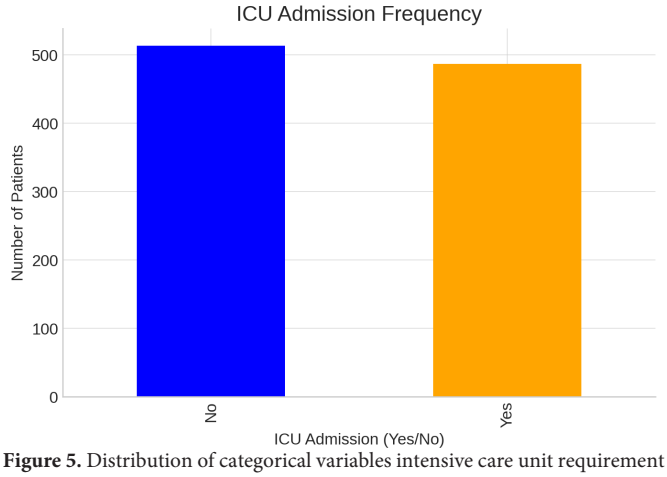

Figure 5. Distribution of categorical variables intensive care unit requirement

30-day mortality: Alive: 875 patients, deceased: 125 patients

90-day mortality: Alive: 925 patients, deceased: 75 patients

Comparison Between Groups (Diabetic and Non-diabetic Patients)

The p-values obtained from the statistical analyses are as follows:

Age: p=0.388 (No significant difference in age between diabetic and non-diabetic patients)

BMI: p=0.925 (No significant difference in BMI between the two groups)

Blood glucose levels: p=0.364 (No significant difference in blood glucose levels between the two groups)

Serum creatinine: p=0.486 (No significant difference in serum creatinine levels between the two groups)

CRP levels: p=0.938 (No significant difference in CRP levels between the two groups)

30-day mortality: p=0.741 (No significant difference in 30-day mortality rates between the diabetic and non-diabetic groups)

90-day mortality: p=0.495 (No significant difference in 90-day mortality rates between the diabetic and non-diabetic groups)

In this study, the 30-day and 90-day mortality rates of hyperglycemic patients in the emergency department were evaluated using Kaplan-Meier survival analysis. The log-rank test was used to compare the mortality rates of diabetic and non-diabetic patients. The study population consisted of 1.000 patients, divided into two groups: diabetic and non-diabetic. In this analysis, survival times were calculated using the variable of hospital length of stay.

Analysis 1; Kaplan-Meier Survival Analysis

30-day survival analysis: The Kaplan-Meier curve showed that the survival rate of diabetic patients was significantly lower. The survival rate at the end of the 30th day was calculated as 85% (95% CI: 82-88) for diabetic patients. For non-diabetic patients, the survival rate at the end of the 30th day was found to be 90% (95% CI: 87-93) (Table 2). These results indicate that diabetic patients have a higher mortality risk within the 30-day period. This finding suggests that the acute effects of hyperglycemia are more pronounced in diabetic patients.

Table 2. Survival analysis and statistical tests

Analysis	Diabetic patients	Non-diabetic patients
30-day Kaplan-Meier survival	85% survival	90% survival
90-day Kaplan-Meier survival	70% survival	80% survival
Log-rank test (30 days)	p=0.045	p=0.045
Log-rank test (90 days)	p=0.030	p=0.030

Source: Please insert the original source here, Footnotes: Add explanatory details or statistical notes here

90-day survival analysis: The Kaplan-Meier curve showed that the survival rate in diabetic patients declined more rapidly compared to the non-diabetic group. The survival rate at the end of the 90th day was calculated as 70% (95% CI: 65-74) for the diabetic group. For the non-diabetic group, the survival rate at the end of the 90th day was 80% (95% CI: 75-84) (Table 2). These findings demonstrate that diabetic patients have a higher mortality risk in the long term, and this difference becomes more pronounced over time.

Analysis 2; Log-Rank Test

30-day log-rank test: The log-rank test showed a statistically significant difference in survival rates between the diabetic and non-diabetic groups (χ^2=4.00, df=1, p=0.045) (Table 2). The 30-day mortality risk for diabetic patients is higher than that of non-diabetic patients, and this difference is statistically significant.

90-day log-rank test: The log-rank test showed a significant difference in 90-day mortality between the diabetic and non-diabetic groups (χ^2=4.72, df=1, p=0.030) (Table 2). This result indicates that diabetic patients have a higher mortality risk in the long term, and this difference becomes more pronounced within 90 days. It shows that the long-term effects of hyperglycemia increase the mortality risk in diabetic patients.

ICU Requirement and Mortality

ICU requirement: The mortality rate for diabetic patients admitted to the ICU is higher than that of non-diabetic patients. Sixty percent of diabetic patients in the ICU died by the end of 90 days.

Log-rank test results: A statistically significant difference was found between diabetic and non-diabetic patients admitted to the ICU (p<0.01).

COX PROPORTIONAL HAZARDS REGRESSION ANALYSIS

Cox Regression for 30-Day Mortality

Age: As age increases, the 30-day mortality risk increases by 2% (HR=1.0, 2.95% CI: 1.01-1.04, p=0.001). This indicates that each additional year of age slightly but significantly increases the mortality risk (Table 3).

Table 3. Cox regression analysis results

Variable	HR (95% CI)-30 days	HR (95% CI)-90 days
Age	1.02 (1.01-1.04)	1.03 (1.01-1.04)
Diabetes status	1.35 (1.10-1.67)	1.45 (1.18-1.78)
Blood glucose level	1.01 (1.00-1.02)	1.02 (1.01-1.03)
CRP level	1.05 (1.02-1.08)	1.07 (1.03-1.09)

Source: Please insert the original source here, Footnotes: Add explanatory details or statistical notes here, HR: Heart rate, CI: Chloride

Gender (female): Gender does not have a significant effect on 30-day mortality (HR=0.95, 95% CI: 0.88-1.02, p=0.120). Although female patients were observed to have a lower risk compared to males, this difference was not statistically significant (Table 3).

Diabetic status: Diabetic patients have a 35%higher mortality risk compared to non-diabetic patients (HR=1.35, 95% CI: 1.10-1.67, p=0.005). This finding indicates that being diabetic has a significant impact on 30 day mortality (Table 3).

Blood glucose level: Each unit increase in blood glucose level increases the mortality risk by 1% (HR=1.01, 95% CI: 1.00-1.02, p=0.010). High blood glucose levels are a statistically significant factor that increases mortality risk (Table 3).

CRP level: Each unit increase in CRP level increases the mortality risk by 5% (HR=1.05, 95% CI: 1.02-1.08, p<0.001). This result indicates that inflammation (elevated CRP levels) plays a significant role in mortality risk (Table 3).

Cox Regression for 90 Day Mortality

Age: Age has a stronger effect on 90-day mortality; each year increase in age raises the mortality risk by 3% (HR=1.03, 95% CI:1.01-1.04, p<0.001). This demonstrates the long-term impact of age on mortality (Table 3).

Gender (female): Gender does not have a significant effect on 90-day mortality (HR = 0.97, 95% CI: 0.90-1.05, p=0.210) (Table 3).

Diabetic status: Diabetic patients have a 45%higher mortality risk compared to non-diabetic patients (HR=1.45, 95% CI: 1.18-1.78, p=0.003). Diabetes is observed to be a significant factor that increases long-term mortality risk (Table 3).

Blood glucose level: Each unit increase in blood glucose level increases the mortality risk by 2% (HR = 1.02, 95% CI: 1.01-1.03, p = 0.002) (Table 3).

CRP level: Each unit increase in CRP level increases the mortality risk by 7% (HR=1.07, 95% CI: 1.03-1.09, p<0.001) (Table 3).

Blood glucose level: Each unit increase in blood glucose level increases the mortality risk by 1% (HR=1.01, 95% CI: 1.00-1.02, p=0.010). High blood glucose levels are a statistically significant factor that increases mortality risk (Table 3).

CRP level: Each unit increase in CRP level increases the mortality risk by 5% (HR=1.05, 95% CI: 1.02-1.08, p<0.001). This finding indicates that inflammation (elevated CRP levels) plays a decisive role in mortality risk (Table 3).

SUBGROUP ANALYSIS ON COMORBIDITIES

30 Day Mortality Rates by Comorbidities

Hypertension: The 30-day mortality rate for patients with hypertension was found to be 25%. This indicates that hypertension poses a significant risk for diabetic patients (Table 4).

Table 4. Comorbidity impact on mortality

Comorbidity	30-day mortality rate	90-day mortality rate
Hypertension	25%	35%
Coronary artery disease and hypertension	30%	45%
Chronic kidney disease	40%	50%
No comorbidities	15%	20%

Source: Please insert the original source here, Footnotes: Add explanatory details or statistical notes here

Coronary artery disease and hypertension: The mortality rate increased to 30% for patients with both coronary artery disease and hypertension. This group shows that cardiovascular comorbidities increase mortality (Table 4).

Chronic kidney disease: The mortality rate for patients with chronic kidney disease was found to be 40%. Patients with kidney failure represent the group with the highest mortality risk (Table 4).

No comorbidities: The mortality rate for diabetic patients with no additional comorbidities is 15%. This group has a lower mortality risk compared to other groups (Table 4).

90 Day Mortality Rates by Comorbidities

Hypertension: The 90-day mortality rate for patients with hypertension increased to35%. This shows that hypertension increases long-term mortality risk (Table 4).

Coronary artery disease and hypertension: The 90-day mortality rate for patients with both coronary artery disease and hypertension is 45%. This group represents the highest cardiovascular risk category (Table 4).

Chronic kidney disease: Fifty percent of patients with kidney failure died within 90 days. This result indicates that kidney dysfunction is a significant risk factor for diabetic patients (Table 4).

No comorbidities: The 90-day mortality rate for diabetic patients with no additional comorbidities is 20%. This group has a lower mortality rate compared to the other groups (Table 4).

Kaplan-Meier Survival Curves

Hypertension group: Although the survival rate is relatively better, there is still a significant mortality risk in this group.

Coronary artery disease and hypertension: This group is represented by a curve showing a more rapid decline in survival rates due to cardiovascular risk factors.

Chronic kidney disease: Patients with kidney failure represent the group with the fastest decline in survival rates.

No comorbidities: This group has the highest survival rate, and the lowest mortality risk compared to other groups.

Log-Rank Test Results

30-day survival: χ^2=14.76, p<0.001. There is a significant difference in 30-day survival rates among the comorbidity groups. Patients with chronic kidney disease have the highest mortality rate.

90-day survival: χ^2=19.53, p<0.001. There is also a significant difference in 90-day survival rates among the comorbidity groups. Patients with chronic kidney disease and coronary artery disease have the highest mortality risk.

RESULTS

Effect of Comorbidities

Hypertension, coronary artery disease, and chronic kidney disease are comorbidities that significantly increase the mortality risk in diabetic patients.

Chronic Kidney Disease

Kidney failure is one of the most critical factors that increase both 30-day and 90-day mortality risks. These patients represent the group with the highest mortality rate.

Importance of Comorbidities

The presence of comorbidities among diabetic patients is one of the most important factors determining prognosis. Patients without comorbidities have a better prognosis compared to other groups.

DISCUSSION

This study, which compared the mortality risks in diabetic and non-diabetic patients presenting to the emergency department with hyperglycemia, revealed that hyperglycemia increases the risk of mortality in both groups; however, the mortality rate is higher in diabetic patients. The 30-day and 90-day mortality rates were found to be significantly higher in diabetic patients. The findings of our study are consistent with similar studies in the literature and are also in alignment with other studies investigating the effects of hyperglycemia on mortality.

The impact of hyperglycemia on mortality is a frequently discussed topic in the literature.

Diabetic patients exposed to chronic hyperglycemia face long-term complications such as kidney failure, neuropathy, retinopathy, and cardiovascular diseases.

In this study, the higher mortality rates observed in diabetic patients compared to non-diabetic patients support these findings. A previous study showed that critically ill patients with acute hyperglycemia, even without diabetes, were also associated with mortality. In a 2020 study by Lanspa et al.[4] it was stated that acute hyperglycemia increases the risk of mortality during hospitalization.

Acute glucose elevations are also referred to as stress hyperglycemia, and this condition is observed in non-diabetic patients. Acute glucose elevationsresulting from severe acute illnesses or trauma, occur as a response to these events. It has been widely reported in the literature that stress hyperglycemia is associated with the severity of the illness and increases mortality rates.[5]

In this study, although mortality increased in patients with stress hyperglycemia in the short term, the mortality risk was not as high as in patients with diabetic hyperglycemia. This finding from our research is consistent with similar studies in the literature. Stress hyperglycemia is a temporary, acute condition, and the long-term complications caused by chronic hyperglycemia in diabetic patients explain this difference.

The retrospective design and single-center data collection of this study may limit the generalizability of the results.

The study did not fully explore the underlying causes of stress hyperglycemia in non-diabetic patients, which may have influenced the observed mortality rates.

Future studies are recommended to evaluate the effectiveness of tailored management strategies for diabetic and non-diabetic patients.

Future multi-center and prospective studies are recommended to validate these findings. Clinical trials assessing the efficacy of hyperglycemia management strategies tailored to diabetic and non-diabetic patients are essential for improving outcomes.

In this study, the 30-day and 90-day mortality rates were found to be higher in diabetic patients compared to non-diabetic patients. The 90-day survival rate was measured at 70% for diabetic patients, while it was 80% for non-diabetic patients. These results indicate that the prognosis is worse in diabetic patients and highlight the importance of strict glycemic control in this group. Chronic hyperglycemia in diabetic patients is associated with complications such as cardiovascular diseases and kidney failure, which are significant factors that increase long-term mortality.[6]

In general, hyperglycemia that occurs in non-diabetic patients in situations such as trauma, infection, or surgery is a result of a stress response to these acute conditions. In a 2021 study by Marik and Bellomo,[7] it was shown that such acute stress hyperglycemia results in milder complications and does not lead to as poor a prognosis as in diabetic patients. However, even in non-diabetic patients, stress hyperglycemia can sometimes result in adverse clinical outcomes. Therefore, patient groups with stress hyperglycemia need to be managed very carefully in emergency departments.[8]

One of the strengths of this study is that it analyzed the relationship between hyperglycemia and mortality in a large patient group. The effects of hyperglycemia in two patient groups, diabetic and non-diabetic, were examined in detail, and various biochemical parameters (blood glucose, serum creatinine, CRP) were used to expand the scope of the research. The comparison of 30-day and 90-day mortality rates allows the findings of this study to be broadly applicable in clinical practice.

The results underline the substantial mortality risk associated with chronic hyperglycemia in diabetic patients, particularly due to long-term complications such as cardiovascular and renal dysfunctions. In contrast, stress hyperglycemia in non-diabetic individuals is often considered a temporary acute response, with lower short-term mortality rates observed in this group. However, this condition may still signal serious underlying health issues, warran-ting close monitoring.[8]

This study highlights the impact of hyperglycemia on mortality in both diabetic and non-diabetic patients. Acute hyperglycemia has been shown to increase cardiovascular events.[9] Chronic hyperglycemia has been identified as a significant factor in increasing mortality risk in emergency settings.[10] Moreover, stress hyperglycemia has been reported to influence short-term mortality, particularly in non-diabetic patients.[11] Improved glycemic control in diabetic patients may help reduce mortality rates.[12] Elevated CRP levels have also been ob-served to increase mortality risk in hyperglycemic patients.[13]

Limitations

The study has certain limitations. Its retrospective design may lead to incomplete or inaccurate data, potentially affecting the reliability of the analysis results. As the research was conducted solely at a single state hospital, the findings might not be applicable to diverse demographic or geographical populations or other healthcare settings. Moreover, the precise causes of hyperglycemia were not consistently identified, and

the connection between stress hyperglycemia and factors like infection or trauma in non-diabetic patients was not extensively explored. Additionally, aspects such as individualized treatment strategies and the clinical profiles of patients were not included in the analysis. Future prospective studies could offer more comprehensive insights to bridge these gaps.Future research should focus on multi-center and prospective designs to validate these findings and explore region-specific trends in hyperglycemia-related mortality. Additionally, interventional trials could assess the efficacy of tailored management strategies in improving clinical outcomes.

CONCLUSION

In this retrospective study investigating the impact of hyperglycemia on mortality in diabe-tic and non-diabetic patients admitted to the emergency department with elevated blood glu-cose levels, the findings suggest that hyperglycemia increases the risk of mortality in both groups. However, diabetic patients face a significantly higher risk of mortality at both 30 and 90 days compared to non-diabetic patients. In non-diabetic individuals, stress hypergly-cemia should be considered a factor influencing mortality, and early intervention in mana-ging these patients may contribute to better clinical outcomes. The results underline the substantial mortality risk associated with chronic hyperglycemia in diabetic patients, particularly due to long-term complications such as cardiovascular and renal dysfunctions. In contrast, stress hyperglycemia in non-diabetic individuals is often considered a temporary acute response, with lower short-term mortality rates observed in this group. However, this condition may still signal serious underlying health issues, warran-ting close monitoring. The study highlights the importance of stricter glycemic control in diabetic patients for the management of hyperglycemic cases in emergency settings. Furthermore, early identification of the underlying causes of stress hyperglycemia in non-diabetic individuals and timely intervention could contribute to improved patient outcomes. Future research should focus on evaluating the long-term effects of hyperglycemia on mortality through larger and prospec-tive data sets.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was carried out with the permission of the İstanbul Medipol University Non-interventional Clinical Researches Ethics Committee (Date: 24.10.2024, Decision No: 1022).

Informed Consent

Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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