MICROBIAL PROFILE OF NOSOCOMIAL URINARY TRACT INFECTION IN A TERTIARY CARE HOSPITAL OF LAHORE, PAKISTAN

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ABSTRACT

Background: Urinary tract infection may be one of the nosocomial infection among orthopedic trauma patient. **Objective:** To find out the microbial profile of culture positive urine samples from patients of orthopedics ward. **Methodology**: Study Design: Cross sectional study. Place and Duration of Study: Study was conducted from 1st January to 31st August 2015 at department of Microbiology, Lahore Medical and Dental College, Lahore, Pakistan. Data was taken from culture positive urine samples received from the department of Orthopedics of Ghurki trust and Teaching Hospital. All samples were inoculated on both blood and MacConkey agar. Total 140 culture positive samples were included in this study. Data was entered and analyzed by using SPSS version 20. **Results:** Out of 140 culture positive urine samples, 46 (32.85%) were found out to be E.coli. It was followed by 24 (17.1%) each of Candida and Acinetobacter species. Pseudomonas was found in 16 (11.42%) cases. Other pathogens isolated were 10 (7.1%) of Klebsiella species, 12 (8.57%) of Proteus species and 8 (5.71%) of Staph. Aureus. **Conclusion:** E.Coli was found to be in highest number as a cause of nosocomial UTI followed by Acinetobacter, Candida and Pseudomonas.

Key Words: Urinary tract infection, Nosocomial, E.coli, Acinetobacter, Candida

INTRODUCTION

Urinary tract infection (UTI) as nosocomial infection, is the most frequent problem in hospitalized patients.[1] UTI among hospitalized patients makes their stay in hospital more difficult as additional treatment then has to be given for the treatment of UTI apart from their primary cause of hospital admission.[2] Nosocomial UTI is very common in patients who stay in hospitals for longer durations and especially during post operative time periods when catheterization is also done.[3] Significant number of morbidity and mortality is related to urinary tract infection in hospitalized patients.[4]

UTI in hospitalized patients has been reported from all over the world,[5,6,7,8,9,10] with wide range of microbes has been documented are responsible for nosocomial urinary tract infections.[11] It can even lead to severe form of sepsis due to resistant, microbes.[12]

The objective of this study was to find out the microbial profile in culture positive urine samples in these patients, admitted in orthopedic ward due to orthopedic trauma.

METHODOLOGY

This cross sectional study was in the microbiology department of Lahore Medical and Dental College, Lahore, Pakistan. Urine samples were received from the patients of orthopedic department of Ghurki trust and teaching hospital, Lahore, Pakistan. Study was done for the time period of eight months from 1st January to 31st August 2015. Data was generated from the laboratory reports of urine samples received from department of orthopedics during this time period. Data that were included in this study comprised of 140 culture positive urine specimens. Only those cases of UTI were included who got infection after admission in the hospital. Only one sample from each patient was included in study to avoid duplication. All the samples were inoculated on Blood and macConkey agar. Nichrome wire loop of 4 mm diameter was used to inoculate all the urine samples. A bacterial count of ≥100000 CFU/ml was considered significant. Direct microscopy of wet mount of all urine samples was also done to find out the number of pus cells in each urine sample. Diagnosis of pathogens was done by colonial morphology, gram staining and biochemical reactions. Statistical analysis was done by using SPSS version 20.

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RESULTS

A total of 140 culture positive urine samples were included in this study. Out of these 140 culture positive urine samples, 46 (32.85%) were found to be E.coli positive which were highest among all. It was followed by 24 (17.1%) each of Candida and Acinetobacter species. Pseudomonas was found in 16 (11.42%) cases. Other pathogens isolated were 10 (7.1%) of Klebsiella species, 12 (8.57%) of Proteus species and 8 (5.71%) of Staph Aureus.

Detail frequency distribution of isolated microbes is been given in table I.

Table I: Frequency distribution of urinary pathogens from culture positive samples.(n=140)

Urinary pathogens	Frequency	%
E.coli	46	32.85
Pseudomonas	16	11.42
Proteus sp.	12	8.57
Klebsiella sp.	10	7.1
Acinetobacter sp.	24	17.1
Candida	24	17.1
Staph. Aureus	8	5.71

DISCUSSION

Hospilized patients are prone to develop nasocomial infection, thus further complicating management.[13,14] E.coli is the most frequent organism isolated in our study from urine samples of patients suffering from UTI who were admitted in orthopedics ward. Similar results have been documented from around the world showing the E.coli as most frequent cause of nosocomial UTI.[15,16] After E.coli the most frequently isolated microbes in our study were Acinetobacter species and Candida. Acinetobacter species are gaining importance now across the globe as one of the leading cause of nosocomial infections including UTI.[17] Acinetobacter has been reported as cause of UTI from various studies.[18]

Candida is also one of the microbe frequently seen in hospitalized patients as one of the causes of UTI.[19] One of main reasons for this is the long term use of antibiotics that then leads to over growth of Candida.[20] In our study Candida was isolated in equal frequency to that of Acinetobacter. Our samples were all from orthopedic ward in which patients usually have to stay for longer periods and also antibiotics are given to these patients for longer durations, be they are cases of osteomylitis or of accidents suffering from various types of bone fractures. Gram negative organisms are found to be the main causes of hospital acquired UTI in our study as Staphylococcus Aureus was only found to be positive in 5% of all cases.[21]

Hospital acquired UTI is a very common problem worldwide which worsen the condition of the patients more badly who are already suffering from various other grave problems.

CONCLUSION

E.coli was the most common cause of nosocomial UTI followed by Acinetobacter and Candida in our study. More such studies should be conducted on regular basis to find out the changes in microbial profile in hospital acquired UTI.

Conflict of interest

The authors have declared no conflict of interest.

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