

Intravesical antibiotic instillation in chronic SCI patients with indwelling urinary catheter

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Background

- Direct antibiotic administration into the bladder is an appealing alternative to systematic antibiotic
- Intravesical antibiotic instillation seems to be a relatively safe and effective method for the prophylaxis and treatment of recurrent UTIs in postmenopausal women and pediatric populations
- We adopted intravesical antibiotic instillation to chronic SCI patient with indwelling urinary catheter, and evaluate herein out experience with it

Methods / Cases

- **Patients**
 - history of recurrent UTI
 - currently asymptomatic bacteriuria or pyuria were enrolled
 - 3 cases (Table 1.)
 - 2 cervical SCI patients with suprapubic catheter
 - 1 thoracic SCI patient with urethral foley
- **Intravesical antibiotic administration**
 - 80 mg of injectable gentamycin in 60 mL normal saline was instilled into the bladder through the indwelling urinary catheter
 - The catheter was declamped 1 hour after the instillation
 - Once a day for 7 days

| | sex/age | Diagnosis | Indwelling catheter |
|--------|---------|--------------------------|---------------------|
| Case 1 | M/77 | Tetraplegia NLI C2 AIS-A | SPC |
| Case 2 | M/76 | Tetraplegia NLI C2 AIS-A | SPC |
| Case 3 | M/70 | Paraplegia NLI T6 AIS-A | Foley |

Table 1. Patients characteristics

AIS, American spinal injury association impairment scale; SPC, suprapubic catheter

Results

- Urine analysis and urine culture were done before and after the intravesical antibiotic instillation
 - no significant change in urine pH, nitrate and bacteria count after the intravesical antibiotic instillation
 - Dominant bacteria grown from urine culture was same in 1 case, and different in 2 cases before and after the intravesical antibiotic administration
- There was no consistent change of antibiotic resistance in all 3 cases
- In urine microscopy
 - urine WBC count per low power field was decreased in all 3 cases after the administration
- Clinically, it seemed there was no effect of lowering the frequency of UTI
- There was no complication or side effect to halt the procedure during the treatment duration

| | pH | | nitrate | | WBC(/LPF) | | bacteria(UF) | | culture | | symptomatic UTI (time/6 months) | |
|--------|-----|------|----------|----------|-----------|------|--------------|------|-------------------|-------------------|---------------------------------|------|
| | pre | post | pre | post | pre | post | pre | post | pre | post | pre | Post |
| Case 1 | 7.5 | 7 | positive | positive | 5-10 | <1 | many | many | Proteus mirabilis | Proteus mirabilis | 1 | 1 |
| Case 2 | 5.5 | 5.5 | negative | negative | >25 | >10 | many | many | MRSA | Multiple species | 1 | 1 |
| Case 3 | 7.5 | 6 | positive | positive | >25 | >10 | many | many | MRSA | ESBL(+) E.coli | 2 | 1 |

Table 2. Pre- and post-instillation urinalysis and urine culture results

WBC, white blood cell, LPF, low power field, MRSA, methicillin-resistant Staphylococcus aureus; ESBL, Extended-spectrum beta-lactamase

CONCLUSION

- Intravesical antibiotic instillation showed no effect on bacterial colony or antibiotic resistance in our study
- But WBC count in urine can be possibly lowered after intravesical antibiotic instillation without complication or side effects in chronic SCI patients with indwelling urinary catheter
- Since WBC in urine suggest inflammation in urinary tract and indicate an infection, further structured study is needed to be done to identify the significance of intravesical antibiotic instillation