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만성 신부전 환자에서 클로스트리디움 디피실 관련 설사에 대한 위험인자 및 예후에 관한 연구

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Advanced Chronic Kidney Disease is a Strong Risk Factor for Clostridium Difficile Infection

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Background: It has been suggested that chronic kidney disease (CKD) is a risk factor for Clostridium difficile infection (CDI) and is associated with increased mortality among patients infected with C. difficile. However, recent studies about the clinical impact of CKD on CDI in Asian countries are still controversial. This study aimed to determine the relation between CKD and CDI in Korea.

Method: This was a single-center, retrospective case-control study. A total of 171 patients with CDI were included as cases and 342 age- and sex-matched patients without CDI were used as controls. We compared the prevalence of CKD in the study sample and identified independent risk factors that could predict the development and prognosis of CDI.

Result: Patients with CDI had a higher prevalence of ICU admission, CKD, use of any antibiotics, and gastric acid reducing drug use. The prevalence of ESRD requiring dialysis and predialysis CKD stage 4, 5 was significantly higher among CDI patients than among patients without CDI. Patients with CDI had a significantly longer length of hospital stay (median, 43 days vs. 10 days, $p<0.001$) and increased in-hospital mortality (8.2% vs. 2.6%, $p=0.006$) than patients without CDI. In a binary logistic regression model to identify the risk factors associated with CDI, predialysis stage 4, 5 CKD (OR, 2.87; $p=0.039$), ESRD requiring dialysis (OR, 4.00; $p=0.001$), ICU admission (OR, 2.54; $p<0.001$), and use of any antibiotics (OR, 4.31; $p<0.001$) were shown to be independent risk factors for CDI. Patients who experienced treatment resistance to initial metronidazole therapy had significantly higher prevalence of the use of more than 2 antibiotics, vancomycin use before CDI diagnosis, pseudomembranous colitis (PMC), more advanced CKD (eGFR $<$ 30 mL/[min $\cdot$ 1.73m^2]), and higher CRP levels, and WBC count than patients without treatment resistance. In a multivariate analysis, the previous use of 2 or more antibiotics (OR, 4.48; $p=0.007$) or vancomycin (OR, 5.02; $p=0.060$), the presence of PMC (OR, 4.34; $p=0.003$), and more advanced CKD (OR, 3.76; $p=0.013$) were independent risk factors for treatment resistance.

Conclusion: Advanced CKD is an independent risk factor for CDI and associated with higher in-hospital mortality and poor treatment response in CDI patients. Therefore in CKD patients, careful attention should be paid to the occurrence of CDI and its management in order to improve the outcome of CDI.

Key Words: 클로스트리디움 디피실, 만성신부전, 투석
Clostridium difficile, Chronic kidney disease, Dialysis