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The impact of diabetes mellitus on the type of the etiologic agents in adults with urinary tract infection

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Background: Glycosuria associated with Diabetes Mellitus (DM) is considered to be a predisposing factor for Urinary Tract Infection (UTI). However, the role of DM in the etiology of uropathogens in patients with UTI has not been well clarified.

Objective: The study aimed to appraise the impact of DM on the type of the etiologic agents in diabetic and non-diabetic adults with UTI.

Methods & Materials: A descriptive cross-sectional study was carried out with 180 culture-positive ($\geq 10^4$ CFU/ml) urine specimens received from age-sex matched diabetic and non-diabetic adults with UTI at Base Hospital, Kalmunai-North, Sri Lanka following the ethical approval. Etiological agents were presumptively identified by culture on HiCrome-UTI agar according to the standard guidelines.

Results: Out of 180, 89 (49.44%) patients had DM while 91 (50.56%) were non-diabetic. Among diabetics, 64.04% (57/89) were females. Among non-diabetics, there were 63.74% (58/91) females. *Enterobacteriaceae* accounted for the majority in both diabetic (84/89;94.4%) and non-diabetic groups (80/91;87.9%). The most predominant uropathogens in diabetic and non-diabetic females were respectively: *E. coli* (46/57;80.7%, 37/58;63.8%) and *Klebsiella* (6/57;10.5%, 11/58;19.0%). In diabetic and non-diabetic males also, *E. coli* (17/32;53.1%, 18/33;54.6%) and *Klebsiella* (11/32;34.4%, 10/33;30.3%) predominated, respectively. *E. coli* accounted for a significantly high isolation frequency in diabetic females (80.7%) compared to those of males (53.1%) ($p=0.003$). Further, the isolation frequency of *E. coli* in diabetic group significantly differed by gender ($p=0.006$), but no such association was found in the non-diabetic group. The less frequently isolated uropathogens (DM vs non-DM respectively) were: *Pseudomonas* (46/57;80.7%, 37/58;63.8%), Enterococci (46/57;80.7%, 37/58;63.8%), and Staphylococci (46/57;80.7%, 37/58;63.8%).

Conclusion: *E. coli* was predominantly isolated from both DM and non-DM groups followed by *Klebsiella*. Among the diabetic group, the percentage of isolation of *E. coli* significantly differed by gender and was significantly higher in females. However, in both groups, isolation frequency of *Klebsiella* was high in males. Due to the limited sample size, a larger scale study is warranted. The current data would serve as a basis until then.