

The importance of the biomarkers, ADA, CRP and INF- γ , in diagnosing pleural effusion etiologies.

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The aim of the present study is to investigate the clinical utility of biomarkers Adenosine deaminase (ADA), C-reactive protein (CRP) and Interferon gamma (INF- γ) in the differentiation of exudative and transudative pleural effusion, and in the differentiation of the three types of exudative pleural effusion. The study enrolled 250 patients with pleural effusion that were admitted in hospital, from 2012-2015. The patients with pleural effusion were classified based on Light's criteria¹, on biochemical and on cytological analyses, as exudative (130), and transudative (120). The patients with exudative pleural effusion were categorized as: malignant, tuberculosis and parapneumonic². The patients went thoracentesis and venous blood samples, under aseptic conditions, and from each subject were collected in syringe at least 30 ml of pleural fluid. The measurement of pleural fluid and venous blood were done within 24 hours. To measure the levels of CRP in blood and liquid were used the test of CRP with COBAS 6000 Roche company. To measure the levels of ADA was used the colorimetric method of Giusti Gallant and for INF- γ was used the commercial enzyme-linked immunosorbent assay (ELISA) test. The Mann-Witney U statistical test³ for non-parametric data was used for the role that ADA and CRP plays in the differentiation of exudative and transudative pleural effusion. The values of ADA and CRP differ significantly between the two types of effusion ($p < 0.05$). For the accuracy of the test was used the ROC curve analyses, and based on the area under the curve, ADA biomarker in pleural fluid is a better test for the differentiation of exudative from transudative pleural effusion. The Kruskal-Wallis H statistical test⁴ for non parametric data demonstrated that the values of ADA and CRP in serum and pleural fluid differ significantly between the three groups of exudative pleural effusion, with $p < 0.05$. The values of ADA differ significantly when comparing malign with tuberculosis and tuberculosis with parapneumonic pleural effusion. The major differences for CRP biomarker were seen in the comparison of malign and parapneumonic pleural effusion. The Chi-square statistical test⁵ for the nominal data of INF- γ test demonstrated that, INF- γ in pleural fluid is a significant test for the differentiation of the three types of exudative pleural effusion and INF- γ in serum plays a less important role for this differentiation. As a conclusion, for the differentiation of exudative and transudative pleural effusion ADA biomarker is a better test for this differentiation. The biomarkers ADA, CRP in serum and pleural fluid, and INF- γ in pleural fluid, plays a significant role for the differentiation of the three types of exudative pleural effusion.

Keywords: Pleural effusion, Exudative, Transudative, Biomarkers