

## Catheter associated Bacteriuria / Nosocomial UTI :

\* It is the most common cause of hospital acquired infection = account upto 40%

\* Incidence of Bacteriuria - 10% PER day of catheterisation

\* sterile / CISC associated with 1-3% per catheterisation

\* most are asymptomatic

\* only 10-30% Bacteriuria episode produce typical symptoms of ac UTI

### **Risk Factor:**

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\* Duration of catheterisation ( 95% of open drainage within 4 days & 5-10% with closed drainage per day )

\* female gender

\* Catheter care violence

\* Absence of systemic Antibiotic

### **Pathogenesis:**

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*Catheter associated UTI - originate from-*

*i) Periurethral organism ( in women M/C)*

*ii) Organism infecting collecting bag /device*

iii) Organism entering the system with breaks in closed drainage system or lack of closed system

iv) Mechanical Inoculation of urethral bacteria / contamination from poor technique

+ In urinary Catheter system = 2 population of bacteria are seen-

i) those grow within the urine

ii) those grow on Catheter surface.

\* A **biofilm** represents a microbial environment of bacteria embedded in an extracellular matrix of bacterial products & host protein that leads to Catheter encrustation.

\* **Organisms are** - *E. coli* ( M/C ) , *Pseudomonas* , *Proteus* , *Enterococcus*

\* In pt with long term **catheterisation > 30 days** - **Bacteriuria is usually polymicrobial**

**C/f** : Asymptomatic;  
suprapubic discomfort, fever, chill, flank pain  
- Indicate symptomatic UTI

+ **Lab:** **Pyuria is not an Indication of infection in this population .**

➤ 100 cfu / ml = indicate significant Bacteriuria because this low level - progress to > (1 lac /ml) in all pt.

**Management :**

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i) Careful aseptic insertion of Catheter & maintenance of closed dependant drainage systems is essential.

ii) Genital washing 1 / 2 times daily with water & soap ( no antimicrobial - because lead to colonization with resistant organism)

iii) Catheter meatal junction - clean with water

iv) Regular emptying of collecting bag

v) Concurrent systematic Antimicrobial agents - ↓ Incidence of Bacteriuria .

vi) Incorporation of silver oxide or silver alloy into Catheter & H<sub>2</sub>O<sub>2</sub> in drainage bag - ↓ incidence of Bacteriuria.

vii) Instillation of non virulent bacteria - into bladder - block colonization & infection by virulent organism

viii) Symptomatic pt ( febrile) - should be treated only with -

\* urine c/s

\* empirical antibiotic - cover common pathogens

\* change of Catheter -if indwelled for prolong period

\* Antibiotic - discontinued after 48 hrs of resoution of infection.

ix) When Catheter to be removed / high probability of Bacteriuria / dipstics test is +ve

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A culture should be obtained 24 hrs before removal .

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*Pt should be started on empirical Tx - such as Co-trimoxazole / FQ just before removal of catheter & maintained on Tx for 2 days ---> a post therapy culture should be obtained - 7-8 days later to confirm eradication of bacteria.*