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Paper Poster Session

Fungal diagnosis: from culture to molecular techniques

Variation of galactomannan optical density index for *Aspergillus* species in samples of bronchoalveolar lavage fluid

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Background: To estimate of galactomannan antigen level in samples of bronchoalveolar lavage fluid (BAL) colonized with various *Aspergillus* spp.

Material/methods: The retrospective study was carried out from January 2010 to November 2015. The BAL samples tested for galactomannan antigen level (GM, Platelia *Aspergillus*, Bio-Rad, USA) with the incidence of *Aspergillus* spp were analysed.

Results: A total of 337 BAL samples was evaluated. Among 202 (60%) strains of isolated *Aspergillus* spp there were 183 (90,6%) strains obtained by monoculture and 19 (9,4%) obtained by mix culture. Distribution of *Aspergillus* species in monoculture was following: *A. fumigatus* n=54(30%), *A. flavus* n=38(21%), *A. niger* n=28(15%), *A. sydowii* n=16(9%), *A. versicolor* n=13(7%), *A. niveus* n=6(3%), *A. nidullans* n=6(3%), *A. ochraceus* n=5(2,7%), *A. candidus* n=4(2%), *A. alliaceus* n=3(1,3%) , and rare *Aspergillus* species (*A. carneus*, *A. oryzae*, *A. restrictus*) n=8(6%). The positive values of optical density index for GM (cutoff>1) were identified for 68% *A. flavus*, 48% *A. fumigatus*, 31% *A. sydowii*, and 21% *A. niger*. The results of the retrospective study were summarized in table. The statistical estimation for the positive GM in samples was following: p=0.05 and p=0.005 for prevailing incidence of *A. flavus* than *A. fumigatus* and other *Aspergillus* spp., respectively, and p=0,00001 for *A. fumigatus* than the others. The values of optical density index for GM were negative (cutoff <1) in 41% of total samples with prevailing among the other *Aspergillus* spp. (75%).

Table. Variation of galactomannan optical density index for *Aspergillus* species in monoculture

Species	No. of isolates in monoculture	No. of isolates ranging by GM means			
		<1,0	1,1-2,0	2,1-3,0	>3,1
<i>A. fumigatus</i>	54	28	6	2	18
<i>A. flavus</i>	38	12	5	2	19
other <i>Aspergillus</i> spp.*	91	68	4	6	13
total	183	108	15	10	50

*The other *Aspergillus* spp: *A. niger* (n=28), *A. sydowii* (n=16), *A. versicolor* (n=13), *A. niveus* (n=9), *A. nidullans* (n=6), *A. terreus* (n=6), *A. ochraceus* (n=6), *A. alliaceus* (n=3), *A. candidus* (n=2), *A. carneus*

(n=1), *A. oryzae* (n=1), *A. restrictus* (n=1)

Conclusions: The variation of galactomannan optical density index was reported for different *Aspergillus* species in samples of bronchoalveolar lavage fluid. Among the isolates the strong correlation between the positive values for GM and the incidence of *Aspergillus* spp. was detected for *A. flavus*, *A. niger*, *A. versicolor* ($p < 0,05$). The occurrence of the positive values for GM and the incidence of *Aspergillus* species was the highest for *A. flavus* (68%).