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Paper Poster Session

Fungal infection epidemiology

Allergic bronchopulmonary aspergillosis in cystic fibrosis patients in Saint-Petersburg, Russia

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Background: Allergic bronchopulmonary aspergillosis (ABPA) significantly impairs respiratory function in patients with cystic fibrosis (CF). According to international studies, the incidence of ABPA in CF patients ranges from 2 to 15%. National publications on this subject are rare.

Objectives: To study the prevalence of fungal sensitization and frequency of ABPA in patients with CF in Saint-Petersburg, Russia.

Material/methods: We observed 44 patients with CF between 1 and 37 years old (median age -13 years), males – 21, females – 23. All patients underwent skin tests with six fungal allergens, determination of total IgE level (by enzyme immunoassay) and specific IgE to fungal allergens in serum, and IgG to *Aspergillus fumigatus*. Microscopic examination of sputum and sputum culture were done. Specific IgE to fungal, domestic and epidermal allergens were determined with multiple allergen simultaneous test-chemiluminescent assay (MAST-CLA; Chemical Diagnostics, Inc., USA). In patients with suspicion of ABPA chest CT scan was performed. Detection of specific serum IgE to fungal allergen (class ≥ 1) was considered as criterion of fungal sensitization. Diagnostic criteria of ABPA 2003 [Stevens et al] were used.

Results: Total serum IgE level varied from 1 to 3250 IU/ml (median – 18). Sensitization to fungi by positive skin prick tests and/or by specific serum IgE level to fungal allergens was identified in 29 patients (66%). The highest frequency of fungal sensitization was connected with *Candida* spp. (48%), *Aspergillus* spp. (25%), and *Alternaria* spp. (25%). Occurrence of sensitization to other fungi was lower: *Rhizopus* spp. – 20%, *Penicillium* spp. – 13%, and *Cladosporium* spp. – 8%. IgG to *Aspergillus fumigatus* was detected in 10 patients (23%). Sputum culture identified *A.fumigatus* in 9 patients (20%) and *A. niger* in 2 (5%). ABPA was diagnosed in 2 patients (5%). In one patient (2%) aspergilloma in the left lung apical segment (S1) was detected.

Conclusions: The frequency of fungal sensitization in cystic fibrosis patients was 66%, sensitization

to *Candida* spp. - 48%, *Aspergillus* spp. - 25%, and *Alternaria* spp. - 25%. ABPA was diagnosed in 5% patients. In one case aspergilloma of the lung was detected. All patients with cystic fibrosis need allergy screening for timely detection and adequate treatment of ABPA.