

## **ABSTRACT**

### **A STUDY ON THE BACTERIOLOGICAL PROFILE AND ROLE OF BIOFILM FORMING ORGANISMS IN CATHETER ASSOCIATED URINARY TRACT INFECTIONS IN A TERTIARY CARE HOSPITAL**

#### **BACKGROUND :**

Catheter associated urinary tract infection (CAUTI) is a major cause of illness and poor response to the treatment is due to biofilm formation by the organisms, which are usually multi drug-resistant.

#### **AIM :**

To estimate the prevalence and identify the organisms causing CAUTI and to identify biofilm producing properties of organism by three phenotypic methods and their resistant pattern.

#### **Materials and Methods:**

This Cross sectional study was conducted in Chengalpattu Medical College and Hospital for one year (March 2016 to February 2017). 309 urine samples from catheterized patients in the Department of Urology were collected and processed in Department of Microbiology by standard protocol. Biofilm formation was detected by Congo Red Method (CRA), Tube Method(TM) and Tissue Culture plate Method (TCP).

**Results:**

Significant bacteriuria was observed among 207/309 (67%) samples. Gram negative bacteria (GNB) were predominant isolates 162(78.2%) and among GNB, *Escherichia coli* was commonly isolated 81(39.13%) followed by *Klebsiella spp* 36(17.39%), *Proteus spp.* 22(10.63), *Pseudomonas aeruginosa* 22(10.63%) and *Citrobacter koseri* 01(0.48%). They were mostly sensitive to imipenem (100%), followed by piperacillin-tazobactam (97%). Among 207, 33(15.94%) were Gram positive cocci. The most common in GPC were *Staphylococcus aureus* 16(7.73%), followed by *CoNS* 10(4.83%) and *Enterococcus spp.* 07(3.38%). They show higher sensitivity to Vancomycin (100%). Prevalence of Biofilm producers detected by TCP were 122(63%), TM 100 (51%) and CRA 42(22%). Antimicrobial resistance among the biofilm producers were Methicillin resistance organisms 12(92%), ESBL producing organisms 49(78%) and AmpC  $\beta$ -lactamase producers 9(60%).

**CONCLUSION:**

Detection of biofilms can be recommended for recurrent infection before institution of empirical antibiotics. TCP is a good screening method for detection of biofilm in resource limited settings.

**Keywords :** CAUTI, Biofilm, ESBL, Amp C  $\beta$ -lactamase, TCP.