Abdominal organs involvement in patients with invasive aspergillosis: results of the multicenter study in Saint Petersburg, Russia

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Objectives

Analysis of demographic parameters, underlying diseases, risk factors, etiology, clinical features, treatment and survival rates in patients with abdominal invasive aspergillosis (IA) in Saint Petersburg, Russia.

Materials and methods

Prospective study in 1998-2017 yy. For diagnosis of proven and probable IA criteria EORTS/MSG, 2008 were used.

Results

In prospective study we included 700 patients (adults - 85%) with proven (13%) and probable (87%) IA from 15 hospitals in St. Petersburg. The main sites of infection were lungs (94%), sinuses (7%), and central nervous system (5%). Two or more organs were involved in 7% patients. Abdominal organs involvement was found in 1,4% patients with IA (n=10).

The average age of patients with abdominal IA was 31,5 years (range 5-67), adults - 80%, males – 50%. Main underlying diseases were hematological malignancies (60%): acute myeloid leukemia (40%) and acute lymphoblastic leukemia (20%). The main risk factors were prolonged lymphocytopenia (80%) and neutropenia (70%), ICU stay (60%), steroid therapy (60%), graft versus host disease (20%), and diabetes mellitus (20%).

Disseminated IA was found in 90% patients, the primary site of infection were lungs - 80%. Liver involvement was found in 50% patients, spleen - 50%, colon - 20%, and esophagus – 10% (Fig.1).

Fig.1. CT scan of IA with the abdominal organs involvement.

Isolated IA of the colon was found in one patient (Fig.2).

Fig.2. Isolated IA of the colon in a patient with acute lymphoblastic leukemia.

"Proven" IA was diagnosed in 60% patients, "probable" - 40%.

Galactomannan test in serum was positive in 50% cases.

Positive microscopy with septated mycelium was in 40% cases, *Aspergillus* spp. were isolated in 20%. The etiological agents were *A.fumigatus* (50%) and *A.niger* (50%).

Mixed *Aspergillus* and *Saccharomyces cerevisiae* infection was found in 10% cases (Fig.3).

Fig.3. Histological examination of the autopsy tissue.

Antifungal therapy was used in 80% patients: voriconazole (76%), amphotericin B deoxycholate (12%), and itraconazole (12%). Surgery was used in 30% patients. Twelve weeks overall survival rate was 50% (Fig.4).

Fig. 4. Comparison of survival in patients with IA, depending on abdominal organs involvement.

Conclusion

The abdominal organs involvement occurs in 1,4% patients with IA, usually as a result of hematogenous dissemination (90%). The main underlying diseases were acute myeloid leukemia (40%) and acute lymphoblastic leukemia (20%). The main risk factors: prolonged lymphocytopenia (80%) and neutropenia (70%), ICU stay (60%) and steroid therapy (60%). Etiological agents were *A.fumigatus* (50%) and *A.niger* (50%). The main sites were liver (50%) and spleen (50%). Twelve weeks overall survival rate was 50%.