Pulmonary Aspergillosis (PA) is an increasingly common mycosis among patients with haematological malignancies receiving cytotoxic therapy and those with organ transplantation. Because of substantial delay in obtaining an early diagnosis the mortality associated with IA remains very high despite antifungal therapy. The isolation of Aspergillus from clinical samples by micologicial culture can be negative in patients with IA (low sensitivity) probably due to previous antifungal treatment/profllaxes. As conventional diagnostic methods are insensitive and performance of invasive diagnostic procedures may not be feasible in thrombocytopenic or critically ill patients, the confimatory diagnosis if often made postmortem. On the other haand, although demonstration of characteristic “halo” and “air crescent” signs on high resolution computed tomography scan may suggest PA, in one third to two third of neutropenic patients, they are not 100 % specific. In view of the above limitations, efforts have been directed to develop and evaluate new diagnostic techniques. The detection of Aspergillus DNA by PCR in clinical samples is a rapid method that indicates the presence of the fungus regardless the microbiological culture.

The MycAssay™ Aspergillus molecular diagnostic test performed in BAL samples combined with the EZ1 automated DNA extraction system provides greater sensitivity and specificity in diagnosing PA than AGA detection or conventional culture. Automated EZ1 DNA extraction system is fast, simple and sensitive, despite not including any fungal cell wall disruption step.

### Results

Seven probable cases of PA were diagnosed in 5 lung transplantation and 2 haematologic patients. Conventional culture was positive in 75% of their samples. If detection of AGA in BAL is not taken into account as a micological criterion, the sensitivity and specificity of this technique - cut off for positive > 1/(OD) – was 85.7 and 91% respectively. PCR technique with EZ1 DNA extraction system showed a 100% sensitivity and 93.3% specificity. The extraction method did not include any steps for fungal cell wall lysis (for example bead beating) and was rapid (45 mins) giving patient results in <3 hrs. In four false positive AGA cases, the PCR was negative. During the study period one case of zygomyces and one of fusariosis were diagnosed by conventional culture and no PCR cross reactions were detected.

### Conclusion

The MycAssay™ Aspergillus molecular diagnostic test performed in BAL samples combined with the EZ1 automated DNA extraction system provides greater sensitivity and specificity in diagnosing PA than AGA detection or conventional culture.