MUCORMYCOSIS IN IMMUNOCOMPROMIZED AND IMMUNOCOMPETENT PATIENTS IN SAINT PETERSBURG, RUSSIA

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Objectives

Mucormycosis is an increasingly common infection in immunocompromised patients. The aim of the study: to evaluate clinical characteristics and results of treatment of haematological, oncological and other patients with invasive mucormycosis in Saint Petersburg, Russia.

Methods

The prospective study in 2002 - 2014 yy. The diagnosis of mucormycosis was made according to EORTC/MSG criteria (2008).

Results

We observed 70 patients with mucormycosis. The median age was 34 years (range 0,2-74), male/female – 1,2/1.

Immunocompromised according to EORTC/MSG criteria (2008) were 53 (75%) patients. The median age was 27 y (range 4-74), male/female ratio 1,5:1. Main underlying diseases were hematological and oncological – 87% (AML – 37%, ALL – 28%, CLL – 7%, Hodgkin's lymphoma – 7%, non-Hodgkin's lymphoma – 4%, neuroblastoma – 4%, aplastic anemia – 2%, Fanconi's anemia – 2%, MDS – 2%, myeloid sarcoma – 2%, CML – 2%, and multiple myeloma – 2%). Other underlying diseases were COPD (5%), AIDS (2%), epidermolysis bullosa (2%), kidney transplantion (2%), and congenital heart defect (2%).

The median age of nonimmunocompromised patients (n=17) was 44 years (range 0,2-74), male and female ratio 1:1,5. Main underlying conditions were: chronic sinusitis (53%), diabetes mellitus (18%), tuberculosis (12%), trauma (12%), and RDC (6%).

Diagnosis was established by histology and/or microscopy in all patients. In 66% vs 35% cases the diagnosis was confirmed by culture. Aetiologic agents were: *Rhizopus* spp. (31% vs 33%), *Lichtheimia corymbifera* (23% vs 17%), *Rhizomucor pusillus* (14% vs 0), *Rhizomucor* spp. (14% vs 0) *Rhizopus microsporus* (3% vs 0%), *Rhizopus oryzae* (3% vs 0), *Rhizopus microsporus var.oligosporus* (3% vs 0), *Rhizopus microsporus var.rhizopodiformis* (3% vs 0), *Rhizomucor variabilis* (0 vs 17%), *Mucor sp.* (6% vs 33%).

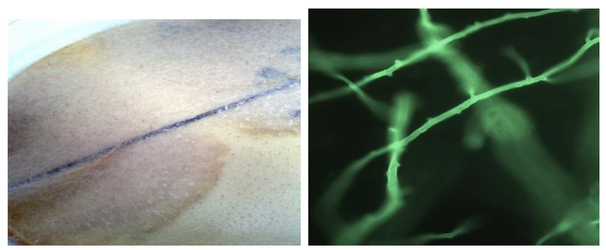

Fig.1. Culture from BAL and Direct microscopy x400 (*Rhizomucor pusillus*)

Main clinical forms were: pulmonary (77% vs 23%, p=0.0001), sinusitis (17% vs 65%, p=0,0002), gastrointestinal (4% vs 0), CNS (2% vs 11%), subcutaneous (2% vs 0%). Two and more organs were involved in 48% vs 6% patients (p=0.006).

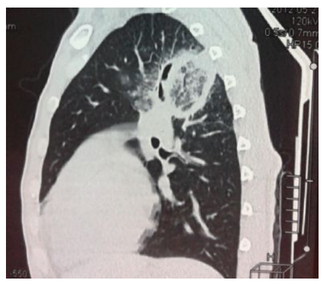

Fig.2. CT scan,

Rhizomucor pusillus pneumonia in patient with AML

Antifungal therapy was used in 72% vs 58% patients: posaconazole 67% vs 29%, amphotericin B deoxycholate 62% vs 47%, amphotericin B lipid complex 46% vs 24%, caspofungin 36% vs 0, liposomal amphotericin B 3% vs 0. Combination antifungal therapy was used 60% vs 0 (p=0,0001). Surgery (sinusotomy, lobectomy, surgical debridement of skin and soft tissues) was performed in 41% vs 94% patients (p=0,0002).

Twelve weeks overall survival was 43% vs 94% (p=0,002).

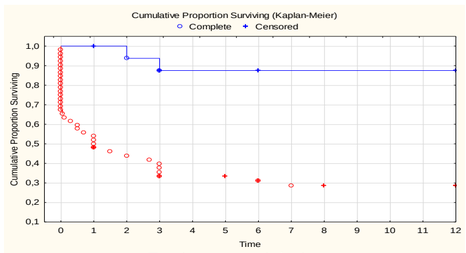

Fig.3. 12 week overall survival

Conclusions

Mucormycosis in immunocompromized and immunocompetent patients

1. median age: 27 vs 44 y. (p=0,04)
2. main underlying conditions: acute leukemia (75%) vs chronic sinusitis (53%);
3. main pathogens: *Rhizopus* spp. and *Lichtheimia corymbifera;*
4. most common clinical manifestations: pneumonia (77% vs 23%); ≥2 organs (48% vs 6%);
5. Combination antifungal therapy was usualy used in immunocompromised patients (60%), surgery – in nonimmunocompromised patients (94%).
6. 12 weeks overall survival : 43% vs 94%.

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