Asymptomatic Bacteriuria among Type 2 Diabetic Females

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Background: Asymptomatic bacteriuria (ASB) is a risk factor for pyelonephritis and renal dysfunction in diabetic patients.

Objective: To investigate the prevalence of and risk factors for ASB among type 2 diabetic female patients.

Setting: Chronic Diseases Clinic, Abha Polyclinic, Abha, Saudi Arabia.

Design: A Prospective Controlled Study.

Method: Two hundred forty-six type 2 diabetic females attending the Chronic Diseases Clinic screened for ASB. Personal characteristics, duration and glycosylated hemoglobin (HbA1c) level were recorded. Four hundred ninety-two age-matched, non-diabetic and apparently healthy females registered at the same polyclinic were used as controls. All participants were followed-up every three months for one year for the development of symptomatic UTI.

Result: The mean age of type 2 diabetic females was 50.3±16.2 years, and 50.4±15.1 years for non-diabetic (P-Value=0.976). ASB was detected in 31 (12.6%) diabetic patients and in 32 (6.5%) controls (P-Value=0.005). E. coli was the most common organism in diabetic patients (18/31, 58.1%) and control subjects (23/32, 71.9%). Risk factors for ASB among type 2 diabetic females were older age, marriage, duration of diabetes and elevated HbA1c. During the follow-up period, symptomatic UTI developed in 25/31 (80.6%) diabetic patients compared to 39/215 (18.1%) without ASB (P-Value<0.001).

Conclusion: Type 2 diabetic females are at a high risk of developing ASB. Risk factors for ASB include older age, marriage, longer duration of diabetes and high HbA1c.

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Asymptomatic bacteriuria among type 2 diabetes is a significant risk factor for the development of urinary tract infections. E. coli and K. pneumoniae are the most common isolated organisms in the Saudi community. Among type 2 diabetic females, the prevalence of asymptomatic bacteriuria significantly increases with age, duration of diabetes and elevated HbA1c level. Treatment of asymptomatic bacteriuria could decrease the incidence of symptomatic urinary tract infections among type 2 diabetic females.

Type 2 diabetes increases the risk of urinary tract infection (UTI). Deficiencies in the immune system of diabetics, poor metabolic control of the disease, and early autonomic neuropathy leads to incomplete bladder emptying and promote the pathogenesis of UTIs among diabetics.

Asymptomatic bacteriuria (ASB) is a form of UTI, diagnosed by the isolation of a specified quantitative count of bacteria in urine specimen obtained from an asymptomatic person. The usual quantitative definition is ≥10 cfu/mL in two consecutive urine specimens.

ASB is highly prevalent among females, mainly due to anatomical reasons, such as the short urethra and the closeness to the warm and moist vulva and perianal areas, which are usually colonized with enteric bacteria.

Harding et al reported that bacteriuria usually persists or recurs among diabetic females and could hardly be eradicated. Nicolle et al stressed that in diabetic patients it is not indicated to treat ASB since there are no short or long-term benefits. Moreover, Nitzan et al reported that some females with ASB who receive antibiotic therapy may develop antibiotic resistance.

UTIs and their complications occur more commonly in patients with type 2 diabetes mellitus. Symptomatic UTI occurs more frequently in bacteriuric females than in non-bacteriuric. Moreover, long-term cohort studies indicated that, at initial screening, there is an increased frequency of symptomatic UTI among females with ASB.

The aim of this study is to evaluate the prevalence and risk factors of ASB among type 2 diabetic females.

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