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:

* 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:

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 Innoculation 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 embeded in an extracellular matrix of bacterial products & host protein that leads to Catheter encrustation.

* Organisms are - E. coli (M/C), Pseudomonous, 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:
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 & H2O2 in drainage bag - ↓ incidence of Bacteriuria.

vii) Instillation of non virulant 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.
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.