

ORIGINAL RESEARCH

Evaluation of Prevalence of Asymptomatic Bacteriuria in Female Population Suffering From Type 2 Diabetes Mellitus at a Tertiary Care Hospital

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ABSTRACT

Background: Prevalence of asymptomatic bacteriuria (ASB) is quite common among the diabetic population. The diagnosis of UTI should be suspected in any diabetic patient. The present study was conducted to assess the prevalence of asymptomatic bacteriuria in females suffering from type 2 diabetes mellitus.

Materials & Methods: A total of 180 diabetic females were included in the study. Urine samples were obtained from all the patients and prevalence of asymptomatic bacteriuria was recorded. All the results were recorded on a Microsoft excel sheet and were analysed by SPSS software.

Results: In the present study a total of 180 females of age group 18-60 years suffering from type 2 diabetes mellitus were included to assess the prevalence of asymptomatic bacteriuria. The prevalence of bacteriuria in the females was found to be 31.11%. The prevalence of bacteriuria in the females was maximum in the age group 30-40 years (39.28%).

Conclusion: The study concluded that prevalence of bacteriuria in the females suffering from type 2 diabetes mellitus was found to be 31.11% and it was maximum in the age group 30-40 years (39.28%).

Keywords: Bacteriuria, Type 2 Diabetes Mellitus, UTI.

INTRODUCTION

Type 2 diabetes mellitus is a heterogeneous group of disorders characterized by variable degrees of insulin resistance, impaired insulin secretion, and increased glucose production. Patients with type 2 diabetes mellitus are at increased risk of infections, with the urinary tract being the most frequent infection site.¹⁻⁴ Clinical profile of patients with diabetes shows poor circulation, decreased immune system due to reduced ability of white blood cells to fight infections, poor contractions of the bladder leading to bladder dysfunction are some of the contributing factors leading to increased cases of UTI among diabetics.⁵ Moreover, physiological factors like age, gender, duration of diabetes, long term use of anti-diabetic drugs, other diabetic complications like neuropathy, glycosuria are also considered as predisposing factors for increased prevalence of UTI in diabetics.⁶ The permissive definition

of asymptomatic bacteriuria (ASB) used in many studies, refers to the presence of a freshly voided midstream urine specimen yielding positive cultures ($\geq 10^5$ CFU/ml) of the same bacterium in a patient without symptoms of urinary tract infection (UTI); for example, dysuria, urinary frequency, urgency or fever. On contrary, some studies use two positive urine culture samples for defining ASB in females.⁷ Bacteria causing ASB are colonizing flora, which usually arise from the vagina, gut or periurethral area. The most common bacteria that causing ASB isolated from both diabetic patients and non-diabetics are *E. coli*, *Klebsiella* spp, *Staphylococcus saprophyticus*, *Staphylococcus aureus*, and *Candida albicans*.⁸⁻¹² UTI can be symptomatic or asymptomatic in patients with diabetes and encompasses asymptomatic bacteriuria (ABU), urethritis, cystitis, prostatitis and pyelonephritis.⁶ Serious complications of UTI, such as emphysematous cystitis and pyelonephritis, renal abscesses and renal papillary necrosis, are all encountered more frequently in type 2 diabetes than in the general population.^{13,14} The present study was conducted to assess the prevalence of asymptomatic bacteriuria in females suffering from type 2 diabetes mellitus.

MATERIALS & METHODS

The present study was conducted in Department of General Medicine, People's College of Medical Sciences & Research Centre, Bhopal, Madhya Pradesh (India) to assess the prevalence of asymptomatic bacteriuria in females suffering from type 2 diabetes mellitus. A total of 180 diabetic females were included in the study. Pregnant subjects, subjects with history of any other systemic illness and subjects over 60 years of age were excluded from the present study. Complete demographic and clinical history of all the diabetic females were obtained. A Performa was made complete clinical profile and details of clinical examination were recorded. Urine samples were obtained from all the patients and prevalence of asymptomatic bacteriuria was recorded. All the results were recorded on a Microsoft excel sheet and were analysed by SPSS software.

RESULTS

In the present study a total of 180 females of age group 18-60 years suffering from type 2 diabetes mellitus were included to assess the prevalence of asymptomatic bacteriuria.

The prevalence of bacteriuria in the females was found to be 31.11%. The prevalence of bacteriuria in the females was maximum in the age group 30-40 years (39.28%).

Table 1: Prevalence of bacteriuria in type-2 diabetes mellitus patients

Prevalence of bacteriuria	N(%)
Yes	56(31.11%)
No	124(68.88%)
Total	180(100%)

Table 2: Prevalence of bacteriuria in type-2 DM patients according to Age group

Age groups(yrs)	N(%)
18-30	9(16.07%)
30-40	22(39.28%)
41-50	15(26.78%)
51-60	10(17.85%)
Total	56(100%)

DISCUSSION

One of the leading long-term complications of T2DM includes renal dysfunction and associated urinary tract infections (UTI). High glucose concentration in urine promotes

urinary colonization of microorganisms, and the patient becomes more prone to microvascular disease of the kidneys. This has also become a major concern as many studies have reported a high prevalence of UTI in T2DM patients.¹⁵

In the present study a total of 180 females of age group 18-60 years suffering from type 2 diabetes mellitus were included to assess the prevalence of asymptomatic bacteriuria. The prevalence of bacteriuria in the females was found to be 31.11%. The prevalence of bacteriuria in the females was maximum in the age group 30-40 years (39.28%).

Mendoza T et al studied the frequency of asymptomatic bacteriuria in type 2 diabetic women. Fifty women with type 2 diabetes and 50 nondiabetic women were studied. Asymptomatic bacteriuria was present in 32% of diabetics and 4% of controls ($p < 0.01$). This study showed a high prevalence of asymptomatic bacteriuria among diabetic women.¹⁶

Banerjee M et al found that ASB was prevalent in 21.25% of type 2 diabetes population in study.¹⁷

In the study by Mishra A, Asymptomatic bacteriuria was seen in 22 percent of the patients. A significant correlation was observed while correlating duration of diabetes and asymptomatic bacteriuria.¹⁸

Bonadio M et al screened 228 women with diabetes for bacteriuria. The frequency of significant bacteriuria was 17.5% (40 of 228) among women with diabetes and 18.5% (27 of 146) among women in the control group. The presence of higher glycated hemoglobin levels was the only significant risk factor for significant bacteriuria in women with type 2 diabetes.¹⁹

CONCLUSION

The study concluded that prevalence of bacteriuria in the females suffering from type 2 diabetes mellitus was found to be 31.11% and it was maximum in the age group 30-40 years (39.28%).

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