

Clinical Epidemiology of Pneumonia in Hemodialysis Patients.

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Although clinical experience suggests that pneumonia is a common problem, it remains understudied in the hemodialysis literature. The objectives of this study were to define hospitalization rates, microbiologic spectrum, risk factors and prognosis for hospitalized pneumonia in hemodialysis patients.

We linked the retrospective Waves 1, 3, and 4 Dialysis Morbidity and Mortality Study (DMMS), which included 14,859 prevalent hemodialysis patients, to Medicare claims data to identify major outcomes. Multivariable Cox regression was used to identify antecedent associations of pneumonia and interval Poisson regression to evaluate time-dependent associations with cardiovascular events and death.

The mean age and duration of end-stage renal disease were 60.0 and 3.2 years, respectively, and 40.7% had diabetes mellitus. A pneumonia hospitalization rate of 84.4 per 1000 patient years was observed. Microbiologic categorization was usually non-specific; 10.7 % and 5.0% of cases, respectively, were attributed to Gram-negative and Gram-positive organisms. Antecedent associations of pneumonia included older age, smoking, coronary artery disease, congestive heart failure, stroke, and chronic lung disease. Mortality rates after pneumonia occurrence were 422.5, compared to 237.5 per 1000 patient years in the overall population. Adjusted relative death risks of 4.17(95% CI 3.59-4.85), 3.31 (95% CI 2.87-3.81), and 2.46(95% CI 2.14-2.84) during the first 6, 12, and 18 months following pneumonia. Pneumonia was also associated with a higher relative risk of hospitalized cardiovascular disease (RR=1.46 (95% CI 1.40-1.53)).

Pneumonia, which appears to be common in hemodialysis patients, is associated with a dismal prognosis, both acutely and in the long-term.