



ORIGINAL RESEARCH PAPER

General Medicine

A PROSPECTIVE STUDY OF RISK FACTORS AND CLINICAL PROFILES IN DIABETIC KETOACIDOSIS PATIENTS

KEY WORDS:

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ABSTRACT

BACKGROUND: Hyperglycemia, hyperosmolarity, accelerated lipolysis, ketonemia, and metabolic acidosis are all symptoms of diabetic ketoacidosis (DKA). It is characterised by absolute or relative insulin insufficiency, with a 5-percent overall mortality rate in hospitals. **AIMS AND OBJECTIVES:** A prospective study in a tertiary care hospital to identify risk variables and clinical characteristics in diabetic ketoacidosis (DKA). **MATERIALS AND METHODS:** The study includes 50 patients with diabetic ketoacidosis who match the inclusion criteria for diabetic ketoacidosis. According to the inclusion criteria, diabetic ketoacidosis was diagnosed. Hyperglycemia >250 mg/dl, acidosis (blood pH 7.3), and ketones in urine. **RESULTS:** A total of 50 patients were enrolled in the trial. A total of 50 patients were tested, with 21 (42%) having type I diabetes and 29 (58%) having type II diabetes. There were 23 (46 percent) males and 27 (54 percent) females among the 50 patients. The majority of the patients (12%) were between the ages of 30 and 60 years old. Nausea and vomiting were the most common presenting symptoms in 34 of the patients (68 percent). Drug noncompliance was the most common precipitating factor, accounting for 16 (32 percent), followed by urinary tract infections (12 (24 percent), and random blood sugar levels of more than 300 mg/dL in 48 (96 percent) of patients at the time of presentation. **CONCLUSION:** Diabetic ketoacidosis (DKA) was common in people with type 2 diabetes (58 percent). DKA was more prevalent in persons between the ages of 30-40 (24%) and 50-60 (24%) years old. The most prevalent presenting complaints were nausea/vomiting (68 percent) and shortness of breath (66 percent). Drug noncompliance (32 percent) and infection are the most common triggering causes. At the time of presentation, the majority of patients have blood sugar levels of 200-300 mg/dL (30%). To avert issues, extensive patient education should be offered.

INTRODUCTION:

Hyperglycemia, hyperosmolarity, accelerated lipolysis, ketonemia, and metabolic acidosis are all symptoms of diabetic ketoacidosis (DKA). It is characterised by absolute or relative insulin insufficiency, with a 5-percent overall mortality rate in hospitals.

AIMS AND OBJECTIVES:

Prospective study in a tertiary care hospital to identify risk variables and clinical characteristics in diabetic ketoacidosis (DKA).

MATERIALS AND METHODS:

Place Of Study:

Patients admitted in medical ward in Government General Hospital, vijayawada

Period Of Study:

The study period was Six months i.e., from August 2021 to January 2022

Study Population:

50 patients

Study Design:

A Prospective cross-sectional study.

Inclusion Criteria:

- Patients above the age of 18 years.
- The patient must have had a previous diagnosis of diabetes or be newly diagnosed with diabetes and be under treatment..

Biochemical Inclusion criteria

- Blood glucose levels > 250 mg/dl .

- Urine sample - Positive for ketone bodies .
- PH values <7.3

Exclusion Criteria:

- Patients below 18 years of age are excluded.
- Diabetic Ketoacidosis (DKA) cases with co morbidities are excluded from the study.

METHOD OF STUDY:

The study begins with the selection of patients based on inclusion criteria, followed by the collection of all baseline parameters of the patients' demographic details, medical history, past allergies, personal history, family history, laboratory data, and current treatment using the patient proforma.

RESULTS

	NO.OF CASES	PERCENTAGE
10-20	11	22
21-30	7	14
31-40	12	24
41-50	6	12
51-60	12	24
61-70	12	24
MALE	23	46
FEMALE	27	54
TYPE-1	21	42
TYPE-2	29	58
200-300	15	30
301-400	11	22
401-500	9	18
501-600	11	22

601-700	2	4
DRUG INCOMPETENCE	16	32
UTI	12	24
SEPSIS	2	4
DIABETIC FOOT ULCER	1	2
GASTROENTERITIS	3	6
ACUTE FEBRILE ILLNESS	2	4
PANCREATITIS	3	6
STARVATION	1	2
FIRST PRESENTATION	13	26
UNKNOWN	8	16
NAUSEA/VOMITING	34	68
ABDOMINAL PAIN	23	46
SOB	33	66
FEVER	24	48
ALTERED SENSORIUM	5	10
LETHARGY	36	72
CONSTITUTIONAL SYMPTOMS	29	58

Age Distribution:

A total of 50 patients were studied over the course of six months. Diabetic Ketoacidosis (DKA) was more prevalent in the 30-40 and 50-60 year old age groups among 50 patients. The average age was determined to be 36.98 years (SD16.48).

Gender Distribution:

The gender breakdown among 50 patients is as follows: females account for 27 percent of the total, while males account for 23 percent (46 percent).

Distribution Of Diabetic Population:

Among 50 Patients, 21 (42%) were type – I and 29 (58%) were types – II patients.

Precipitating Factors In Dka Patients:

The most common precipitating event among 50 patients was drug noncompliance (16%), followed by urinary tract infections (12%), pancreatitis (3%), gastroenteritis (3%), acute febrile illness (2%), sepsis (2%), diabetic foot ulcer (1%), and hunger (1%). (2 percent). Thirteen patients (26%) had their initial symptoms of DKA, and eight had unexplained causes for Diabetic Ketoacidosis (DKA) (16 percent).

Clinical Manifestations:

Nausea and vomiting were the most common presenting symptoms in 34 of the 50 individuals (68 percent). Shortness of breath afflicted 33 (66 percent), fever afflicted 24 (48 percent), stomach pain afflicted 23 (46 percent), and Altered sensorium afflicted 5. (10 percent).

Glycemic Levels:

15 (30%) of the 50 patients had Random blood sugar readings of 200-300 mg/dL, 11(22%) of patients had 300-400 mg/dL, 9(18%) of patients had 400-500 mg/dL, 11(22%) had 500-600 mg/dL, and 2(4%) had 600-700 mg/dL. The average RBS value across 50 patients was 383 mg/dL, with a standard deviation of 130.6989.

Table–6 Glycemic Levels (n = 50)

DISCUSSION

Diabetic ketoacidosis (DKA) has long been thought to be a hallmark of type I diabetes; nevertheless, it is now increasingly being recognised in type II diabetes patients who have high insulin resistance and a concurrent illness such as urinary tract infections, sepsis, gastroenteritis, or pancreatitis.

Hyperglycemia, hyperosmolarity, enhanced lipolysis, ketonemia, and metabolic acidosis are all symptoms of DKA, which are produced by a decrease in effective circulating insulin and an increase in counter-regulatory hormones

(glucagon, catecholamine, cortisol, and growth hormone). It is characterised by absolute or relative insulin insufficiency, with a 5-percent overall mortality rate in hospitals.

Variables	Mild	Moderate	Severe	HHS
Plasma glucose (mg/dl)	> 250	> 250	> 250	> 600
Arterial pH	7.25-7.3	7.24-7.1	< 7	> 7.3
Serum bicarbonate (mEq/L)	15-18	10-15	< 10	> 15
Urine ketones by nitroprusside method	Positive	Positive	Positive	Small
Serum ketones	Positive	Positive	Positive	Small
Effective serum osmolality (m Osm/kg)	Variable	Variable	Variable	> 320
Anion gap	> 10	> 12	> 12	Variable
Alteration in sensorium or mental obtundation	Alert	Alert / drowsy	Stupor / Cons	Stupor / cons

A total of 50 patients were enrolled in the trial. A total of 50 patients were tested, with 21 (42%) having type I diabetes and 29 (58%) having type II diabetes. There were 23 (46 percent) males and 27 (54 percent) females among the 50 patients. According to one study, women have a higher rate of diabetic ketoacidosis than men. The majority of the patients (12%) were between the ages of 30-40 and 50-60, with 11 (22%) in the 10-20 year age group, 7 (14%) in the 20-30 year age group, 12 (24%) in the 40-50 year age group, and 2 in the 60-70 year age group (4 percent). It was discovered that the average age was 36.98 years. According to several additional research, the average age of diabetic ketoacidosis patients admitted was 40 to 50 years¹.

Nausea and vomiting were the most common presenting symptoms in 34 patients (68 percent). Shortness of breath afflicted 33 (66 percent), fever afflicted 24 (48 percent), stomach pain afflicted 23 (46 percent), and Altered sensorium afflicted five (10 percent)². Polyuria, polydipsia, abdominal pain, and vomiting were described as the most common clinical symptoms in another study³. Drug noncompliance was the most common precipitating factor, accounting for 16 percent of all cases, followed by urinary tract infections (12 percent), pancreatitis (3 percent), gastroenteritis (3 percent), acute febrile illness (2 percent), sepsis (2 percent), diabetic foot ulcer (1 percent), and starvation (1 percent) (2 percent). According to one study, infection was the major cause of death in 41% of cases .

Noncompliance with therapy (63.7 percent), infection (30.5 percent), and newly diagnosed (5.8%) were all reported as causes in another study . There were 13 first presentations of Diabetic ketoacidosis (DKA) among 50 patients, and 8 patients had unknown aetiology for Diabetic ketoacidosis (DKA) (16 percent). In a group of 50 patients, the average denovo diabetic was 6.5+/- 4.94.

At the time of presentation, 48 (96 percent) of patients have blood sugar levels that are higher than 300 mgdL. Random blood glucose levels were 200-300 mgdL in 15 (30%) of patients, 300-400 in 11 (22%) of patients, 400-500 mgdL in 9 (18%) of patients, 500-600 mgdL in 11 (22%) of patients, and 600-700 mgdL in 2 (4%) of patients. When the Random blood glucose levels were more than 700 mgdL at the time of presentation, the risk of death increased. The average RBS value was determined to be 383 mgdL among 50 individuals.

In a group of 50 individuals, 22 (44%) had formed a wide range of ketone bodies in their urine, 17 (34%) had acquired a moderate range, and 11 (22%) had produced a small range. DKA was detected in both type I and type II diabetes, according to the findings of the study. Female patients made up a large percentage of the study population (54 percent). Diabetic ketoacidosis (DKA) was common in people with type 2 diabetes (58 percent). DKA was more prevalent in persons

between the ages of 30-40 (24%) and 50-60 (24%) years old. The most prevalent presenting complaints were nausea/vomiting (68 percent) and shortness of breath (66 percent). Drug noncompliance (32 percent) and infection are the most common triggering causes. At the time of presentation, the majority of patients have blood sugar levels of 200-300 mg/dL (30%). To avert issues, extensive patient education should be offered

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