

## EVALUATION OF PREVALENCE OF ASYMPTOMATIC BACTERIURIA IN FEMALES SUFFERING FROM TYPE 2 DIABETES MELLITUS AT A TERTIARY CARE HOSPITAL

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Received : 04/12/2022  
Received in revised form : 21/12/2022  
Accepted : 16/01/2023

**Keywords:**

Asymptomatic Bacteriuria, UTI, Type 2 Diabetes Mellitus.

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DOI: 10.47009/jamp.2023.5.2.76

Source of Support: Nil,  
Conflict of Interest: None declared

*Int J Acad Med Pharm*  
2023; 5 (2); 365-367



### Abstract

**Background:** Patients with type 2 diabetes mellitus are at increased risk of infections, with the urinary tract being the most frequent infection site. Hence, the present study was conducted to assess prevalence of asymptomatic bacteriuria in females suffering from type 2 diabetes mellitus. **Materials & Methods:** The present study was conducted 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. Urine samples were obtained from all the patients and prevalence of asymptomatic bacteriuria was recorded. All the results were analysed by SPSS software V-16. The p - value of < 0.05 is considered to be significant statistically. **Results:** In the present study Asymptomatic bacteriuria was seen in 33.33% of the patients. Asymptomatic bacteriuria was seen in maximum patients of age group 41-50yrs (21.66%). **Conclusion:** The present study concluded that the prevalence of Asymptomatic bacteriuria in females suffering from type 2 diabetes mellitus was 33.33%.

## 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.<sup>[1-4]</sup> 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.<sup>[5]</sup> ASB is found in 2–5% of healthy adult women, is quite unusual in healthy men, and has been claimed to be three to four times more common in women with diabetes than in healthy women.<sup>[6-8]</sup> 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*.<sup>[9-13]</sup> Asymptomatic bladder infection that is noticed by a positive urine

culture is also common among diabetes mellitus patient which progress to symptomatic infection and eventually inadvertent complication. However, it becomes mandatory to detect the urinary tract infection in diabetes mellitus patient so that its progress to complication could possibly be prevented.<sup>[14]</sup> Hence, the present study was conducted to assess prevalence of asymptomatic bacteriuria in females suffering from type 2 diabetes mellitus.

## MATERIALS AND METHODS

The present study was conducted to assess the prevalence of asymptomatic bacteriuria in females suffering from type 2 diabetes mellitus. Before the commencement of the study ethical approval was taken from the ethical committee of the institute and informed consent was taken from the patient after explaining the study. A total of 180 diabetic females were included in the study. Complete demographic and clinical history of all the patients was obtained. A Performa was made complete clinical profile and details of clinical examination were recorded. Subjects with overt diabetic nephropathy (proteinuria) or nephropathy from other causes were possibly excluded. Moreover, subjects with symptoms of UTI (including dysuria, frequency, fever, urgency and abdominal discomfort) or use of

antimicrobial drugs in the last 14 days, those observed with vulvo-vaginitis, pregnancy, known hypertensive, Pregnant subjects, subjects with history of any other systemic illness and subjects over 60 years of age were promptly excluded by 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 V-16. The p - value of < 0.05 is considered to be significant statistically.

## RESULTS

In the present study Asymptomatic bacteriuria was seen in 33.33% of the patients. Asymptomatic bacteriuria was seen in maximum patients of age group 41-50yrs (21.66%).

**Table 1: Prevalence of Asymptomatic bacteriuria**

Prevalence of Asymptomatic bacteriuria	N(%)
Present	60(33.33%)
Absent	120(66.66%)
Total	180(100%)

**Table 2: Age incidence of Asymptomatic Bacteriuria**

Age group(yrs)	Total
30-40	11(9.16%)
41-50	26(21.66%)
51-60	23(19.16%)
Total	60(33.33%)

## 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.<sup>[15]</sup>

In the present study Asymptomatic bacteriuria was seen in 33.33% of the patients. Asymptomatic bacteriuria was seen in maximum patients of age group 41-50yrs (21.66%).

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. There was microbial growth in 40% of samples from diabetic women and 6% of samples from controls ( $p < 0.01$ ). Asymptomatic bacteriuria was present in 32% of diabetics and 4% of controls ( $p < 0.01$ ). E Coli was the most frequently isolated strain, in 55% of patients and 100% of controls. This study showed a high prevalence of asymptomatic bacteriuria among diabetic women.<sup>16</sup>

Verma D et al found that the prevalence of Females Suffering from T Type 2 Diabetes Mellitus was 32%.<sup>[14]</sup>

Agarwal SC found 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%).<sup>[17]</sup>

Banerjee Mainak et al found that ASB was prevalent in 21.25% of type 2 diabetes population. *Klebsiella sp* emerged as the commonest cause among males. The only risk factor for ASB was found to be long-standing type 2 diabetes. There was no association with age, gender, or recent glycemic status.

Bacteriuric patients with worse baseline HbA1C values were at greater risk of UTI. Female diabetic patients with ASB due to *Escherichia coli* had significantly greater risk of developing UTI within one year.<sup>[18]</sup>

## CONCLUSION

The present study concluded that the prevalence of Asymptomatic bacteriuria in females suffering from type 2 diabetes mellitus was 33.33%.

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