Invasive aspergillus in adult non-hematological patients

Objectives

Identification of features of invasive aspergillosis (IA) in non-hematological patients.

Materials and methods

Retrospective analysis of clinical data of adult non-hematologic patients with IA. In the main group were included 87 adult non-hematological patients with IA, median age – 51 years (19 - 99), females - 53%. The control group included 591 hematological patients, median age – 46 years (18 - 79), females – 42%.

The EORTC/MSG 2008 criteria were used for IA diagnosis and assessment of response of therapy.

Results

Background diseases in patients of both groups are presented in Figure 1,2.

![Fig.1 Background conditions in non-hematological patients](image)

The analysis of risk factors showed in non-hematological patients were significantly less likely to use systemic steroids, less often lymphocytopenia was detected, and neutropenia was uncharacteristic for these patients, (Fig. 2).

![Fig.2 Risk factors of IA development; * p ≤ 0.05](image)

Additional risk factors for IA development were precede surgical treatment (31%), stay in ICU (23%), renal or hepatic failure (11%), and decompensated diabetes (8%), (Fig.3).

![Fig.3 Additional risk factors of IA development; * p ≤ 0.05](image)

The main clinical symptoms were fever (87% vs 74%, p=0.04), cough (71% vs 65%), dyspnea (62% vs 44%, p=0.01), chest pain (30% vs 7%, p=0.001), and hemoptysis (26% vs 7%, p=0.02).

The main sites of infection were lungs 78% vs 98%. However, in non-hematologic patients, lesions of other organs were more often noted: sinuses (13% vs 5%, p= 0.01), heart (6% vs 0.001%, p=0.0001), digestive organs (6% vs 1%, p=0.006), and central nervous system 8% vs 4%, (Fig.4 a, b, c).

![Fig.4 Invasive aspergillosis localization](image)

In non-hematological patients, destruction cavities in lungs were more often detected on CT scan (37% vs 9%, p=0.005).

The main etiological agents were A.fumigatus (62% vs 45%), A.niger (15% vs 34%), A.flavus (17% vs 15%), other species accounted for 6% in each group. «Proven» IA was diagnosed in 42% vs 7%, p=0.004. Voriconazole was used in 56% vs 76% patients, surgical treatment – 11% vs 4%.

The overall 12-weeks survival rate was 81% vs 78%.

Conclusion

Invasive aspergillosis developed in non-hematological patients usually with autoimmune (16%) or oncology diseases (16%). The main risk factors were steroid therapy (46%), lymphocytopenia (40%), immunosuppressive therapy (22%), additional - precede surgical treatment (31%), stay in ICU (23%). The main etiological agents were A.fumigatus (62%), A.flavus (17%), and A.niger (15%). The main sites of infection were lungs (78%), disseminated (≥2 organs) infection was in 13% patients. Overall 12-weeks survival of patients was 81%.