

Early Predictors of Mortality from *Pneumocystis jirovecii* Pneumonia in HIV-infected Patients: 1985-2006.

Walzer PD, Evans, HE, Copas AJ, Edwards SG, Grant AD, Miller RF.

BACKGROUND: *Pneumocystis jirovecii* pneumonia (PCP) remains the leading cause of opportunistic infection among human immunodeficiency virus (HIV)-infected persons. Previous studies of PCP that identified case-fatality risk factors involved small numbers of patients, were performed over few years, and often focused on patients who were admitted to the intensive care unit.

OBJECTIVE: The objective of this study was to identify case-fatality risk factors present at or soon after hospitalization among adult HIV-infected patients admitted to University College London Hospitals (London, United Kingdom) from June 1985 through June 2006.

PATIENTS AND METHODS: We performed a review of case notes for 494 consecutive patients with 547 episodes of laboratory-confirmed PCP. **RESULTS:** Overall mortality was 13.5%. Mortality was 10.1% for the period from 1985 through 1989, 16.9% for the period from 1990 through June 1996, and 9.7% for the period from July 1996 through 2006 ($P = .142$). Multivariate analysis identified factors associated with risk of death, including increasing patient age (adjusted odds ratio [AOR], 1.54; 95% confidence interval [CI], 1.11-2.23; $P = .011$), subsequent episode of PCP (AOR, 2.27; 95% CI, 1.14-4.52; $P = .019$), low hemoglobin level at hospital admission (AOR, 0.70; 95% CI, 0.60-0.83; $P < .001$), low partial pressure of oxygen breathing room air at hospital admission (AOR, 0.70; 95% CI, 0.60-0.81; $P < .001$), presence of medical comorbidity (AOR, 3.93; 95% CI, 1.77-8.72; $P = .001$), and pulmonary Kaposi sarcoma (AOR, 6.95; 95% CI, 2.26-21.37; $P = .001$). Patients with a first episode of PCP were sicker (mean partial pressure of oxygen at admission \pm standard deviation, 9.3 \pm 2.0 kPa) than those with a second or third episode of PCP (mean partial pressure of oxygen at admission \pm standard deviation, 9.9 \pm 1.9 kPa; $P = .008$), but mortality among patients with a first episode of PCP (12.5%) was lower than mortality among patients with subsequent episodes of PCP (22.5%) ($P = .019$). No patient was receiving highly active antiretroviral therapy before presentation with PCP, and none began highly active antiretroviral therapy during treatment of PCP.

CONCLUSIONS: Mortality risk factors for PCP were identifiable at or soon after hospitalization. The trend towards improved outcome after June 1996 occurred in the absence of highly active antiretroviral therapy.