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**Title:** Pneumonia incidence and risk factors in patients with acute leukemia

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**Body:** Background: Pneumonia is a major cause of death during induction chemotherapy for acute leukemia. Objectives: The purpose of this study was to quantify the incidence, risk factors, and outcomes of pneumonia in acute leukemia patients. Methods: We conducted a retrospective cohort study in adult patients with acute myeloid leukemia (AML), acute lymphoblastic leukemia (ALL), or high-risk myelodysplastic syndrome (MDS) that underwent their first induction chemotherapy. Results: 801 patients received their first induction chemotherapy. The cumulative incidence of pneumonia at day 28 was 19.8% (95% confidence interval [CI], 16.9% to 22.8%). On multivariate analysis, age greater than 60 years, lower baseline platelet counts, low albumin level, and neutropenia were associated with an increased incidence of pneumonia. ALL was associated with a decreased incidence of pneumonia compared to AML (HR: 0.42; CI: 0.22-0.82). Fifty deaths occurred among the 801 patients, 39 of these in patients with pneumonia. On multivariate analysis, pneumonia, age greater than 60 years, elevated creatinine, poor performance status, and treatment in 2005 were associated with an increased risk of death, but pneumonia showed the strongest association (HR: 10.66; 95% CI, 5.40-21.04). Patients with pneumonia spent more days in the ICU and in the hospital, and had a 51% increase in hospital costs as compared to patients without pneumonia (P<0.001). Conclusion: Pneumonia is common during induction chemotherapy for acute leukemia and is associated with increased morbidity, mortality, and health care resource utilization. There is an association between the type of leukemia and the incidence of pneumonia even after adjustment for neutropenia.