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# Original Research

## Assessment of clinical profile of hypoglycemic patients

[1]Rajesh Kumar, [2]Rahul Chaudhary

[1]Associate Professor, [2]Assistant Professor, Department of General Medicine, Gouri Devi Institute of Medical Sciences & Hospital, Durgapur, West Bengal, India

***ABSTRACT:***

**Background:** Hypoglycemia is an important complication of glucose-lowering therapy in patients with diabetes mellitus. The present study was conducted to assess clinical profile of hypoglycemic patients. **Materials & Methods:** 104 patients with fasting blood glucose less than 70 mg/dl of both genders were enrolled. History of fever in 48 hours, past illness, and the probable causes of hypoglycaemia were recorded. Assessment of blood glucose concentration by Accu-Check Gluco-stix was performed. **Results:** Out of 104 patients, males were 60 and females were 44. Common clinical features were fall in 52, AMS in 15, FND in 34, anorexia in 67, fever in 81, LOC in 13, syncope in 46, and others in 28 patients. The difference was significant (P< 0.05). Common causes of hypoglycaemia was skipped meal in 37, alcohol in 23, OHA in 14, OHA +insulin in 10, insulin in 12 and others in 8 cases. The difference was significant (P< 0.05). **Conclusion:** Common clinical features were AMS, FND, anorexia, fever, LOC and syncope. Common causes of hypoglycaemia was skipped meal, alcohol, OHA, OHA +insulin and insulin.

**Key words:** Hypoglycemia, Glucose, Diabetes

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**Corresponding Author:** Rahul Chaudhary, Assistant Professor, Department of General Medicine, Gouri Devi Institute of Medical Sciences & Hospital, Durgapur, West Bengal, India

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## INTRODUCTION

Hypoglycemia is an important complication of glucose-lowering therapy in patients with diabetes mellitus. Attempts made at intensive glycemic control in variably increases the risk of hypoglycemia.[1] A six-fold increase in deaths due to diabetes has been attributed to patients experiencing severe hypoglycaemia in comparison to those not experiencing severe hypoglycemia Repeated episodes of hypoglycemia can lead to impairment of the counter-regulatory system with thepotential for development of hypoglycemia unawareness.[2] The short- and long-term complications of diabetes related hypoglycaemia include precipitation of acute cerebrovascular disease, myocardial infarction, neurocognitive dysfunction, retinal cell death and loss of vision in addition to health-related quality of life issues pertaining to sleep, driving, employment, recreational activities involving exercise and travel.[3]

There is an urgent need to examine the clinical spectrum and burden of hypoglycemia so that adequate control measures can be implemented against thisneglected life-threatening complication.[4] Early recognition of hypoglycemia riskfactors,self-monitoring of blood glucose, selection of appropriate treatment regimens with minimal or no risk of hypoglycemia and appropriate educational programs for healthcare professionals and patients with diabetes are the major ways forward to maintain good glycemic control, minimize the risk of hypoglycaemia and thereby prevent long-term complications.[5] The present study was conducted to assess clinical profile of hypoglycemic patients.

## MATERIALS & METHODS

The present study consisted of 104 patients with fasting blood glucose less than 70 mg/dl of both genders. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. History of fever in 48 hours, past illness, and the probable causes of hypoglycaemia were recorded. Assessment of blood glucose concentration by Accu-Check Gluco-stix was performed. Hypoglycaemia was defined as a capillary blood glucose of 70mg/dL

or less. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## RESULTS

**Table I Distribution of patients**

| Total- 104 | | |
|---|---|---|
| **Gender** | **Male** | **Female** |
| Number | 60 | 44 |

Table I shows that out of 104 patients, males were 60 and females were 44.

**Table II Assessment of clinical features**

| Clinical features | Number | P value |
|---|---|---|
| Fall | 52 | 0.05 |
| AMS | 15 | |
| FND | 34 | |
| Anorexia | 67 | |
| Fever | 81 | |
| LOC | 13 | |
| Syncope | 46 | |
| Others | 28 | |

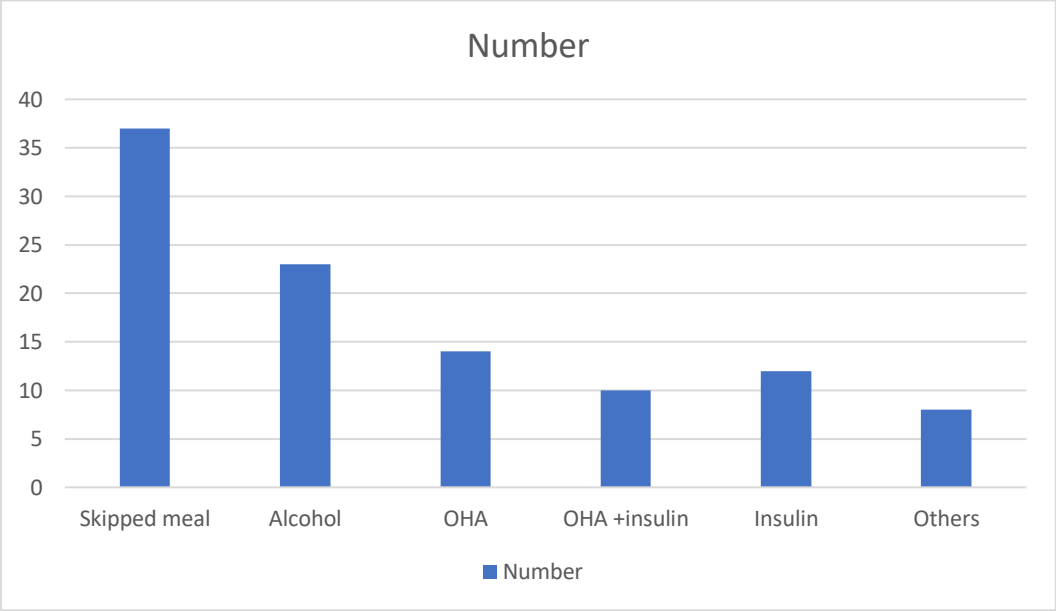
Table II shows that common clinical features were fall in 52, AMS in 15, FND in 34, anorexia in 67, fever in 81, LOC in 13, syncope in 46, and others in 28 patients. The difference was significant (P< 0.05).

**Table III Etiology of hypoglycemia**

| Etiology | Number | P value |
|---|---|---|
| Skippedmeal | 37 | 0.02 |
| Alcohol | 23 | |
| OHA | 14 | |
| OHA +insulin | 10 | |
| Insulin | 12 | |
| Others | 8 | |

Table III, graph I shows that common causes of hypoglycemia was skipped meal in 37, alcohol in 23, OHA in 14, OHA +insulin in 10, insulin in 12 and others in 8 cases. The difference was significant (P< 0.05).

**Graph I Etiology of hypoglycemia**




## DISCUSSION

Both the American Diabetes Association(ADA) and the European Medicines Agency have defined hypoglycaemia as "any abnormally low plasma glucose concentration that exposes the subject to potential harm" with a proposed threshold plasma glucose value <70 mg/dL (<3.9 mmol/L).[6]Iatrogenic hypoglycemia associated with diabetes medications

are among the most common causes of hypoglycemia in patients with diabetes.[7] Although the frequency of hypoglycemic events in patients treated with in cretin-based therapies may be lower than patients treated with insulin, evidence suggest higher incidence of hypoglycemia in patients treated with OAD or in cretin based therapies especially when glucagon like peptide-1 receptor agonists are combined with sulphonylureas.[8,9] So, it could be inferred that majority of hypoglycemic episodes experienced by patients with diabetes are related to medication. Hypoglycemia may also result from certain seldom causes such as pancreatic or non-isletcel ltumors, auto immune conditions, organ failure, endocrine disease, in born errors of metabolism, dietary toxins, alcohol consumption, stress, infections and miscellaneous conditions(such as sepsis, starvation, severe excessive exercise).[10,11]The present study was conducted to assess clinical profile of hypoglycemic patients.

We found that out of 104 patients, males were 60 and females were 44. In a study, by Van Staa and associates,[12] evaluating the risk of hypoglycemia inpatients with T2DM receiving chlorpropamide, tolbutamide, glyburide, glipizide,or gliclazide revealed that the risk of hypoglycemia washigher in patients onglyburide therapy than in those who used other sulfonylureas. Similarly, a study comparing the rates of hypoglycaemia with second-generation sulfonylureas revealed that hypoglycaemia occurred twice as frequently in patients receiving glyburide than those receiving glipizide.

We found that common clinical features were fall in 52, AMS in 15, FND in 34, anorexia in 67, fever in 81, LOC in 13, syncope in 46, and others in 28 patients. Yu-Jang Suet al[13] in their study found that hypoglycemia was associated with several comorbidities. About 10.2% (19/186) had liver cirrhosis, and 7.0% (13/186) of the patients had uremia. About 33.3% (62/186) had UTIs and 23.1% (43/186) had pneumonia and 2.7% (5/186) had biliary tract infections. ARF accounted for 26.3% (49/186) of the hypoglycemic episodes. In addition to the etiology of infection, the lack of recent meal accounted for 44.6% (83/186) of the hypoglycemic episodes. About 2.2% (4/186) of the cases resulted from an acute cerebrovascular accident (CVA). Approximately 8.6% (16/186) were concomitant with malignancy.

We found common causes of hypoglycemia was skipped meal in 37, alcohol in 23, OHA in 14, OHA +insulin in 10, insulin in 12 and others in 8 cases. Su CC et al[14] found that there were 228 hypoglycemic patients (112 women and 116men, ranging in age from 22 to 93 years, mean 69.6 years) identified for the study. These patients had hypoglycemia mainly due to excessive use of sulfonylureas or insulin. There was a diabetic history in 182 patients (79.83%). Other primary etiologies of acute hypoglycemia were sepsis in 13 (5.70%), and extensive liver disease in 13 (5.70%).

The limitation of the study is small sample size.

## CONCLUSION

Authors found that common clinical features were AMS, FND, anorexia, fever, LOCand syncope. common causes of hypoglycemiawasskipped meal, alcohol, OHA, OHA +insulinand insulin.

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