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P2192 Molecular detection of *Aspergillus* and corresponding azole resistance markers: systematic comparison of two commercial PCR test kits, AsperGenius and MycoGENIE

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Background:

Azole resistance in *Aspergillus fumigatus* has emerged as a global health problem. Conventional methods such as culture have a reduced sensitivity and phenotypic susceptibility testing is laborious and time-consuming. Novel molecular diagnostic tools have the potential to provide more reliable results within hours.

Materials/methods:

We compared two commercially available diagnostic test kits for detection of *A. fumigatus* / species DNA as well as identification of distinct molecular azole resistance markers: the AsperGenius$(r)\$(AG) and MycoGENIE® (MG) tests. The assays were evaluated with six azole-susceptible and seven azole-resistant *A. fumigatus* reference isolates which were also analyzed using whole genome sequencing. Twelve *Aspergillus* non-*fumigatus* strains were used to test specificity. In addition, 46 clinical samples (31 BALs, 13 biopsies, 2 miscellaneous) from 41 patients tested positive by an in-house ITS region-based *Aspergillus* PCR were investigated.

Results:

Analysis of all *Aspergillus* culture isolates showed expected findings in both tests. The analytical sensitivity for *A. fumigatus* was from 1.5 to 15 fg in both tests, corresponding to 0.05 to 0.5 organisms per reaction. However, detection of azole resistance resulted in a reduced sensitivity of factor 10 to 100. The detection of *Aspergillus* organisms in clinical samples is shown in the table. In 18/37 *A. fumigatus* positive samples (48.6%), azole testing was successful by the AG test from which 14 showed wildtype (sensitive) markers and 4 TR34/L98H mutations. These four samples originated from a patient with simultaneous isolation of TR34/L98H-harbouring *A. fumigatus*. MG could not differentiate between a sensitive or a negative result and in contrast to AG 4/4 TR34/L98H-positive clinical samples could not be identified.

Conclusions:

In accordance with previous studies, the MG test shows a slightly higher sensitivity for detection of *A. fumigatus* DNA in comparison to the AG assay. However, azole susceptibility results from clinical samples reveals a reduced reliability in the MG assay.

Table: *Aspergillus* spp.-positive clinical samples (n=46)			
MG assay	AG assay	Clinical samples	
A.fumigatus	*A.fumigatus*	*Aspergillus* spp.	No.
+	+	+	37
+	-	-	4
-	-	+	3
-	-	-	2
Total	46		