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Mycology: Fungal infections

Mucormycosis in Saint Petersburg, Russia, 2010 - 2012

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**Objectives.** The aim of the study - to evaluate clinical characteristics and results of treatment of mucormycosis in St. Petersburg, Russia.

**Methods.** The prospective study during the period 2010-2012. The diagnosis of mucormycosis was made according to EORTC/MSG criteria (2008).

**Results.** We observed 32 patients with mucormycosis during the 3 years. In 2010 y. – 4 patients (mediana of age 49 years), 2011 - 8 patients (mediana of age - 38 y.), 2012 – 19 patients (mediana of age - 34 y.).

In this patients in 2010 y. underlying diseases included: 75% AML and 25% sinusitis. Main clinical forms of mucormycosis were: pulmonary (75%), sinusitis (50%), subcutaneous (25%). Two and more organs were involved in 50% of patients. Aetiologic agents were: *Lichtheimia corymbifera* and *Rhizopus* sp. Diagnosis was established by only histology in 50% of patients. Antifungal therapy: amphotericin B was used 50% of patients, posaconazole – 50%, caspofungin – 25%. Combination therapy was performed for 25% of patients. Surgical treatment was conducted in 25% of patients. Twelve weeks overall survival was 50%.

Underlying diseases were in 2011 y.: oncohematology (50%, including 25% AML), pulmonary diseases (37,5%) and sinusitis (12,5%). Main clinical forms of mucormycosis were: pulmonary (75%), sinusitis (37,5%), osteomyelitis (12,5%). Two and more organs were involved in 50% of patients. Aetiologic agents were: *Lichtheimia corymbifera* (n=1) and *Rhizopus* spp. (n=2). Diagnosis was established by only histology and microscopy in 62,5% of patients. Antifungal therapy: amphotericin B was used 50%, amphotericin B lipid complex – 37,5%, posaconazole – 25%, caspofungin – 25%. Combination therapy was performed for 50% of patients. Surgical treatment was conducted in 37,5% of patients. Twelve weeks overall survival was 50%.

Underlying diseases were in 2012 y.: oncohematology (68%, including 32% AML), pulmonary diseases (5,3%), trauma (5,3%), organ transplantation (5,3%), ADIS (5,3%), diabetes mellitus (5,3%) and sinusitis (5,3%). Main clinical forms of mucormycosis were: pulmonary (68%), rhinocerebral (21%), gastrointestinal (21%), sinusitis (16%). Two and more organs were involved in 53% of patients. Aetiologic agents were: *Lichtheimia corymbifera* (n=3) and *Rhizopus* spp. (n=3), *Rhizopus microsporus* (n=2), *Rhizomucor pusillus* (n=2), *Rhizopus oryzae* (n=1). Diagnosis was established by only histology and microscopy in 42% of patients. Antifungal therapy was performed in 14 patients (5 cases were diagnosed post-mortally). Amphotericin B was used 57%, amphotericin B lipid complex – 57%, posaconazole – 50%, caspofungin – 27%. Combination therapy was performed for 43% of patients. Surgical treatment was conducted in 44% of patients. Twelve weeks overall survival was 32% of all patients (6/19).

**Conclusions:**

1. The number of new cases of mucormycosis increased annually in St. Petersburg, Russia
2. Main underlying diseases were oncohematological diseases (AML 28,5%)
3. Pulmonary mucormycosis was most common clinical manifestation (71,5%); two and more

organs were involved in 51,5% of patients,

4. Overall survival of patients with mucormycosis at 12 weeks was 41%.