

Multiplex analysis of epithelial ovarian cancer (EOC) biomarkers that differentiate benign and malignant in a patient's serum

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ABSTRACT

Introduction: The predictive value of the epithelial ovarian cancer (EOC) panel, consisting of CA-125, HE4, along other serum-based biomarkers, will demonstrate superior diagnostic capacity in discriminating between benign and malignant compared to any single marker alone. This study aimed to determine the potential biomarkers that can discriminate between EOC patients and benign ovarian mass. **Materials and Methods:** In this prospective trial, preoperative serum samples from 35 women with ovarian masses scheduled for ovarian surgery were collected. Of these, 17 patients were diagnosed with pathologically confirmed benign, while 18 had malignant ovarian tumours. Serum samples were analyzed using Luminex multiplex immunoassay analysis to measure levels of biomarkers compared through a receiver operating characteristic (ROC) curve analysis. **Results:** Serum CA-125 and HE4 were confirmed as highly accurate tumour markers in patients with EOC. Both CA-125 and HE4, along with CCL11, were found to be most significantly different in both groups (AUC > 0.8). **Conclusions:** Multiple combination biomarkers in serum levels are more effective at distinguishing between benign and malignant conditions compared to individual markers. Although they showed strong accuracy in our study, they need to be tested in a larger group of patients to confirm their reliability.