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Microbiology and Outcomes of Peritonitis in a Medical Center

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Background: Peritonitis is a serious complication in patients receiving peritoneal dialysis (PD) and contributing to patient morbidity and mortality. Knowledge of local peritonitis rates, microbiologic profiles, and antibiotic resistance patterns is important to guide clinical treatment practices. Various registries and centers have reported on the microbiology of organisms causing peritonitis in their patient populations and have evaluated treatment and subsequent outcomes, including catheter removal and death.

Methods: In the present study, we use data collected by Hallym University Medical Center from 2002 to 2014 to investigate the rate, microbiology, antibiotic resistant and outcomes of PD related peritonitis.

Results: We enrolled 312 patients with end-stage renal disease undergoing PD. The overall peritonitis rate was 0.25 episodes per patient-year, with 235 peritonitis episodes occurring in 312 patients. Of those episodes, 16.5% were culture-negative, and 2.4% were fungus. Gram-positive organisms were isolated in 51.3% of single-organism peritonitis episodes, and gram-negative organisms, in 29.4%. Mycobacterial peritonitis episodes were rare. Coagulase-negative Staphylococcus spp. was the most common isolate. Antibiotic susceptibility tests showed 7.4% of Escherichia coli, 50% of Acinetobacter species and 80% of Pseudomonas aeruginosa were resistant to third-generation cephalosporins. However, no carbapenem resistant strain was detected in Escherichia coli, Acinetobacter species and Pseudomonas aeruginosa. Two of 9 enterococci and 47.5% of staphylococci were resistant to vancomycin and methicillin respectively. Tenckhoff catheter removal was required in 11.9% of peritonitis episodes, and catheter removal was more common in fungal, methicillin resistant staphylococcus aureus, and Escherichia coli. Peritonitis was cause of death in 1.7% of patients.

Conclusion: Peritonitis rate in our centers is lower than those in other single center registry reports of PD-related peritonitis. Mortality was significantly higher in patients having peritonitis due to vancomycin resistant enterococci.

Keywords: peritoneal dialysis-related peritonitis