

O0836 Improved serological diagnosis of chronic pulmonary aspergillosis in ImmunoCAP IgG-negative patients using the LD Bio *Aspergillus* ICT lateral flow assayElizabeth Hunter*¹, Bayu Wilopo¹, Malcolm Richardson^{1,2}, David W. Denning^{1,2}¹ The University of Manchester, Manchester, United Kingdom, ² Wythenshawe Hospital, Manchester University NHS Foundation Trust, Manchester, United Kingdom

Background: Prevalence of chronic pulmonary aspergillosis (CPA) is estimated at about 3 million cases worldwide. Serological detection of *Aspergillus*-specific IgG is a critical component in the diagnosis of CPA. In some cases however, false negative results by ImmunoCAP enzyme immunoassay (EIA) can make serological diagnosis of CPA difficult and requires increased diagnostic sensitivity. This study assessed the performance of two commercial assays to diagnose CPA in this specific patient population.

Materials/methods: Twenty-one (21) cases of clinically confirmed CPA were selected, for which the routine serological assay (ImmunoCAP, ThermoFisher) for *Aspergillus* IgG gave a consistently negative result over 1-3 years of patient assessment (≤ 50 mgA/L). *Aspergillus* IgG antibodies in patient sera were detected by lateral flow assay (*Aspergillus* ICT, LD Bio Diagnostics, France) or western blot assay (LD Bio Diagnostics, France), and compared to the routine diagnostic test – ImmunoCAP enzyme immunoassay (EIA) – used at the Mycology Reference Centre (Manchester).

Results: We determined sensitivities of 81.0% and 90.5% respectively for LD Bio western blot and LD Bio *Aspergillus* ICT, respectively, in serum samples from patients who have been assessed as negative for CPA by ImmunoCAP EIA (sensitivity = 0.0%). We also compared results from the Bordier Affinity Products ELISA for *Aspergillus* IgG and Microgen precipitin assay in a subset of this cohort and found poor sensitivities for these tests as well.

Conclusions: In select cases of CPA where ImmunoCAP EIA consistently fails to provide an accurate serological diagnosis, LD Bio *Aspergillus* ICT and western blot show greatly improved sensitivity and ability to detect *Aspergillus*-specific IgG in patient sera. Comparing these two assays, the LD Bio *Aspergillus* ICT outperforms the western blot, exhibiting increased sensitivity. The *Aspergillus* ICT appears to be a useful tool in the diagnosis of CPA where routine assays fail to detect *Aspergillus* antibodies and provide a false negative result.

	LD Bio	Bordier	Microgen	
	WB	ICT	ELISA	Precipitins
Positive	17	19	8	1
Negative	4	2	9	12
Tested	21	21	17	13
Sensitivity	81.0%	90.5%	47.1%	7.7%
95% CI	62.6 - 95.3%	66.4 - 97.2%	24.5 - 71.1%	0.2 - 32.0%

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