RISK FACTORS FOR CATHETER-ASSOCIATED URINARY TRACT INFECTION AMONG HOSPITALIZED PATIENTS

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Introduction. Urinary tract infection (UTI) is considered one of the most common bacterial infections and worldwide more than 150 million individuals are affected. In Europe, the mortality rate of nosocomial infections is 10%; 97% of which are related to catheters. UTIs account for 36% of all health-care-associated infections, of which, 80% are estimated to be catheter-associated. Catheter-Associated Urinary Tract Infection (CAUTI) is considered one of the most common hospital-acquired infections. More than 30% of infections reported by acute care hospitals are due to UTI. The Centres for Disease Control and Prevention, defined CAUTI as a UTI in a patient who had an indwelling urinary catheter in place at the time or within 48 h prior to infection. Despite many efforts to reduce the occurrence of CAUTI, there is still a gap in the literature about CAUTI risk factors, especially regarding the effect of catheter dwell time on CAUTI development and patient comorbidities.

Aim. The study aimed to identify the risk factors for catheter-associated urinary tract infections among hospitalized patients.

Material and methods. We conducted an electronic search in PubMed, EMBASE, Web of Science, and the Cochrane Database of Systematic Reviews for studies published between 2018-2022.

Results. Ten studies involving a total of 8785 participants with or without catheter-associated urinary tract infections were included. The average incidence of catheter-associated urinary tract infections was 13.79 per 1000 catheter days, with a prevalence rate of 9.33%. The analysis of data demonstrated that patients at high risk for catheter-associated urinary tract infection were female, had a prolonged duration of catheterization, had diabetes, had a history of previous catheterization, and had longer hospital and ICU stays. The most common causative organisms for CAUTI are Escherichia coli in 24%, Candida in 24%, Enterococcus in 14% Pseudomonas in 10%, Klebsiella in 10%, and the remaining percentage is caused by other organisms. The impact of CAUTI on morbidity and mortality is significant because biofilm producing organisms have high antibiotic resistance. The most common mechanism of UTI is transurethral ascent of microorganisms which increases the risk of infection especially in case of bladder catheterisation. Bacteria can ascend in the lumen of the catheters by reflux of contaminated urine from the bags either intra-luminary or along the extra-luminal catheter-urethral surface. For each day of catheter insertion, the incidence of bacterial colonization is increased by 3-8%.

Conclusions. understanding the risk factors in the development of CAUTI, significantly helps in reducing the additional burden on the health care system. Healthcare staff should focus on the identified risk factors for catheter-associated urinary tract infections. Using a very large data set, we demonstrated the incremental risk of CAUTI associated with each additional day of catheterization, as well as the risk factors that increase the hazard for CAUTI. Risk factors for CAUTI were, female gender, associated diseases or comorbidities and longer duration of stay in hospital.