Online-Only Abstract

Bronchoscopy as an indicator of tracheobronchial fungal infection in non-neutropenic intensive-care unit patients

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Abstract

We aimed to establish that a bronchoscopic view can be as reliable as microbiology, and support an empirical tracheobronchial fungal infection (TBFI) treatment decision. We retrospectively studied 95 respiratory failure patients with suspected TBFI admitted to the intensive-care unit (ICU) in 2008 with sticky secretions, hyperaemic mucosa, and whitish plaques on bronchoscopic view. Patients not suspected of having TBFI were chosen as a control group (n = 151). Broncheoalveolar lavage (BAL) fluid was cultured, and biopsy samples were taken from the lesions. Biopsy samples positive for fungi were defined as 'proven', only BAL-positive (+ fungi) cases were 'probable TBFI', and BAL-negative (– fungi) cases were 'possible TBFI'. BAL (+ fungi) and BAL (– fungi) in the control group were defined as 'colonization' and 'no TBFI', respectively. The sensitivity, specificity and positive and negative predictive values of BAL (+ fungi) were 85.1% (63/74), 81.4% (140/172), 66.3% (63/95), and 92.7% (140/151), respectively. Biopsies were performed in 78 of 95 patients, and 28 were proven TBFI with fungal elements, and 100% were BAL (+ fungi). Probable TBFI was seen in 30 of 95 patients with BAL (+ fungi), and possible TBFI (BAL(– fungi)) in 25 of 95. Among the 95 patients, microbiology revealed fungi (90.5% *Candida* species; 9.5% *Aspergillus*) in 63 (66.3%). In the controls, the colonization and no TBFI rates were 11 of 151 and 140 of 151, respectively. Observing sticky secretions, hyperaemic mucosa and whitish plaques by bronchoscopy is faster than and may be as reliable as microbiology for diagnosing TBFI. These findings are relevant for empirical antifungal therapy in suspected TBFI patients in the ICU.