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Abstract (oral session)

Invasive pulmonary aspergillosis disseminated to distant sites: study of intra-patient Aspergillus fumigatus genotypes isolated from different organs

P. Escribano, S. Recio, T. Peláez, E. Bouza Santiago, J. Guinea* (Madrid, ES)

Objectives: The lung is affected in most of cases of invasive aspergillosis. Dissemination of invasive pulmonary aspergillosis (IPA) to distant sites is unusual. Our objective was to study whether IPA disseminates to other organs by polyclonal infection. Methods: From 1999 to 2012, 3 patients were diagnosed with proven/probable IPA caused by Aspergillus fumigatus that had disseminated to other organs (patients 1 to 3). Ten samples yielded A. fumigatus in culture (lower respiratory tract [LRT], n=7; central nervous system [CNS], n=2; blood culture, n=1). All colonies (n=37) found in culture were studied. Isolates were identified by sequencing the beta-tubulin gene and genotyped using STRAf. Genotypes were considered identical when they showed the same alleles for all markers. Results: Patient 1 was a female with acute leukaemia who received a hematopoietic stem cell transplant and developed proven IPA, which disseminated to the CNS. We studied 10 colonies from respiratory samples and 2 from brain biopsies. The genotype found in the lung was identical to that found in the brain. Patient 2 was a male with chronic obstructive pulmonary disease who developed proven IPA and aspergillemia. Analysis of 9 strains from the respiratory samples and 3 strains from blood cultures revealed 3 different genotypes in the lung, only 1 of which was found in blood. Patient 3 was an HIV-infected male who developed IPA after H1N1 infection; 16 months later, he developed probable invasive aspergillosis affecting the CNS. Analysis of 12 strains from respiratory samples and 2 from cerebrospinal fluid revealed 6 genotypes in the lung, 1 of which was also detected in the CNS. Conclusion: We showed that the genotype found in the LRT samples was also found at distant sites in the 3 patients. In contrast, some genotypes were found only in the LRT samples of 2 of the 3 patients. These results suggest that some genotypes are able to migrate from the lung to distant sites in patients with a low degree of immunosuppression, whereas other genotypes are found only in lung samples. Future virulence studies on the genotypes found in the lung and other organs are warranted.