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O0719 Baseline chest computed tomography for early diagnosis of invasive pulmonary aspergillosis in patients with hematologic malignancies undergoing intensive chemotherapy

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Background: Invasive pulmonary aspergillosis (IPA) is the most common invasive fungal infection among patients with hematologic malignancies. It is usually diagnosed in the context of febrile neutropenia unresponsive to broad-spectrum antibiotics. We aimed to assess IPA incidence at baseline among patients undergoing intensive chemotherapy.

Materials/methods: Between 10/2015-9/2017 all patients admitted for induction or salvage chemotherapy for acute myeloid leukemia (AML) or for allogeneic hematopoietic stem cell transplantation (HSCT) underwent routine baseline chest CT. Between 7/2016-4/2017 we also included those undergoing autologous HSCT. Patients whose chest CT was abnormal underwent diagnostic fiber-optic bronchoscopy with broncho-alveolar lavage (BAL) sampling. Laboratory processing of BAL fluid included direct stain for fungal elements, fungal culture, polymerase chain reaction for the detection of aspergillus DNA, and Galactomannan (GM) antigen detection. GM antigen in serum was measured also. Patients who were diagnosed with IPA, according to the EORTC diagnostic criteria, started treatment with voriconazole, whereas others were given antifungal prophylaxis with posaconazole or fluconazole for the duration of neutropenia. During the neutropenic period we measured GM in serum twice weekly, and repeated chest CT for patients with persistent fever unresponsive to broad-spectrum antibiotic coverage.

Results: One hundred and one patients with AML underwent baseline chest CT. CT was pathological in 38/101 (37.6%) and 25/101 (25%) were diagnosed with IPA (0 definite, 10 probable, 15 possible). Eventually, an additional 26/101 (26%) patients were diagnosed with IPA (0 definite, 12 probable, 14 possible). Median time to diagnosis was 20 days (range 15-62). Among 64 patients who were admitted for allogeneic HSCT and underwent baseline chest CT, six (10%) were diagnosed with IPA on admission, whereas an additional 13 (20%) contracted the infection during hospitalization. No patients admitted for autologous HSCT were diagnosed with IPA based on baseline chest CT. However, during their hospitalization 7/75 (9.3%) were ultimately diagnosed with IPA.

Conclusions: Among patients with AML half the burden of IPA is present before start of chemotherapy. Routine baseline chest CT can lead to early diagnosis and treatment of the infection, and by that may improve survival. The test seems to be redundant among those admitted for autologous HSCT.