

## Long-term effects of antibiotic-coated Foley catheter on bacterial biofilm formations

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**Background:** Catheter-associated urinary tract infection, which is frequently occurring in the patients with indwelling Foley catheter, can cause serious morbidity or mortality. Recently, antibiotic (nitrofurazone) coated Foley catheters are commercially available to prevent catheter-associated urinary tract infections. The long-term effects of antibiotic-coated Foley catheter on biofilm formations were investigated in this study.

**Methods:** Silicone Foley catheters or antibiotic-coated Foley catheters were indwelled in the patients with neurogenic bladder. The catheters were removed 14d or 28d after insertion. The biofilm formations on catheters were evaluated by scanning electron microscopy. The cell densities of biofilm bacteria were evaluated by counting the number of colonies on the plates. Six catheters were studied in each group of catheters and the means were calculated for comparisons.

**Results:** Thick bacterial biofilms were observed on antibiotic-coated Foley catheters as well as silicone catheters 14d after insertion. There was no significant difference in the cell densities of biofilm bacteria 28d after insertion between silicone catheters ( $1.84 \pm 0.05 \times 10^5$ ) and antibiotic-coated catheters ( $1.87 \pm 0.10 \times 10^5$ ). Two to three species of bacteria were isolated from a catheter in each patient. Most common species were *Pseudomonas*, *Klebsiella*, *Serratia*, *Proteus* spp. and *E. coli*.

**Conclusions:** The antibiotic-coated Foley catheters did not show preventive effects on biofilm formations after 14–28 days of indwelling time compared with silicone Foley catheters. Our data suggest that routine use of antibiotic-coated Foley catheters in the patients with neurogenic bladder to prevent catheter-associated infection is not reasonable. The emergence of resistance associated with antibiotic-coated catheter should be evaluated.

## 간기능에 따른 C-reactive protein 생성 능력

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**목적:** C-reactive protein(CRP)은 간에서 생성되는 급성반응물질이다. 본 연구는 간기능에 따른 CRP 생성 능력을 평가하고자 하였다.

**방법:** *E. coli* 균혈증이 있는 간경변증 환자 30명을 환자군으로 하였고 간기능은 균혈증이 발생하기 전 2개월 이내에 측정된 혈청 빌리루빈, 혈청 알부민, 프로트롬빈시간, Child-Pugh 점수로 평가하였다. 대조군A는 간질환이 없으면서 *E. coli* 균혈증이 발생한 환자 30명으로 하였고 대조군B는 간경변증이 있으면서 급성 감염의 증거가 없는 환자 30명으로 선정하였다. 환자군과 대조군 간에 CRP의 최대값을 비교하였다.

**결과:** CRP의 최대값은 환자군에서  $7.3 \pm 5.0$  mg/dL, 대조군A에서  $17.9 \pm 8.3$  mg/dL로 환자군에서 유의하게 낮았다( $p < 0.001$ ). 간경변증 환자에서 CRP의 생성은 Child-Pugh 점수에 비례하여 감소하였으나( $p = 0.004$ ) Child-Pugh class C의 간기능을 가진 환자군도 대조군B와 비교하여 의미 있는 CRP의 생성을 보였다( $5.3 \pm 3.2$  vs.  $0.5 \pm 0.4$  mg/dL,  $p < 0.001$ ).

**결론:** 간기능부전 환자에서 CRP 반응은 간기능 저하 정도에 따라 둔화되지만 간기능의 심각한 장애를 가진 환자에서도 CRP의 생성은 유지된다.