

## Diagnostic tests for tuberculous pleural effusion.

McGrath EE, Anderson PB.

Department of Respiratory Medicine, Northern General Hospital, Sheffield S5 7AU, UK.  
e.mcgrath@sheffield.ac.uk

### Abstract

The investigation of pleural effusion has been greatly assisted by advancements in pleural fluid analysis. In the case of tuberculous pleural effusion, diagnosis traditionally requires the demonstration of acid fast bacilli in the pleural space using microbiological or histological techniques. In recent years, there has been progress in pleural fluid analysis in suspected tuberculous effusions, with particular interest in adenosine deaminase and interferon- $\gamma$ . These individual tests are quite sensitive and specific; however, data are sparse on the benefits that multiple-parameter testing may have when analysed in combination. We reviewed the literature to investigate the evidence for multiple-parameter testing, both biochemical and clinical, in the evaluation of tuberculous effusion.

PMID: 20556468 [PubMed-in process]

**Table 1** Studies examining the role of combination tests in the diagnosis of tuberculous pleural effusion

Marker combinations	Result	Author	Year	Compared with biopsy or culture	Study design	Patient no.	Prev. per 100,000
ADA and fluid lysozyme	↑ specificity to 95% $p < 0.05$	San José et al.	1992	No	Pro	271	39
ADA and fluid tuberculo-stearic acid	↑ sensitivity to 83% $p < 0.05$	Muranishi et al.	1992	No	Pro	67	58
ADA and fluid lymphocyte proportion	↑ sensitivity to 90.7% ↑ specificity to 97.7% $p < 0.05$	De Oliveira et al.	1994	No	Pro	276	108
ADA, ratio of pleural to serum lysozyme	↑ specificity to 99% $p < 0.05$	Villena et al.	1996	No	Pro	228	32
ADA, ratio of fluid lymphocytes to neutrophils	↑ sensitivity to 88% ↑ specificity to 95% $p < 0.05$	Burgess et al.	1996	No	Pro	303	480
ADA and IFN- $\gamma$ , PCR (any two markers combined)	↑ sensitivity to 90.5% $p < 0.05$	Villegas et al.	2000	Yes	Pro	140	50
ADA, fever, age, fluid RBC	↑ sensitivity to 95% ↑ specificity to 94% $p < 0.05$	Porcel and Vives	2003	No	Retro	392	32
ADA, fluid LDH, ratio of fluid lymphocytes to neutrophils	↑ sensitivity to 100% (1 of 3+ve) ↑ specificity to 100% (all 3+ve) $p < 0.05$	Ghanei et al.	2004	No	Pro	88	32
ADA, fluid % lymphocytes, serum leukocyte count, fluid protein, symptom duration	↑ sensitivity > 95% ↑ specificity > 95% $p < 0.05$	Neves et al.	2007	No	Pro	215	59
ADA and fluid CRP	↑ specificity > 91.7% $p < 0.05$	Daniil et al.	2007	No	Pro	72	16
ADA, fluid LDH, age, temperature	↑ sensitivity to 92.2% ↑ specificity to 98.3% $p < 0.05$	Porcel et al.	2008	No	Retro	238	32
ADA, fluid dipeptidyl peptidase IV	↑ sensitivity to 77% ↑ specificity to 94% $p < 0.05$	Küpeli et al.	2009	No	Pro	87	33