



A CLINICAL STUDY OF URINARY TRACT INFECTION IN PATIENTS WITH DIABETES MELLITUS

General Medicine

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ABSTRACT

In India, Diabetes is a major health hazard. Urinary tract infection (UTI) is one of the most common types of bacterial infection in diabetes mellitus (DM). To study the clinical pattern, risk factor and causative microorganisms and their drug susceptibility in urinary tract infections with DM. This is a descriptive study of 60 diabetic patients with UTI admitted in Jhalawar Medical College (JMC), Jhalawar (Raj.). Detailed history was taken of patients who were admitted for a period of 5 months from 1st June to 31st Oct. 2018.

Out of 60 diabetic patients admitted with symptoms of UTI, 28 patients were found to be bacteruric. UTI was found to be common in female and diabetics with longstanding uncontrolled blood sugar. Patients with neuropathy had higher chances of developing bacteruria. E.coli was found to be predominant organism followed by klebsiella.

KEYWORDS

DM-Diabetes Mellitus, E.Coli-Escherichia Coli, UTI-Urinary Tract Infection.

INTRODUCTION

In India, Diabetes is a major health hazard. Urinary tract infection (UTI) is one of the most common types of bacterial infection in diabetes mellitus (DM). Patients with diabetes mellitus are at increased risk of various infections. The prevalence of urinary tract infection (UTI) is high in diabetes mellitus. Urinary Tract Infection (UTI) are the second most common infectious complaint in outpatient primary care clinics. By definition it means a bacterial/non-bacterial invasion of the urinary tract that can occur anywhere between the urethra and the kidney. UTI are common in young children and sexually active women. UTIs can be divided anatomically into upper and lower tract infections. It has been estimated that UTI account for 7 million hospital visits per year along with 1 million visits to the emergency department. Urine is a good culture medium for the growth of bacteria. Diabetes mellitus is the most common endocrine diseases of this century. Diabetes mellitus is considered as a big killer and is among the top five of the most significant diseases in the developed world.

OBJECTIVE -

- To study the clinical patterns of Urinary tract infection in both type I and II Diabetes Mellitus.
- To study various risk factor associated with Urinary tract infections in both Type I and II DM.
- To study various causative microorganisms in both Type I and II DM.

MATERIALS & METHODS

This is a descriptive study of 60 diabetic patients with urinary tract infection admitted in Jhalawar Medical College (JMC) Jhalawar (Raj.). Detailed history was taken of patients who were admitted for a period of 5 months from 1 June 2018 to 31 Oct. 2018. All the patients had a history of diabetes or with fasting venous blood glucose value equal, or more than 126mg/dl and post prandial blood glucose more than or equal to 200mg/dl and clinical and microbiological features of UTI, were included in the study. Both Type I and Type II diabetics were included in the study. Irrespective of their sex, duration of diabetes, treatment taken, adherence and all patients above age of 18 years were included in the study.

- The following patients were excluded from the study.
 - History of receiving antibiotics within two weeks prior to culture.
 - Patients on continues indwelling catheter.
 - Menstruating women.

A detailed history was taken after taking consent from the patient, with special reference to duration of diabetes, type, treatment taken and adherence, symptoms related to diabetes and its complications. History in relation to Urinary tract infection like burning micturition, frequency, urgency, dysuria, suprapubic pain, hematuria and any symptoms suggestive of acute pyelonephritis like fever, chills, nausea, vomiting, diarrhea were noted, Past history of urinary tract instrumentation or catheterization were also asked.

A detailed examination of all systems with special emphasis on temperature, pulse rate, blood pressure, surrapubic tenderness, costovetebral angle tenderness, tenderness/mass on deep abdominal palpation were carried out.

RESULTS -

Out of the 60 diabetic patients admitted with symptoms of urinary tract infection, 28 (46.66%) patients were found to be bacteric & 32 (53.33%) patients were found to be non-bacteric.

Throughout the study the term "bacteruria" means, uncentrifugated gram stained urine containing atleast one organism per oil immersion field, correlating with a colony count of $>10^5$ cfu/ml. And the term "non or without bacteruria" means uncentrifugated gram stained urine the contain atleast one organism per oil immersion field, correlating with a colony count of $<10^5$ cfu/ml.

(1) Frequencies of Bacteruria and Non-Bacteruria

	Frequency	Percent (%)
Without Bacteruria	32	53.33
With Bacteruria	28	46.66
Total	60	100

(2) Sex Distribution

Gender	Patient grp		Total
	Without Bacteruria	With Bacteruria	
Male Count	20 (62.5%)	10 (35.71%)	30 (50%)
% Within Patient group	12 (37.05%)	18 (64.28%)	30 (50.00%)
Female Count			
% Within Patient group			
Total Count (%)	32(100%)	28(100%)	60(100%)

(3) Organisms Isolated

Organism	No.	%
E-Coli	19	67.90%
Klebsiella	5	17.90%
Enterococci	2	7.14%
Pseudomonas	1	3.5%
Candida	1	3.5%
Total	28	100%

(4) Complications of DM

Complication	Without Bacteruria(n=32)	With Bacteruria (n=28)
Neuropathy(%)	12(37.5%)	16(57.14%)
Retinopathy (%)	9 (28.12%)	11(39.28%)
Hypertension(%)	5 (15.62%)	10(35.71%)
Diabetic foot(%)	2(6.25%)	9 (32.14%)
Nephropathy(%)	5(15.62%)	7 (25%)
IHD(%)	9 (28.12%)	4 (14.28%)
Others(%)	2 (6.25%)	0 (0%)

CONCLUSIONS

The following were the conclusions drawn from the present study.

- In 60 diabetics with symptoms of UTI, 28 patients were found to be bacteruric.
- UTI did not show any correlation with the age of patients.
- Incidence of UTI was higher among the female patients.
- The Propensity for developing UTI based on the type of diabetes was inconclusive in the present study.
- Asymptomatic bacteruria did not show an increased incidence in female population.
- The pH Value were significantly higher in the bacteruric group.
- Leucocytosis was observed significantly in the bacteruric group.
- Glycated hemoglobin A1c was found to be high in diabetic patients with u UTI.
- Patients with neuropathy had higher chances for developing bacteruria.
- E.coli (67.90%) was the commonest organism isolated from urine culture and Klebsiella (17.90%) was the second common organism isolated.
- Gender based evaluation of the causative organism also showed E.coli as the most common organism in female.
- Bacteruria were less in patients taking insulin and combined (insulin and oral hypoglycemic) treatment for diabetes.

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