Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care
KSN 2026 SEOUL, KOREA
The 46th Annual Meeting of the Korean Society of Nephrology
THE KOREAN SOCIETY OF NEPHROLOGY
Jun 11 (Thu) – 14 (Sun), 2026
COEX, Seoul, Korea

Lecture Code : JS07-S2
Session Name : KSN-ISPD Joint Symposium
Session Topic : KSN-ISPD Joint Symposium
Date & Time, Place : June 12 (Fri) / 16:00-17:40 / Room 3 (GBR 103), 1F

Preventing Infections in PD

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Peritoneal dialysis (PD)-related infections, including peritonitis and catheter-related infections, remain the leading causes of hemodialysis transfer, hospitalization, and mortality among patients undergoing PD. Despite advances in PD technology and care, infection rates continue to vary substantially across centers, highlighting the importance of standardized prevention strategies. Data from the Peritoneal Dialysis Outcomes and Practice Patterns Study (PDOPPS) Korea demonstrate relatively favorable outcomes, with peritonitis rates of 0.14 episodes per patient year; however, infections remain a critical determinant of long-term PD success. The pathogenesis of PD-related infections is multifactorial, with touch contamination, exit-site infections, and translocation from endogenous sources being the most common pathways. Recent evidence indicates that most infections are preventable through systematic, evidence-based interventions. Contemporary approaches focus on a set of core strategies, including routine surveillance and feedback, standardized staff and patient training with competency assessment, regular evaluation of infection risk, antimicrobial prophylaxis at the catheter exit site, and targeted prophylaxis for procedures and high-risk events. Emerging challenges, such as multidrug-resistant organism-associated peritonitis, further underscore the need for effective prevention strategies and antimicrobial stewardship. In addition, innovations such as remote patient monitoring and digital health technologies offer new opportunities for early detection and prevention of infection-related complications. In conclusion, infection prevention is central to improving technique survival and patient outcomes in PD. A system-based approach that integrates standardized training, prophylactic measures, and continuous quality improvement at the facility level is essential to minimize infection risk and sustain long-term PD therapy.

Keywords: Peritoneal dialysis, Peritonitis, Infection prevention, Catheter-related infection, Antimicrobial prophylaxis