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Title: Diagnostic value and prognostic significance of pleural C-reactive protein in lung cancer with malignant pleural effusions

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Body: C-reactive protein (CRP) has been implicated in various inflammatory and advanced malignant states. Increased serum CRP levels have been shown to be associated with an independent prognostic factor for survival in patients with advanced lung cancer. However, only few studies have focused on the role of CRP in pleural effusions. This study aimed to evaluate the diagnostic value of pleural CRP to discriminate lung cancer with MPE from benign effusion and its prognostic role in lung cancer patients with MPE. Pleural effusion samples were collected from patients with MPE (68 lung cancers; 12 extrathoracic tumors), and from 68 with various benign conditions. Concentrations of pleural (p) and serum (s) CRP were measured by ELISA. The expression profile of CRP in pleural fluid, and its association with survival were investigated. P-CRP levels correlated with s-CRP levels (P = 0.0028). The area under the ROC curve (AUC) of p-CRP (0.86) in their diagnostic accuracy to differentiate lung cancer with MPE from benign pleural effusion was greater than those of s-CRP (0.77). High p-CRP expression was significantly correlated with shorter overall survival (P = 0.0001). In a multivariate Cox regression analysis, p-CRP was independent prognostic factor significantly associated with overall survival (P = 0.0001). The relative risk of overall survival for lung cancer patients with high p-CRP was 3.909 (95% CI, 2.000–7.639). In conclusion, P-CRP is superior to s-CRP in determining the pleural fluid etiology. Quantitative assay of CRP in pleural effusion might be useful complementary test both in diagnosis and prognosis for lung cancer patients with MPE.