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Combination of invasive aspergillosis and mucormycosis in hematological patients: A prospective study results

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Invasive aspergillosis (IA) and mucormycosis are severe mycotic infections. In this prospective study during the period 2007–2017, 512 oncohematological patients with IA were included and 5% of them had a combination of IA with mucormycosis. Diagnosis of IA and mucormycosis was made according to EORTC/MSG criteria (2008). The median age of patients with IA and mucormycosis was 31 years (range 5–65), male and female ratio 2:1, adults: 83%. The main underlying conditions were: acute leukemia–64%, lymphoma–21%, chronic leukemia–6%; myelofibrosis, neuroblastoma and aplastic anemia–3% each. *Aspergillus* spp. was isolated from 51% of patients. The main agents of IA were *A. fumigatus*–55%, *A. niger*–17%, *A. flavus*–17%, and *A. nidulans*–11%. Test Platelia *Aspergillus* EIA (Bio-Rad) was positive in 62% of patients. Diagnosis of mucormycosis was confirmed by histology and direct microscopy of biopsy samples in all patients. Cultures of clinical materials were positive in 69% cases: *Rhizopus* spp. (45%), *Lichtheimia corymbifera* (20%), *Rhizomucor* spp. (10%), *Rhizomucor pusillus* (10%), *Mucor* sp. (10%), *Rhizopus stolonifer* (5%). The main sites of infection were lungs (76%), sinuses (17%), central nervous system (10%) and disseminated process was noted in 45% patients. Typical clinical feature of IA and mucormycosis combinations was hemoptysis (24%, $p=0.008$), CT-signs-lesions with cavities (38%), hydrothorax (29%), and a "reverse halo" symptom (17%). Antifungal therapy was used in 76% patients, surgical treatment–34% patients. Overall 12-weeks survival was 38%. An unfavorable prognosis factor was dissemination of mycotic infections ($p=0.009$). The main underlying disease in hematological patients with IA and mucormycosis was acute leukemia (64%). Twelve weeks overall survival was 38%. Disseminated mycosis was an unfavorable prognosis factor.

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