

The Clinical Features of Patients Admitted to Akdeniz University School of Medicine Endocrinology Department with Hypoglycemia

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To determine the demographic, etiologic and clinical features of hypoglycemic patients admitted to Akdeniz University Endocrinology and Metabolism Department. We analyzed 100 hypoglycemic patients who admitted to Akdeniz University Hospital Endocrinology and Metabolism Department between 2001-2003 retrospectively. Of the 100 patients only 75 patients' data for demographic and clinical features can be determined. Of the 75 patients 39 were female (%52.7), 36 were male (%47.3). The age of the patients were between 16-89 (median 58 ± 18 year). 17 patients(%22.6) had no history of known DM. Of the 58 patients known to have DM, 9 were (%15.5) type 1, 47 were (%81.1) type 2 ve 2 were (%3.4) steroid induced DM. Of the 58 diabetic patients, 39 were (%67.2) taking insuline treatment whereas 19 were (%32.8) taking oral antidiabetic agent especially sulfonylureas. The level of blood glucose at the time of admission to the hospital were between 12- 57 mg/dl. Of the 75 patients, 54 (%72) were admitted to the hospital with neuroglycopenic symptoms whereas 21 (%28) were admitted to the hospital with adrenergic system symptoms. The cause of hypoglycemia were dietetic error in 32 diabetic patients(42.7%) excessive use of insüline and oral hypoglycemic agents in 26 patients (34.7%), drugs in 2 patients (interferone, octreotide) (2.7%), renal insufficiency in 2 patients(2.7%), hepatitis in 2 patients(2.7%), Addison disease in 1 patient (1.3%), surreptitious use of oral hypoglycemic agents for suicide in 1 patient (1.3%), dumping syndrome in 1 patient (1.3%), chronic alcoholism in 1 patient(1.3%). In 7 patients(9.3%) the etiology of hypoglycemia was not identified. 63 patients (%84) were improved with parenteral treatment whereas 12 patients (%16) were improved with oral treatment. There was no mortality depending on hypoglycemia in our patients.

Keywords: Hypoglycemia, etiology

Introduction

Hypoglycemia defined as the occurrence of a wide variety of symptoms in association with a plasma glucose concentration of 50 mg per dl or less (1). The causes of hypoglycemia can be drugs, endocrine disorders, malignancy, malnutrition and renal failure but the drugs which are used for diabetes mellitus (DM) is the most common cause of hypoglycemia (2).

The incidence of hypoglycemia in hospitalized patients was reported 1.2% (3). As the morbidity and mortality associated with hypoglycemia isn't rare, early diagnosis and treatment may improve the diagnosis (2).

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In our study, we aimed to determine the demographic, etiologic and clinical features of hypoglycemic patients admitted to Akdeniz University Endocrinology and Metabolism Department.

Material and Methods

We analyzed 100 hypoglycemic patients who admitted to Akdeniz University Hospital Endocrinology and Metabolism Department between 2001-2003 retrospectively. Of the 100 patients only 75 patients' data for demographic and clinical features can be determined.

Results

Of the 75 patients 39 were female (%52.7), 36 were male (%47.3). The age of the patients were between 16-89 (median 58 ± 18 year).

17 patients (%22.6) had no history of known DM. Of the 58 patients known to have DM, 9 were (%15.5) type 1, 47 were (%81.1) type 2 ve 2 were (%3.4) steroid induced DM.

Of the 58 diabetic patients, 39 were (%67.2) taking insuline treatment whereas 19 were (%32.8) taking oral antidiabetic agent especially sulfonylureas.

The level of blood glucose at the time of admission to the hospital were between 12- 57 mg/dl.

Of the 75 patients, 54 (%72) were admitted to the hospital with neuroglycopenic symptoms whereas 21 (%28) were admitted to the hospital with adrenergic system symptoms.

The causes of hypoglycemia are shown on table 1.

63 patients (%84) were improved with parenteral treatment whereas 12 patients (%16) were improved with oral treatment.

There was no mortality depending on hypoglycemia in our patients.

Table 1. The causes of hypoglycemia

The cause of hypoglycemia	Percent (%)
Dietetic error in diabetic patients	42.7
Excessive use of insüline and oral hypoglycemic agents	34.7
Related to drugs (interferone, octreotide)	2.7
Renal insufficiency	2.7
Hepatitis	2.7
Addison Disease	1.3
Surreptitious use of oral hypoglycemic agents for suicide	1.3
Dumping syndrome	1.3
Chronic alcoholism	1.3
Etiology unknown	9.3

Discussion

The clinical features and the causes of hypoglycemia in our patients were consistent with the literature generally. In insulin treated group the frequency of hypoglycemia was reported 30-40% for mild hypoglycemia, 0.5-2.3% for severe hypoglycemia (4). In patients treated with oral hypoglycemic agents the frequency was reported 16% (5).

In our study as in the literature (6) most common cause of hypoglycemia was due to dietetic error or error in the dose of hypoglycemic drugs. So the

medical stuff, the patients and their relatives must be educated for the diagnosis and treatment of hypoglycemia.

Fischer et al reported (3) that hypoglycemia due to renal insufficiency was the second most common cause of hypoglycemia in hospitalized patients. In our study renal insufficiency as a cause of hypoglycemia was found lower than literature.

Hart et al found that excessive consumption of alcohol was the most common cause of hypoglycemia (19%) in non diabetic group (7). In another study (8), factitious or surreptitious use of insulin or sulfonylurea drugs reported to be the most common cause of hypoglycemia in nondiabetics. In our study only one patient with chronic alcoholism and only one patient with surreptitious use of sulfonylurea were the cause of hypoglycemia. The excessive use of alcohol as a cause of hypoglycemia was lower in our patients because of the less consumption of alcohol in our country.

In our study the causes of hypoglycemia other than diabetes was found to be 23%. Hart et al. (7) reported the overall frequency of hypoglycemia in non diabetic group 5.8-8%. Hypoglycemia due to endocrine disorders rather than diabetes is known to be rare (9). Guven et al reported (2) that Sheehan syndrome was the most common cause of hypoglycemia in non diabetic endocrine disorders. In our study only one patient with Addison disease was admitted to hospital for hypoglycemia.

In our study there were two hypoglycemic patients admitted to hospital related to drugs other than oral hypoglycemic agent. Sari et al reported a case of hypoglycemia related to long acting octreotide (10)

In our study, patients were admitted to hospital with neurologic symptoms (52%). Hart et al in their study also reported (7) that neurologic symptoms were the main symptoms at the time of admission to the hospital. For that reasons bedside capillary blood glucose determination may be important to detect hypoglycemia earlier for patients with neurologic symptoms admitted to emergency room or outpatients clinic.

Although the mortality due to hypoglycemia was reported 4% in one study (3), 7% in another study (2), the mortality especially is related to underlying disease rather than hypoglycemia. In our study there was no mortality due to hypoglycemia.

In conclusion, hypoglycemia hasn't been rarely seen. The most common cause is low caloric intake or excessive oral hypoglycemic agents used in diabetic patients. The causes rather than diabetes should be kept in mind.

References

1. Hypoglycemic disorders. Karam J.H, Masharani U. Basic and Clinical Endocrinology. Greenspan F.S, Gardner D.G. 7th edition. 2001 McGraw-Hill companies. 747-766.
2. Güven M, Bayram F, Güven K, Kelestimur F. Evaluation of patients admitted with hypoglycemia to a teaching hospital in Central Anatolia. *Postgrad Med J* **76**: 150-152, 2000.
3. Fischer K.F, Lees J.A, Newman JH. Hypoglycemia in hospitalized patients. *N Eng J Med* **315**: 1245-1250, 1986.
4. Frier BM. Hypoglycemic valleys: an under-recognised problem in type 2 diabetes? *Int J Clin Pract Suppl* 129: 12-9, 2002.
5. Miller CD, Phillips LS, Ziemer DC, Gallina DL, Cook CB, El-Kebbi IM. Hypoglycemia in patients with type 2 diabetes mellitus. *Arch Intern Med* **161** (13): 1653-9, 2001.
6. Stepka M, Rogala H, Czyzyk A. Hypoglycemia: a major problem in the management of diabetes in the elderly. *Aging (Milano)* **5** (2): 117-21, 1993.
7. Hart SP, Frier BM. Causes, management and morbidity of acute hypoglycemia in adults requiring hospital admission. *Q J Med* **91**: 505-510, 1998.
8. Roith DL. Tumor-Induced hypoglycemia. *N Eng J Med* **341**: 757-758, 1999.
9. Samaan NA. Hypoglycemia secondary to endocrine deficiencies. *Endocrinol Metab Clin North Am* **18**: 145-154, 1989.
10. Sari R, Altunbas H, Ozdogan M, Gürer EI, Karayalcin U. Severe and prolonged hypoglycemia triggered by long-acting octreotide in a patient with malignant mesenchymal tumor: case report. *J Chemother* **15** (1): 85-8, 2003.