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The Preliminary Study of the Significance of MPO and VPO1 Levels in Different Types of Pleural Effusions or Pericardial Effusions
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OBJECTIVES Pleural and pericardial effusions are common clinical complications. The Light's criteria, the currently used gold standard for discrimination of exudate and transudate effusions, are barely satisfactory. It is observed MPO could serve as an effective marker to differentiate infectious from non-infectious pleural effusions. The recently discovered VPO1 from cardiovascular tissues can be secreted into exudate, and was detected in pleural effusions from both infectious and non-infectious effusions. This study aims to investigate the diagnostic significance and potential mechanisms of MPO and VPO1 in different types of pleural effusions and pericardial effusions.

METHODS MPO and VPO1 levels in pleural or pericardial effusions were measured in 101 patients via ELISA and western blotting, respectively. Subjects were divided into 3 groups: benign exudate group, malignant exudate group and transudate group. MPO and VPO1 levels of 3 groups were compared; furthermore, the relationships among MPO and VPO1 levels, biochemical inflammatory markers, and oxidative stress index were also analyzed. ROC curves were constructed to evaluate the diagnostic performance of MPO and VPO1.

RESULTS 1. The medians of MPO concentrations in benign exudate, malignant exudate and transudate were 120.82 ng/mL, 105.10 ng/mL and 25.69 ng/mL, respectively, which were significantly different (p<0.001). Furthermore, the differences of MPO concentration distribution between benign or malignant exudate and transudate were both significant (p<0.001).

2. The means of VPO1 concentrations in benign exudate, malignant exudate and transudate were 46.90±33.73 ng/mL, 26.92±12.09 ng/mL and 33.40±21.46 ng/mL, respectively. The differences were significant among the 3 groups (p<0.009).

3. MPO, but not VPO1 concentrations was correlated with inflammatory markers (IL-1β, PCT and C-reactive protein), as well as biochemical parameters (TP, ALB, ADA, sTfR and sLDH).

4. Effusion MPO concentrations over 41.69 ng/mL diagnosed exudate with a sensitivity of 84.5% and a specificity of 82.8%, the ROC area under the curve (AUC) for MPO was 0.867 (p<0.001, 95% CI: 0.781–0.954), which indicated a high diagnostic accuracy.

5. Effusion MPO concentrations over 43.38 ng/mL diagnosed benign exudate with a sensitivity of 93.8% and a specificity of 58.2%, the AUC for MPO was 0.761 (p<0.001, 95% CI: 0.659–0.863), which indicated a medium diagnostic accuracy. Effusion VPO1 concentrations over 41.47 ng/mL diagnosed benign exudate with a sensitivity of 54.1% and a specificity of 78.1%, the AUC for VPO1 was 0.644 (p=0.017, 95% CI: 0.526–0.761), which indicated a low diagnostic accuracy.

CONCLUSIONS 1. MPO plays a vital role in the process of inflammation in infectious effusions. VPO1, on the other hand, may involve in the formation of the extracellular matrix.

2. Effusion MPO levels have certain diagnostic value to distinguish exudate from transudate, as well as to identify infectious and non-infectious effusions.

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Analysis of the blood culture results
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OBJECTIVES To analysis drug resistance and the distribution of bacteria in our hospital blood culture, and the positive rate and...