
Favorable Prognosis in Patients Undergoing Hemodialysis Who Received a 23-Valent Pneumococcal Polysaccharide Vaccine Compared With Those Who Received a 13-Valent Pneumococcal Protein-Conjugate

Authors

- Yamaguchi, Kosei, Nagasaki Renal Center, Nagasaki, Japan
- Kitamura, Mineaki, Nagasaki Renal Center, Nagasaki, Japan
- Funakoshi, Satoshi, Nagasaki Renal Center, Nagasaki, Japan
- Nishino, Tomoya, Nagasaki University School of Medicine, Nagasaki, Japan

Background

Infectious diseases are one of the main causes of death in patients undergoing hemodialysis (HD). Routine pneumococcal vaccination for the older population began in 2014 in Japan. Currently, the 23-valent pneumococcal polysaccharide vaccine (PPSV23), alone or in combination with a 13-valent pneumococcal protein conjugate vaccine (PCV13), is recommended for older patients. However, the efficacy of these two vaccines in patients undergoing HD remains unknown. We aimed to evaluate the prognosis of patients undergoing HD who were vaccinated with only PPSV23 compared with those vaccinated with PCV13.

Methods

Patients undergoing HD who were vaccinated with PPSV23 alone (PPSV23 group) or PCV13 (PCV13 group) between 2014 and 2016 were included, and the observation period was three years from the first injection. Patients who underwent HD between 2011 and 2012 were included as controls and observed for three years. The patients did not receive any pneumococcal vaccines during this period. After propensity score matching using age, sex, dialysis vintage, diabetes history, pneumonia history, and serum albumin and creatinine levels, survival analysis was performed.

Results

The study included 89 patients in the PPSV23 group (70.0±10.7 years old; 65.2% male; median dialysis vintage, 3.6 years), 98 patients in the PCV13 group (76.6±8.0 years old; 48.0% male; median dialysis vintage, 3.1 years), and 339 patients as controls (67.4±13.3 years old; 57.2% male; median dialysis vintage, 4.6 years). After propensity score matching, the PPSV23 and control groups (81 patients each), and the PCV13 and control groups (76 patients each) were evaluated. Significant differences in the survival rate between the PPSV23 group and controls were observed ($P=0.04$), but no significant difference was observed between the PCV13 group and controls. The incidence of pneumonia in the PPSV23, PCV13, and control groups did not differ significantly during the observation period.

Conclusion

The patients vaccinated with PPSV23 had favorable outcomes; however, the efficacy of PCV13 was limited in older patients who were undergoing HD. Further studies are needed to clarify the mechanisms affecting the prognostic relevance of pneumococcal vaccines and the differences between them.