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Poor Skin Conditions are Vulnerable to Catheter-related Infections in Peritoneal Dialysis Patients

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Objectives : Catheter-related infections are significant complications in peritoneal dialysis (PD) patients, leading to catheter loss and peritonitis. This study aims to explore the relationship between skin conditions and catheter-related infections.
Methods : Data from the Peritoneal Dialysis Outcomes and Practice Patterns Study (PDOPPS) were utilized. PDOPPS is a continuous multicenter prospective study performed globally since 2014. The study enrolled 627 PD patients in South Korea from 2019 to 2021 (low-grade or no xerosis: 452; high-grade xerosis: 175). A comparison of the incidence between the two groups was performed by using Poisson regression analysis, while the Cox regression analysis was employed for analyzing risk factors of catheter-related infections. Logistic regression analysis assessed the risk of xerosis and pruritus. In addition, the relative abundance of Staphylococcus in the skin of dialysis patients was discovered.
Results : Patients with high-grade xerosis exhibited a higher rate of catheter-related infections compared to those with low-grade or no xerosis. Furthermore, xerosis and pruritus were found to be significant risk factors for catheter-related infections, particularly heightening the risk of Staphylococcus aureus-associated catheter-related infections. The relative abundance of Staphylococcus was significantly higher in the skin of antecubital fossa of high-grade pruritus patients, providing a plausible reason for the previous findings. While exploring the risk factors for xerosis and pruritus, having any pets, low albumin levels, and high calcium-phosphorus (Ca-P) products were identified as significant factors.
Conclusions : Disrupted skin barrier function poses a notable risk for catheter-related infections, particularly those caused by S. aureus, known for its challenging treatment. This research suggests the need for forthcoming guidelines emphasizing the crucial role of skin management in disease prevention.