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P2189 The application of metagenomic next-generation sequencing in pulmonary aspergillosis

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Background: Pulmonary aspergillosis is a difficult-to-diagnose infection with a high mortality rate. mNGS has emerged as a promising approach for detection of pathogenic microbes for infectious diseases. However, clinical experience with interpretation and application of the test in pulmonary aspergillosis is relatively limited.

Materials/methods: According to the inclusion/exclusion criteria, we retrospectively reviewed 33 pulmonary aspergillosis patients between April 2017 and May 2018, and the diagnostic performance of pulmonary aspergillosis was compared between mNGS and conventional laboratory-based diagnostic method.

Results: A total of 41 samples were included in analysis. The composition of patients and samples is shown in table 1. Compared with culture results, mNGS and culture were both positive in 21/41 (51.2%) samples and were both negative in 5/41(12.2%) samples. Among all the samples, the percentage of mNGS-positive samples was 80.5% while that of culture-positive samples was 53.6%. In samples with negative culture results, the positivity rate of mNGS was 70.6%. The percentage of mNGS-positive samples was higher than that of culture-positive samples in sputum (82.1% vs. 57.1%) and BALF (75.0% vs. 50.0%). Compared with GM test, the mNGS showed a higher positivity rate (80.8% vs. 45.7%), and in GM negative samples the positivity rate of mNGS was 73.7%. In the chronic pulmonary aspergillosis patients, the mNGS showed a higher positivity rate when copared with *Aspergillus*- specific IgG (65.0% vs. 25.0%).

Table 1. The composition of patients and samples			
	CPA	IFP	Total
No of patients	22	11	33
Age, Y, meas±SD	59.8±14.1	56.35±13.3	58.7±13.7
Sex, female, no(%)	5(22.7)	3(27.3)	8(24.2)
No of samples, no	25	16	41
sputum, no(%)	19(76)	9(56.3)	28(68.3)
BALF, no(%)	3(12)	5(31.3)	8(19.5)
tissue, no(%)	3(12)	0(0)	3(7.3)
fluid, no(%)	0(0)	1(6.3)	1(2.4)
blood, no(%)	0(0)	1(6.3)	1(2.4)

Conclusions: In pulmonary aspergillosis, mNGS could yield a higher positivity rate than conventional laboratory-based diagnostic method. In samples with negative conventional mothed, mNGS also showed a higher positivity

rate. This indicated that mNGS may be used to diagnose pulmonary aspergillosis with a superior sensitivity. However, accurate data need to be confirmed by further larger cohort study.