

EPIDEMIOLOGY AND OUTCOMES OF CANDIDEMIA IN US HOSPITAL PATIENTS

Researchers conducted a retrospective study to estimate candidemia incidence in patients hospitalized in the United States during 2000 and to determine related mortality, length of stay (LOS), and hospital charges. Data were obtained from the Nationwide Inpatient Sample for adult patients and the Kids' Inpatient Database for pediatric patients. An estimated 1118 hospitalized pediatric patients and 8949 hospitalized adult patients were diagnosed with candidemia, which is approximately 43 cases per 100,000 pediatric admissions (95% confidence interval [CI], 35–52 cases per 100,000 pediatric admissions) and 30 cases per 100,000 adult admissions (95% CI, 26–34 cases per 100,000 adult admissions). Outcomes associated with candidemia in pediatric patients included a 10.0% increase in mortality (95% CI, 6.2%–13.8%), a 21.1-day increase in mean LOS (95% CI, 14.4–27.8 days), and an increase in mean total per-patient hospital charges of \$92,266 (95% CI, \$65,058–\$119,474). In adults, associated outcomes included a 14.5% increase in mortality (95% CI, 12.1%–16.9%), a 10.1-day increase in mean LOS (95% CI, 8.9–11.3 days), and an increase in mean hospital charges of \$39,331 (95% CI, \$33,604–\$45,602). Due to increased mortality, LOS, and hospitalization costs, improved strategies to prevent and treat candidemia in adults and children should be developed.

Zaoutis TE, Argon J, Chu J, et al. The epidemiology and attributable outcomes of candidemia in adults and children hospitalized in the United States: a propensity analysis. *Clin Infect Dis* 2005;41:1232–9.

RAPID DETECTION OF PATHOGENS USING REAL-TIME PCR FOR PATIENTS WITH LOWER RESPIRATORY TRACT INFECTION

Between November 2002 and March 2004, investigators conducted a multicenter (Utrecht, The Netherlands), randomized controlled trial to determine diagnostic yields, feasibility, and costs of real-time polymerase chain reaction (PCR) of nasopharyngeal and oropharyngeal swab specimens obtained from patients (N = 107) in the routine diagnostic work-up for lower respiratory tract infection as compared with conventional diagnostic procedures. Fifty-five patients were allocated to the intervention group and 52 to the control group (mean age \pm standard deviation, 63.6 \pm 16.3 years). Influenza virus (n = 14), *Streptococcus pneumoniae* (n = 8), coronavirus (n = 6), *Staphylococcus aureus* (n = 5), and rhinoviruses (n = 5) were the most frequently detected pathogens in the intervention group. When compared with conventional diagnostic tests, PCR increased the diagnostic yield from 23 cases (21% of patients) to 47 cases (43% of patients). Detection of viral pathogens via PCR was as-

sociated with the winter season, less infiltrates on chest radiographs, lower C-reactive protein levels, and shorter duration of symptoms. Six patients' treatment regimen was altered (either partial or total cessation of antibiotic treatment) due to PCR results (11%; 95% CI, 2–19), but overall antibiotic use was comparable in the intervention and the control groups (median treatment duration, 10.0 versus 9.0 days; *P* = not significant). Total costs for antibiotic use were comparable for both groups, but using real-time PCR increased treatment and diagnostic costs by 318.17 Dutch guilders per patient. Although using real-time PCR improves the diagnostic yield for lower respiratory tract infection considerably, it does not reduce antibiotic use or costs.

Oosterheert JJ, van Loon AM, Schuurman R, et al. Impact of rapid detection of viral and atypical bacterial pathogens by real-time polymerase chain reaction for patients with lower respiratory tract infection. *Clin Infect Dis* 2005;41:1438–44.

SAFETY, DIAGNOSTIC YIELD, AND THERAPEUTIC IMPLICATIONS OF FLEXIBLE BRONCHOSCOPY IN PATIENTS WITH FEBRILE NEUTROPENIA AND PULMONARY INFILTRATES

In order to evaluate the safety, diagnostic yield, and therapeutic implications of flexible bronchoscopy with bronchoalveolar lavage (BAL) and transbronchial biopsy, the authors retrospectively reviewed the medical records of all patients (N = 35) with neutropenic fever and pulmonary infiltrates evaluated by flexible bronchoscopy and BAL between January and December 2002 at the Mayo Clinic (Rochester, MN). In addition to flexible bronchoscopy and BAL, 9 patients also received transbronchial biopsies; all procedures were performed safely (3 complications). BAL resulted in a diagnostic yield of 49%, which increased to 63% when combined with sputum analysis. Sputum analysis, although complementary to BAL, was underused (only 34%). Transbronchial biopsy clarified the diagnosis for only 1 patient and did not substantially increase the combined diagnostic yield. Fungal pneumonias (43%) and diffuse alveolar hemorrhage (14%) were the most common diagnoses. Bronchoscopic findings resulted in management changes in 51% of patients. The 28-day mortality rate was 26% and was highest in patients who required mechanical ventilatory assistance before bronchoscopy. BAL, in combination with sputum analysis, should be used to evaluate pulmonary infiltrates in neutropenic patients.

Peikert T, Rana S, Edell ES. Safety, diagnostic yield, and therapeutic implications of flexible bronchoscopy in patients with febrile neutropenia and pulmonary infiltrates. *Mayo Clin Proc* 2005;80:1414–20.

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