**Title:** Detection of mesothelin in the pleural effusion has a higher diagnostic utility than in serum for diagnosis of malignant mesothelioma

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**Body:** BACKGROUND: Soluble mesothelin-related peptide (SMRP) is a biomarker approved by the U.S. Food and Drug Administration for diagnosing and monitoring of malignant pleural mesothelioma (MPM). We compared the diagnostic performances of SMRP levels in the pleural effusion (PESMRP) and in serum (SSMRP) of MPM patients. METHODS: We assessed 102 thoracoscopies performed for a pleural effusion (PE) of unknown origin. PE and serum were drawn at the same time from each patient. SMRP levels were measured by the "MesoMark" ELISA assay. The diagnostic performance of SMRP were estimated through the ROC analysis, the SMRP cut-off discrimination point was obtained by using the Youden index and the association between dichotomized SSMRP or PESMRP with disease status was evaluated through the diagnostic odds ratio (DOR). RESULTS: The study comprised 43 patients affected by MPM, 23 patients with metastatic cancers and 36 patients suffering from benign diseases. We found that the best cut-off point discrimination level for MPM was 12.70 nM in PESMRP and 1.08 nM in SSMRP. At these cut-off levels, PESMRP showed better diagnostic performance than SSMRP (area under the ROC curve %=81.6 vs...
In SSMRP-negative patients, PESMRP conserved acceptable diagnostic performances. In contrast, in PESMRP-negative patients, the diagnostic parameters were not significant (Sensitivity % = 47.8 vs 15.4; DOR = 8.3 vs 1.2; P-value = 0.001 vs 0.858). CONCLUSIONS: Both PESMRP and SSMRP may help in the diagnosis of MPM but, in matched serum and PE, the diagnostic accuracy of PESMRP is superior to that of SSMRP.