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Abstract (poster session)

Virological tests on broncho-alveolar lavage fluid have a low yield except in immunocompromised patients with ground-glass attenuations on CT-scan

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Objectives: Broncho-alveolar lavage (BAL) is a major diagnostic tool in selected patients. Although viruses have been incriminated in a wide range of respiratory diseases, the diagnostic yield of virological tests on BAL fluid remains poorly characterized. We aimed to analyze the characteristics of patients in whom viruses were identified in BAL fluid, to better define indications for virological tests during BAL. **Methods:** All patients who underwent virological analysis on BAL fluid at the Rennes University Hospital - a 1,435 bed tertiary care center - during year 2008, were retrospectively studied. Data were extracted using a standardized questionnaire, through the review of medical charts, imaging studies (all with radiologist interpretation), and microbiology laboratory database. The following patients were classified as immunocompromised: i) patients with chronic immunodeficiency, including HIV; ii) patients on corticosteroids >10 mg/day for ≥ 3 weeks; iii) patients on any immunosuppressive drugs. We compared characteristics of patients with positive vs negative BAL virological analysis, using nonparametric Student ($n > 30$), or Mann Whitney ($n < 30$) test for quantitative variables, and Fisher exact test for categorical variables. **Results:** In 2008, 232 BAL were tested for viruses, in 212 patients (mean age 54.4 +/- 45.4 years; female-to-male ratio 0.6). Of these 232 BAL, 70 (30%) were positive, yielding 84 viruses: herpes simplex virus 1 ($n=27$), cytomegalovirus ($n=23$), Epstein-Barr virus ($n=17$), human-herpes virus 6 ($n=12$), respiratory syncytial virus ($n=3$), rhinovirus ($n=1$), and adenovirus ($n=1$). Pneumonia in immunocompromised patients was the most common indication for virological tests on BAL (55%), with a diagnostic yield of 44% in this group, as compared to 0% in the 17 patients with diffuse infiltrative lung disease. Immunocompromised patients represented 83% of virus-positive BAL. On bivariate analysis, only immunosuppression (82.9% vs 46.9%, $P < 0.0001$), and ground glass attenuations on chest CT-scan (65.6% vs 43.7%, $P = 0.006$), were more common in patients with virus-positive BAL, as compared to patients with virus-negative BAL. There were no significant differences in demographic and clinical criteria (age, gender, fever, dyspnea, cough, hemoptysis). **Conclusion:** Pneumonia in immunocompromised hosts is the only situation where virological analysis of BAL fluid is of value, especially when chest CT-scan demonstrates ground-glass attenuations.