



" A STUDY ON EPIDEMIOLOGY AND OUTCOME OF HYPOGLYCEMIA CASES IN EMERGENCY DEPARTMENT ".

General Medicine

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ABSTRACT

Background - Hypoglycemia is an easily preventable life threatening emergency. Diabetic patients often experiences hypoglycemic episodes. **Aim-** To assess incidence and elucidate the underlying cause, outcome of hypoglycemia cases. **Method-** A retrospective observational study of 150 patients registered in emergency department who were fulfilling inclusion and exclusion criteria. **Result-** Age of patients were ranged from 22 year to 106 year with mean age 63.4 year. 92 cases(61.31%) were male and 58 cases (38.66 %) were female. Most common symptoms were dizziness(82%),altered sensorium (77%). Common causes of hypoglycemia include anti diabetic medicines, chronic liver disease ,chronic kidney disease . 142 cases (94.66%) had better prognosis where as 8 cases(5.33%) were complicated. **Conclusion-**Hypoglycemia is a preventable emergency. Patient and their relative should be educated for symptoms and complications of hypoglycemia.

KEYWORDS

INTRODUCTION

Diabetes melitus is a chronic endocrine disorder that affects life expectancy ¹. Hypoglycemia is a common diabetic emergency ². 65% of diabetic patients experience at least one episode of hypoglycemia annually ². Mild hypoglycemia is characterized by unpleasant autonomic symptoms ³. Severe hypoglycemia defined as an episode requiring assistance from another individual for recovery ³. Hypoglycemia may be documented by whipple's triad includes 1) symptoms consistent with hypoglycemia. 2) a low plasma glucose concentration ,lower limit of fasting plasma glucose is 70 mg/dl. 3) Relief of symptoms after glucose level raised ⁴. Hypoglycemia is a preventable life threatening emergency. This study is done to understand epidemiological profile of hypoglycemia. So, early intervention can be taken and consequences of hypoglycemia can be prevented.

MATERIAL AND METHOD

A retrospective type observational study was done in civil hospital navsari. 150 patients who came during the period of august 2022 to january 2024, fulfilling inclusion & exclusion criteria were selected in this study. Those with inadequate data were excluded from study. Data of the patients were entered manually in to microsoft excel spreadsheet.

Inclusion criteria

- Age >18 year.
- Finger prick blood glucose < 70 mg/dl at the time of arrival.
- Symptoms consistent with hypoglycemia.

Exclusion criteria

- Hospitalised patients
- Critically ill patients
- Subjects who are fasting
- Patients with inadequate data

Patient hospital identification numbers were noted from the triage register along with time, date of arrival, age, gender, random blood sugar level by glucometer. Patient's history of diabetes was confirmed by reviewing old medical records, taking drug history ; drugs such as sulfonyleurea, insulin are more prone to cause hypoglycemia. Symptoms such as edema, decreased urine output, high urea creatinine level, radiological evidence were considered for admitting positive history of chronic kidney disease. Infection was diagnosed based on history of fever, symptoms, blood- urine reports. Diagnosis of liver disease was confirmed by history, clinical examination, liver function tests and radiological evidence. History of malignancy were confirmed by clinical examination, history taking, investigations.

RESULT

In this study 92(61.3%) were male, 58(38.66%) were female. The age of the patients were ranged from 22 years to 102 years ; mean age of patients were 63.4 years. Mean glucometer RBS value in diabetes patients was 38.5 mg/dl and in non diabetic patient was 41.2 mg/dl.

Table 1 Demographic characteristics of hypoglycemia.

Parameters	Number
Total numbers of diabetic patients	95 (63.33%)
Total numbers of non diabetic patients	55 (36.66%)
Age	22 years to 106 years
Total numbers of male patients	92 (61.3%)
Total numbers of female patients	58 (38.66%)

Table 2 symptoms of hypoglycemia

Symptoms	Total numbers (%) of Patients
Altered sensorium	115 (77%)
Dizziness	123(82%)
Headache	57 (38%)
Excess sweating	84 (56%)
Uneasiness	84 (56%)
Seizure	52 (35%)
Tremor	43 (29%)

Table 3 Etiology of hypoglycemia

Causes	Percentage
Oral hypoglycemic agent	41.9%
Insulin	32.5%
Both oral hypoglycemic agent and insulin	7%
Missing meal	18%
Infection	10%
Malignancy	4%
Chronic kidney disease	23.8%
Chronic liver disease	30%

Table 4. Relation of hypoglycemia with place

Place of hypoglycemic event	Number(%) of hypoglycemia cases
Outside home environment	110 (73%)
Inside home	28 (19%)
Both inside & outside home	12 (8%)

Table 5. Relation of hypoglycemia with time

Time of hypoglycemic events	Number(%) of cases
Daytime (6 a.m. - 6 p.m.)	113 (75.3%)
Night time (6 p.m.- 6 a.m.)	28 (20.0%)
Both day and night	9 (6.7%)

In terms of outcome ; 142 (94.66%) cases out of 150 cases that had a GCS of 15 were recorded as normal after giving parental dextrose solution with in 10-30 minute. 8 cases (5.33%) were complicated ; 3 (2%) cases were undergone arrhythmia, 2 (1.33%) cases had coma , 2 (1.33%) had sudden cardiac arrest, 1 case (0.66%) had status epilepticus.

DISCUSSION

In this study hypoglycemia is common in late middle age. As elder age have more comorbidities compare to younger age , hypoglycemia is more common in elder age ¹⁶. Juvva gautham et al ³, dalal al hasan et al ²also have similar finding. This study shows males are more prone to hypoglycemia compare to female. Physical activity, exercise, work stress play an important role in it ⁵. taiwanese study ⁶, juvva et al ³, dalal

al hasan et al² have similar result. This study suggests episodes of hypoglycemia were more common in day time. Skip meals, physical work, stress, improper diet, anti diabetic medicines may cause day time hypoglycemia⁵. murata et al⁷, krmacova et al⁸, davis et al⁹ also have more hypoglycemia events in day time. This current study shows oral hypoglycemic agent (41.9%), Insulin (32.5%) are the most common cause of hypoglycemia; other causes were missed meal (18%), infection (10%), malignancy (4%), chronic kidney disease (23.8%), chronic liver disease (30%). Intensive control of blood sugar by anti diabetic medicines may lead hypoglycemia. Juva et al³, gabriet et al¹, american Journal of medicine et al¹⁰ also have similar findings. Infection affects body hormone levels i.e. cortisol, insulin; sepsis induce shock may lead spontaneous hypoglycemia¹¹. Impair glucose metabolism i.e. gluconeogenesis, ketogenesis leads hypoglycemia in liver disease¹² and malignancy¹³. In chronic kidney disease decrease glucose absorption and also decreased insulin excretion leads hypoglycemia¹⁴. Hypoglycemia events are more common at out side environment (73%). Extreme high-low temperature, out side physical work enhance insulin secretion leads hypoglycemia¹⁵. Missed meal, physical activities causes more hypoglycemic events in day time⁵. Patients may not aware of hypoglycemic symptoms during night time leads worse prognosis. Earlier transportation and prompt management favors better outcome. This study shows 94.66% cases had better outcome. Complications were due to delayed transportation and multiple comorbidities. Dalal al hasan et al² also had similar findings.

CONCLUSION

The study has shown variable epidemiology and outcome of hypoglycemia cases. Hypoglycemia are predominant among elders, related to diabetic medicines, having comorbidities, male, daytime, outside environment. Proper evaluation of each case of hypoglycemia should be done. Patient and relatives should be educated for warning symptoms and severity of hypoglycemia.

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