Original Research Article

An analytical study of the clinical pattern of patients admitted with hypoglycaemia

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Abstract: This prospective cross-sectional study aimed to identify clinical patterns of patients admitted with hypoglycemia to the Department of General Medicine at Dhanalakshmi Srinivasan Medical College Hospital in Perambalur between January 2021 and December 2021. The inclusion criteria were patients admitted to the medical ward with documented hypoglycemia (i.e., blood glucose levels < 70 mg/dL) and aged = 18 years. Pregnant women, patients < 18 years, and those unwilling to participate were excluded. Out of 119 patients, the maximum number of patients (54.6%) belonged to the 41-60 age group, while the >60 age group accounted for 34.5%. However, this age group constituted 61.5% of the total deaths, indicating that hypoglycemia in the elderly is a significant predictor of mortality. Dysregulation of glucose metabolism in the body and the failure of endogenous defense mechanisms to combat low blood sugar levels revealed hypoglycemia. Therefore, hypoglycemia should be taken seriously and investigated appropriately. Elderly people are more prone to low blood sugar levels, and in them, diabetes treatment should be moderate. Tight glycemic control in the elderly can lead to fatal episodes of hypoglycemia.

Keywords: Hypoglycaemia; Low glycemic; Diabetes mellitus.

1. Introduction

Hypoglycemia is a medical condition characterized by abnormally low levels of blood glucose, which can cause a range of symptoms from mild confusion and dizziness to seizures and loss of consciousness. Hypoglycemia can be a result of several factors, including excess insulin, inadequate food intake, or medications. In some cases, it may be related to an underlying medical condition. Hypoglycemia is a common occurrence in hospitalized patients, and it can have significant health consequences if left untreated. Therefore, understanding the disease processes and risk factors associated with hypoglycemia is essential to improve patient outcomes [1–3].

Several studies have demonstrated that hypoglycemia is an independent risk factor for mortality and morbidity in hospitalized patients. This finding highlights the importance of early detection and management of hypoglycemia. However, there is limited information on the clinical patterns and risk factors associated with hypoglycemia in hospitalized patients. Therefore, the present study aims to investigate the disease processes and risk factors associated with hypoglycemia in hospitalized patients and assess whether hypoglycemia is a predictor of in-hospital mortality [4–8].

The primary objective of this study is to identify the clinical patterns of hospitalized patients with at least one episode of documented hypoglycemia. The study will be conducted at a medical center and will include patients admitted to the hospital with a blood glucose level less than 70 mg/dL. The study will also assess the risk factors associated with hypoglycemia, such as age, comorbidities, medications, and nutritional status. Ultimately, the results of this study will help improve our understanding of hypoglycemia in hospitalized patients and provide insights into the prevention and management of this condition.

2. Materials and Methods

This was a prospective, analytical study conducted in the Department of General Medicine at Dhanalakshmi Srinivasan Medical College Hospital in Perambalur over a period of 12 months from January 2021 to December 2021.

2.1. Study Population

The study included patients admitted to the medical ward who had at least one documented episode of hypoglycemia, defined as a blood glucose level less than 70mg/dL. Patients who were 18 years or older were included in the study.

2.2. Exclusion Criteria

Patients who were pregnant, younger than 18 years old, or unwilling to participate in the study were excluded from the study.

2.3. Data Collection

Data on patient demographics, medical history, medications, and laboratory values were collected from patient medical records. Patients were followed up until their discharge from the hospital or until the end of the study period, whichever occurred first.

2.4. Statistical Analysis

Data were analyzed using appropriate statistical methods. Descriptive statistics were used to summarize the data, and inferential statistics were used to test hypotheses. All analyses were performed using statistical software, and a p-value less than 0.05 was considered statistically significant.

Ethical approval was obtained from the institutional review board before the start of the study, and written informed consent was obtained from all patients or their next of kin. Confidentiality and anonymity of patient data were maintained throughout the study.

3. Observations and Results

A total of 119 patients with at least one episode of documented hypoglycemia (blood glucose < 70 mg/dL) were admitted to the medical wards of Dhanalakshmi Srinivasan Medical College Hospital during the 12-month study period from January to December 2021. The primary diagnoses of the patients are as follows:

- Diabetes with Chronic kidney disease: 45 (37.81%)
- Chronic kidney disease: 17 (14.28%)
- Acute liver dysfunction: 17 (14.28%)
- Congestive cardiac failure: 11 (9.24%)
- Sepsis: 10 (8.4%)
- Diabetes Therapy related: 5 (4.20%)
- Chronic Pancreatitis: 3 (2.52%)
- Malignancy: 3 (2.52%)
- Alcohol intoxication: 3 (2.52%)
- Reactive: 1 (0.84%)

The aim of this study was to analyze the clinical pattern of patients admitted with hypoglycemia. We analyzed the primary diagnosis, sex pattern, and age pattern of the patients. Figure 1 shows the distribution of primary diagnoses. Diabetes with chronic kidney disease was found to be the most common primary diagnosis, accounting for 37.81% of the cases. Non-diabetic CKD and acute liver dysfunction accounted for 14.28% each. Sepsis and congestive cardiac failure constituted 8.4% and 9.24%, respectively. Contrary to popular belief, diabetes therapy-related cases accounted for only 4.2% of cases.

Figure 2 shows the distribution of patients by sex. In our study, 75.63% of patients were male, and 24.36% were female. Thus, male gender constituted a significant 3/4th of the study sample. Table 1 provides a summary of the sex distribution of the study sample.
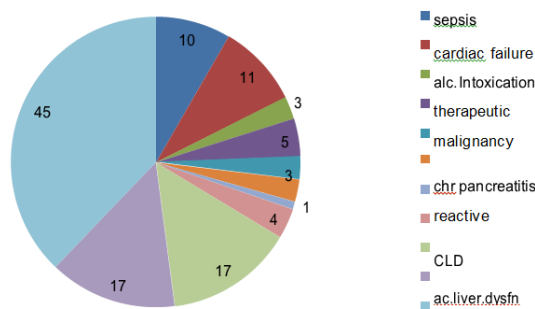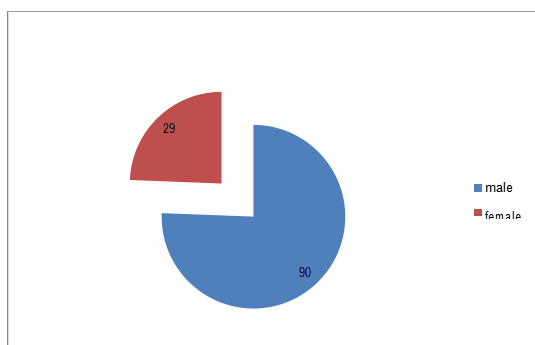
Figure 1. Primary diagnosis

Figure 2. sex ratio

Figure 3 shows the distribution of patients by age group. Patients in the age group of 41 to 60 years accounted for 54.6% of the cases, followed by the 61 to 80 years age group, which constituted 34.5%. The age distribution of the study sample is summarized in Table 2.

We also analyzed the association of hypoglycemia with in-hospital mortality. Of the 119 patients with hypoglycemia, 23 (19.32%) died during hospitalization. The association between hypoglycemia and in-hospital mortality was statistically significant ($p < 0.05$).

4. Conclusion

Hypoglycemia is a serious condition that indicates dysregulation in glucose metabolism and failure of endogenous defense mechanisms to combat low blood sugar levels. Our study found that the maximum number of patients with hypoglycemia were in the age group of 41-60 years, accounting for 54.6

Author Contributions: All authors contributed equally to the writing of this paper. All authors read and approved the final manuscript.

**Conflicts of Interest:** The authors declare that they have no conflicts of interest.

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Table 1. Sex distribution of the study sample

male	90
female	29
total	119

Table 2. Age distribution of the study sample

Age	Frequency	Percentage
0-20	2	1.7
21-40	11	9.2
41-60	65	54.6
61-80	41	34.5
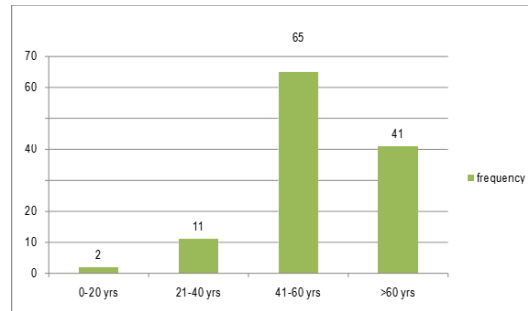
Figure 3. Frequency

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