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Study of Clinical Profile of Urinary Tract Infection in Elderly

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Abstract

Background: *Urinary tract infection and asymptomatic bacteriuria are commonly seen in older adults. Aim of this study was to study the pattern of UTI in elderly and also its predisposing factors.*

Methods: *This is a Descriptive observational study after enlisting inclusion and exclusion criteria conducted at a tertiary care centre on 60 patients aged more than 60 years after obtaining written consent. Demographic profile, clinical features, predisposing factors, laboratory features and urine culture reports were noted and analysed.*

Results: *Of the 60 patients studied, 60% were males and 40% females. Patients were grouped according to age groups. Fever was the major symptom. Diabetes mellitus was the most common predisposing factor associated with UTI seen in (42.7%) patients. Gram negative organism, Escherichia coli accounted for maximum cases (36.7%).*

Conclusion: *Gram negative bacteria, E.coli played as a most common organism in the elderly individuals and Diabetes being the most common predisposing factor. Older patients often present with varied symptoms making it difficult towards the road to diagnosis. Its of utmost importance to recognise individuals and start effective antimicrobial, accordingly.*

Keywords: *Ageing, Asymptomatic bacteriuria, elderly, Urinary tract infection, UTI, Symptoms, Predisposing factor.*

Introduction

Urinary tract infection happens when the organisms in the urethra, bladder or kidney multiplies in the urine. It can involve the lower or the upper urinary tract[1]. It can lead to varied impact including an effect on the morbid and fatal complications. Urinary tract infection is the second most common infection in the geriatric group[2].

Urinary tract infection and asymptomatic bacteriuria are commonly described in older adults. Unlike the pattern seen in the younger adults, distinguishing symptomatic urinary tract infection from asymptomatic bacteriuria is problematic. Although several guidelines have developed UTI definitions, a universally accepted definition in elderly doesn't exist. As the older adults, particularly those living in long-term care facilities, are less likely to present with localized genitourinary symptoms and have varied presentation. Moreover, the atypical presentation may lead to a delayed diagnosis. If left untreated, it is seen to have increasing limitation to daily activities.

Factors which facilitate the development of UTI, including diabetes, Pelvic prolapse, Cystocele, Obstructive uropathy, neurological diseases,

Invasive procedures, strictures and anatomical changes are the main risk factors seen in elderly[2].

As the elderly do not present with typical symptoms of UTI, nausea, vomiting, respiratory distress and alteration of consciousness has led to a confusion towards achieving the diagnosis. Hence physicians suspicion is a key to diagnosis of UTI in elderly accompanied by the laboratory findings obtained.

UTI is said to account for 30 to 40% of all health care associated infection, with an estimated point prevalence being 1.5% to 1.64%[3]. In community-dwelling older adults, the UTI incidence and prevalence varies with age and gender[3].

However there is not much information pertaining to various aspects of UTI in the elderly in India and hence this study was done to find out the present clinical profile, predisposing factors leading to UTI in our tertiary care center.

Objective

1. To study pattern of UTI in elderly
2. To study the predisposing factors of UTI.

Materials and Methods

Permission to perform study was obtained from the Institutional Ethical committee. A total of 60 patients were subjected in the study, a descriptive observational study was conducted over a period of 6 months at R L Jalappa Hospital, Tamaka, Kolar. All participants were provided with a written informed consent prior to being enrolled in the study.

All data were collected, including demographic history, relevant medical history and previous history of Urinary tract infections, presence of urinary catheter, lab parameters, urinary analysis were noted as per "The WHO-UMC system for standardised causality assessment".

The first urine specimens were sent to the laboratory for analysis and examination. Mid stream urine specimen was taken and inoculated with 5% sheep blood agar and incubated at 37° C for 24-48 hrs and results were noted.

Statistical Analysis

Analysis done using software - SPSS 16 version. Graphical representation of data: MS Excel and MS Word was used to obtain various types of Graphs such as bar diagrams or pie charts.

Results

In our study a total of 60 subjects were taken and differentiated based on age.
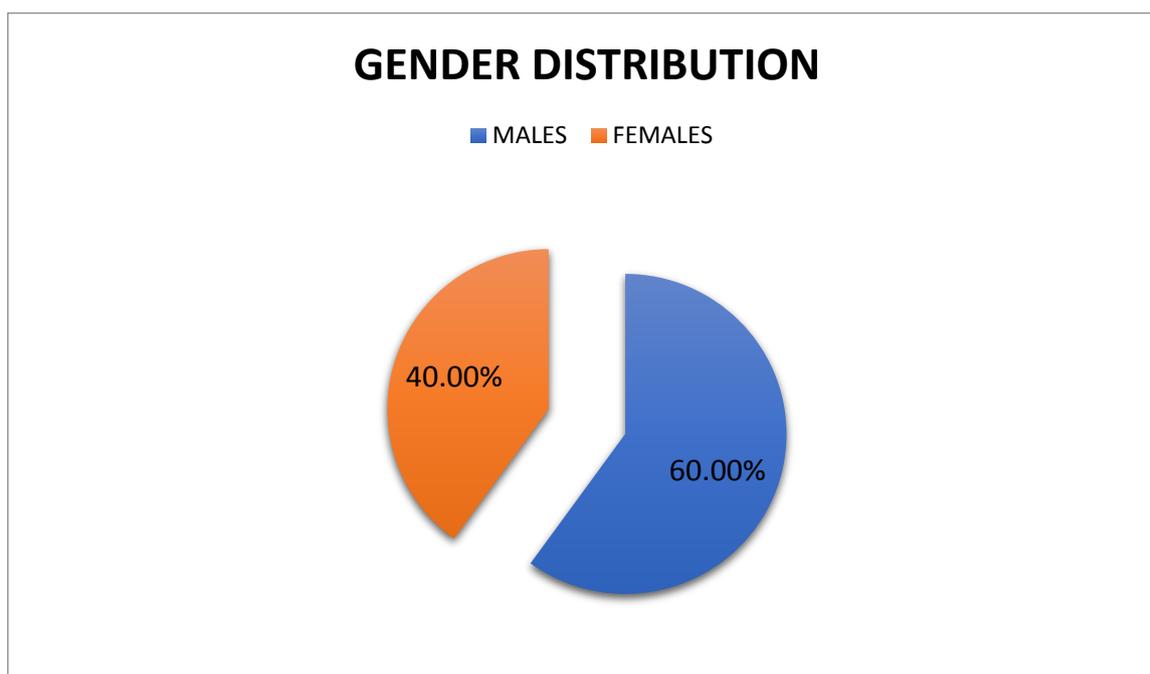

Figure 1: Gender Distribution
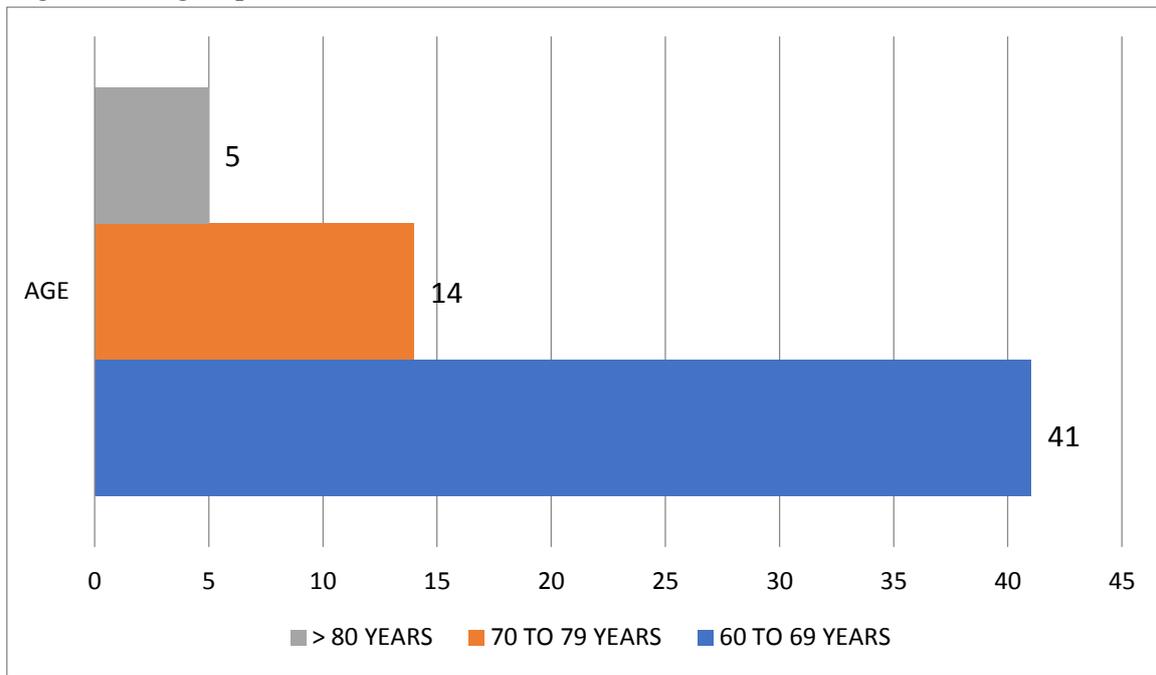
The mean age of each group are as follows:

Figure 2: Graph showing the distribution of age groups

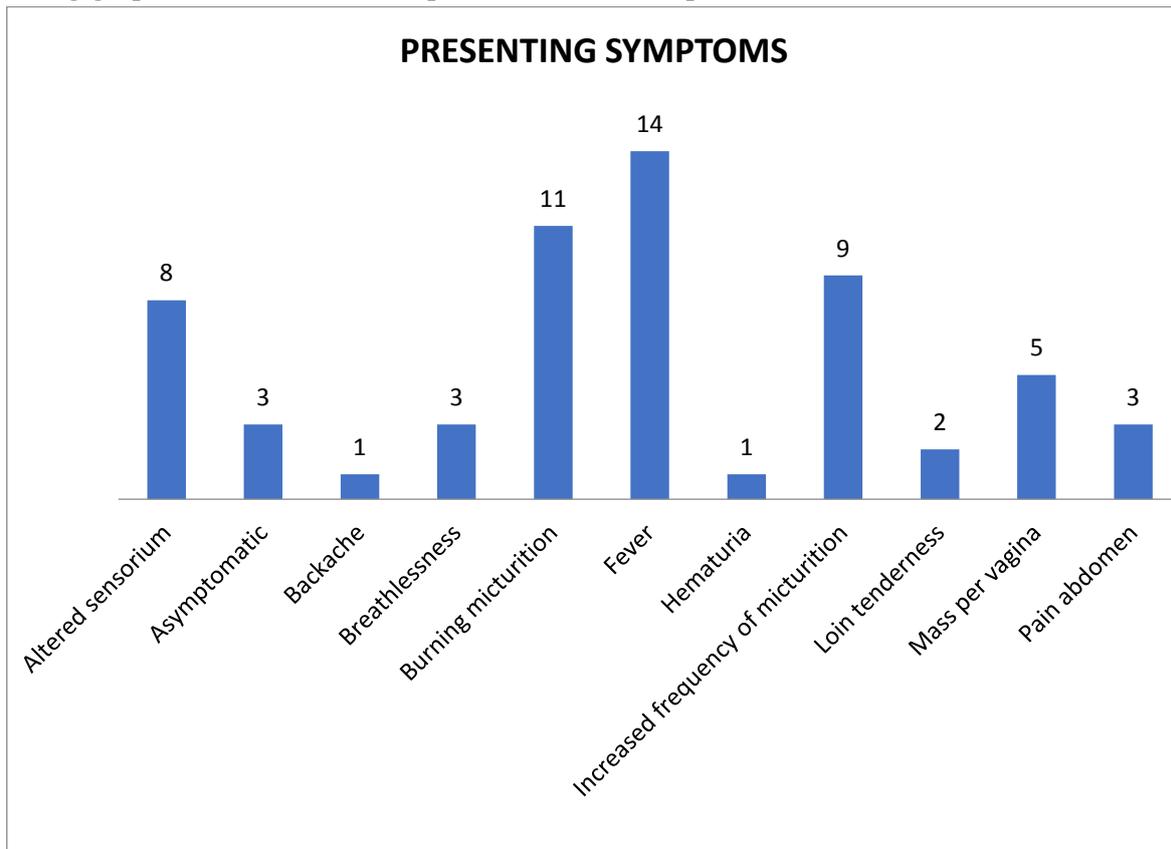The following graph shows the different presentations in the patients:

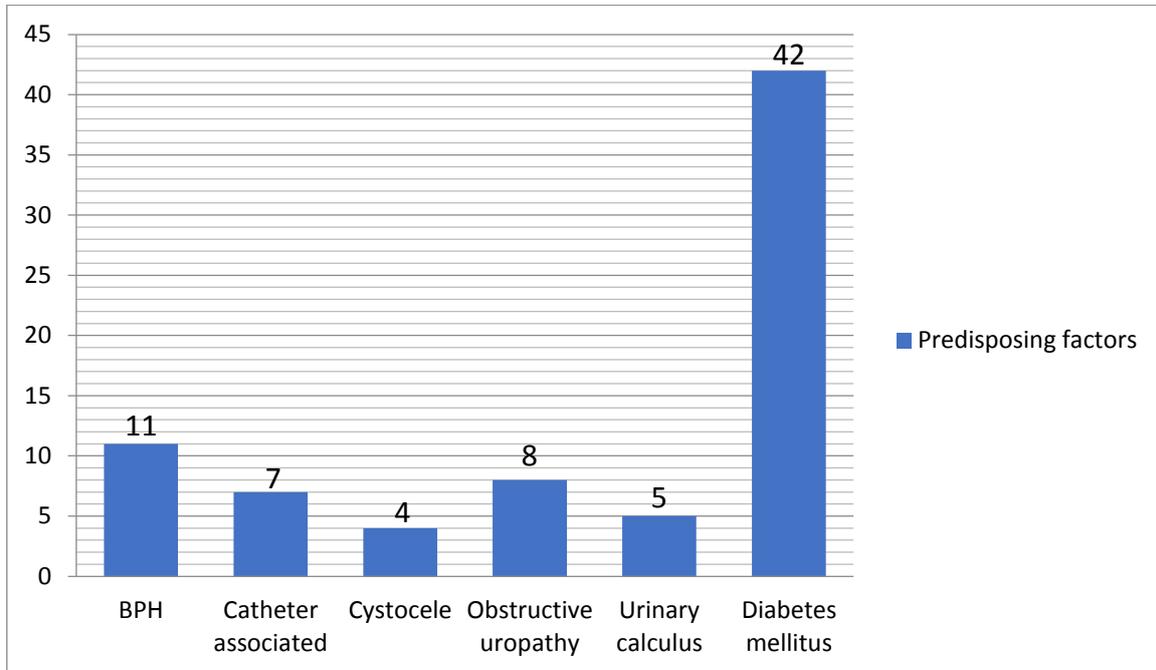**Figure 3:** Showing different presentations in patients

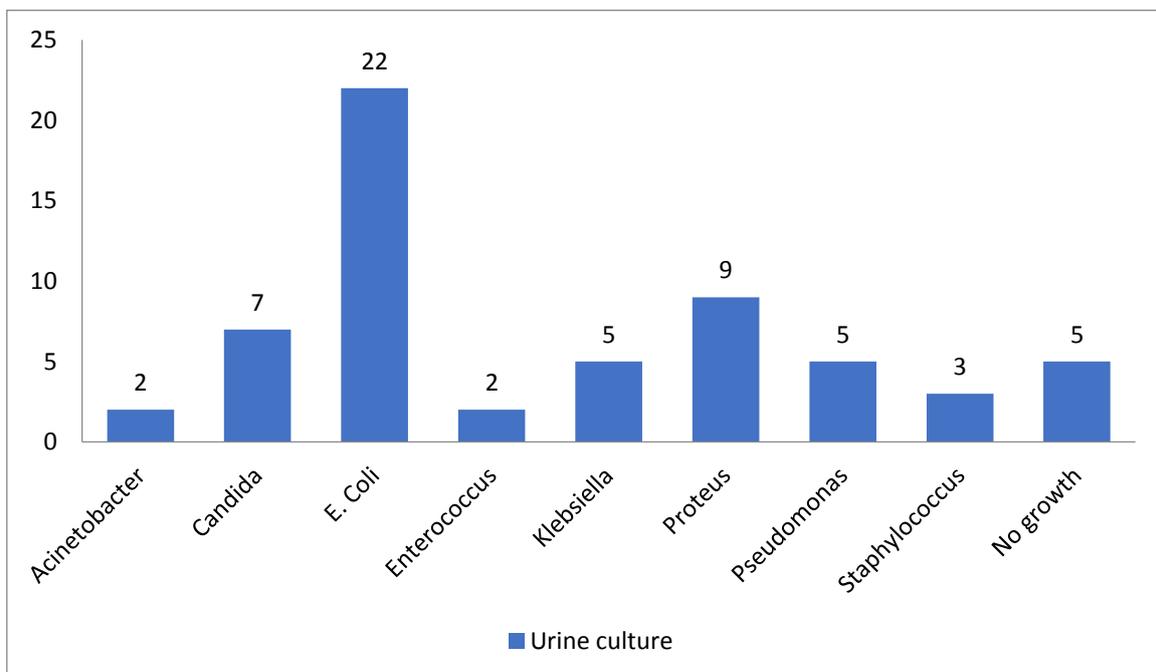**Figure 4:** Showing predisposing factors of UTI

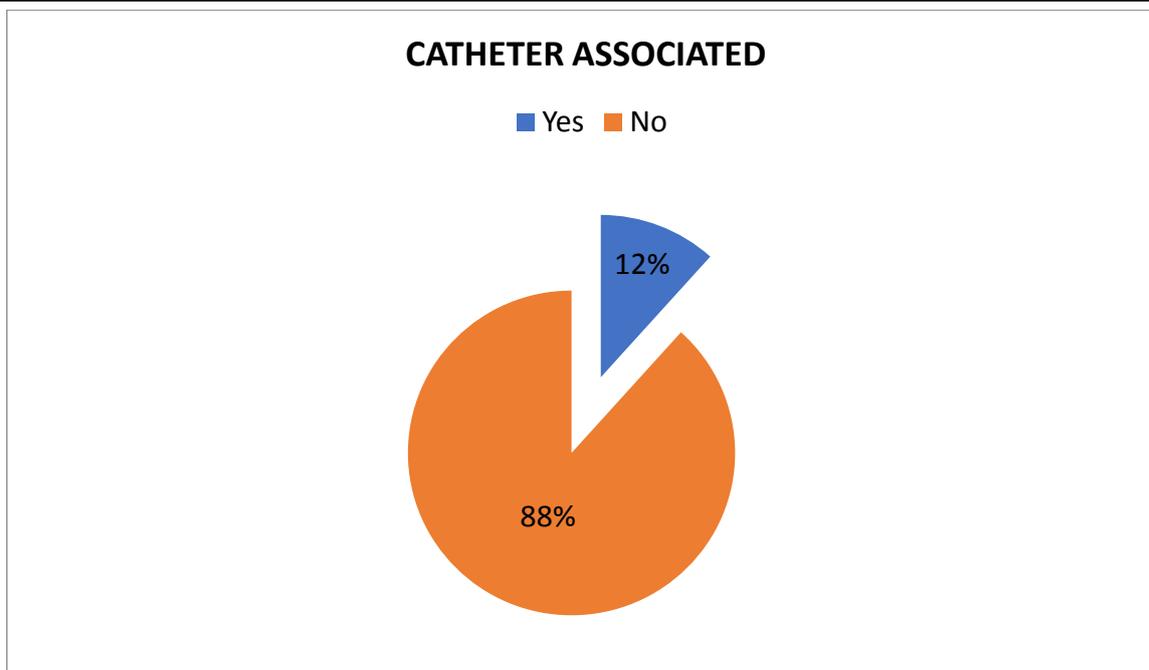**Figure 5:** Showing the different organisms isolated from culture

Figure 6: Catheter associated UTI

Among study population, 60% were males while females were 40% (table 1). Again they were grouped based on the age, 60 to 69 years were 68.33%, 70-79 years were 23.33%, aged > 80 years were 8.33%. Mean age of the study population was 67.90 ($\pm$ 7.339).

In our study population, fever was the most common presenting symptom (23.3%), followed by frequency of micturition (15%). Diabetes mellitus was the most common predisposing factor (70%) in these patients followed by benign prostatic hyperplasia(18.33%).

E.coli was isolated from urine of 36.7% patients, followed by proteus (15%).

Discussion

Urinary tract infection is one of the most common causes of sepsis and mortality in the elderly. The prevalence and the frequency of UTI have been reported at a variable rate at different ages, in our study the age group between 60 to 69 years were maximum. In our study, fever predominated followed by frequency of micturition. In study conducted by Mahesh E et al.[4] fever was the most common symptom followed by dysuria.

Altered sensorium, an atypical symptom in general population, was found in 13.3% of our study population.

Our study showed similar results to most of the previous studies, in respect to E. Coli being the most common pathogen causing UTI. According to Artero et al[5], E. coli was initially associated with a higher proportion of bacteremia with its independent risk factors being temperature >38°C and heart rate >90 bpm.

Urinary calculus was seen in 8.3% of the patients. According to Mak et al[6], Symptomatic UTI is said to be much less common in men than in women. This study also revealed that Medical therapy with chronic administration antibiotics rarely succeeds stone clearance, and should not be considered as sole treatment unless for patients who are too ill to tolerate, or refuse, stone removal via surgical means.

Early diagnosis, prompt therapy, regular monitoring of blood sugar levels are said to be the key factors for the improved outcomes in these patients[7]. In a study, important determinant for higher mortality was altered sensorium and dementia. These factors can lead to impaired mobility and urinary incontinence leading to UTI[7].

Limitations of this study was that it was conducted in a single center and as such the generalizability of our findings cannot be assured. Future multicenter studies including a higher number of patients are necessary to draw a definitive conclusion on the influence of bacteremia on the outcomes of UTI in elderly people.

Conclusion

This study focused on epidemiology, risk factors and clinical features of UTI in elderly patients. We suggest a strong clinical suspicion is enough in patients presenting with atypical symptoms to go about for further analysis and a more appropriate antibiotic therapy particularly in treating UTI after culture and sensitivity tests. Also, Diabetes should be well controlled as it continues to be the most important determinant of mortality and fatal complications.

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