

O0522 Use and performance of biomarkers for the diagnosis of *Pneumocystis jirovecii* pneumonia in immunocompromised patients, especially patients with solid organ transplant or cirrhosis

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Background: *Pneumocystis jirovecii* (Pj) pneumonia (PjP) are increasingly observed among immunocompromised (IC) patients other than HIV or hematological patients. Among those patients, Pj loads in the lungs are usually low and the direct detection of Pj by immunofluorescence (IF) is difficult. Other diagnostic tests are available, such as Pj DNA detection in respiratory samples or (1-3)- β -D-glucane (BG) immunoassay in serum, but little is known about the performance of these tests used in combination to confirm or exclude PjP in IC patients, especially with solid organ transplant (SOT), cirrhosis or solid tumor.

Materials/methods: We analyzed retrospectively all IC patients hospitalized for a pneumonia at Mondor Hospital (Créteil, France) in 2015-2016, excluding HIV and hematological patients. Those for whom Pj was detected by IF and real-time PCR (mt-LSU Pj-qPCR) on bronchoalveolar lavage (BAL) and BG (Fungitell, USA) assessed concomitantly in the serum were included. An expert panel reviewed medical records to classify the patients' status towards PjP. The performance of the combination of BG and Pj-qPCR for diagnosis or exclusion of PjP was determined.

Results: Overall, 107 patients had BG+Pj detection for 111 pneumonia episodes: SOT (n=56), cirrhosis (n=20), solid tumor (n=12), autoimmune disorder (n=9) and other (n=10). In 61/111 (59%) pneumonia episodes, BG and/or Pj-qPCR tests were positive. These pneumonias were classified by the expert panel as 7 probable PjP, 9 possible PjP and 45 pneumonias due to other cause (25/45 being associated with Pj colonization). All probable PjP were associated with positive IF; all possible PjP had positive BG and Pj-qPCR. The average Pj-qPCR Cts were lower in possible/probable PjP compared to Pj colonization ($P < .001$). Ten patients with possible/probable PjP had high-level BG (≥ 300 pg/ml) and 6 low to moderate BG (80-300pg/ml). The sensitivity of combined BG+Pj-qPCR tests toward diagnosis of PjP was of 95% with negative predictive value (NPV) of 99.1%.

Conclusions: We observed high NPV of the combined BG+Pj-qPCR tests in a population composed mainly of SOT or cirrhotic patients, allowing the exclusion of PjP diagnosis even when IF results on BAL are not available or non-contributory. Further studies with more patients are needed to confirm our results.