



To evaluate pre-operative serum levels of Human Epididymis protein (HE-4) and Cancer Antigen 125 (CA-125) in women with endometrial cancer.

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Introduction

Endometrial carcinoma is third most common gynecological cancer in India. Early stage cancer is curable with surgical treatment. The prognosis of carcinoma depends on histopathological type, depth of myometrial invasion and lymph node metastasis. Despite significant development in imaging methods in the last 25 years, an accurate non invasive assessment of metastatic lymph nodes in patients with endometrial cancer remains an unmet medical need, because the sensitivity of CT scan and MRI is limited.

Thus, the current effort is to identify sensitive biochemical markers useful for the diagnosis and prognosis of patients with endometrial carcinoma.

Methods

Fifty patients with endometrial carcinoma, admitted at a single tertiary care center between January 2017 and December 2018, were enrolled in the study. Serum levels of both the markers were measured using enzyme-linked immunosorbent assay (ELISA).

Histo-types (endometrioid versus non-endometrioid), grading (G1, G2, G3) and stage including myometrial invasion were correlated with HE-4 and CA-125 levels using Kruskal Wallis test. Using standard cut-offs of HE-4 as 70 pM and CA-125 as 35 U/ml, Receiver operating characteristics (ROC) curve were drawn to calculate new cut-offs for both the tumor markers to predict the stage of the carcinoma pre-operatively.

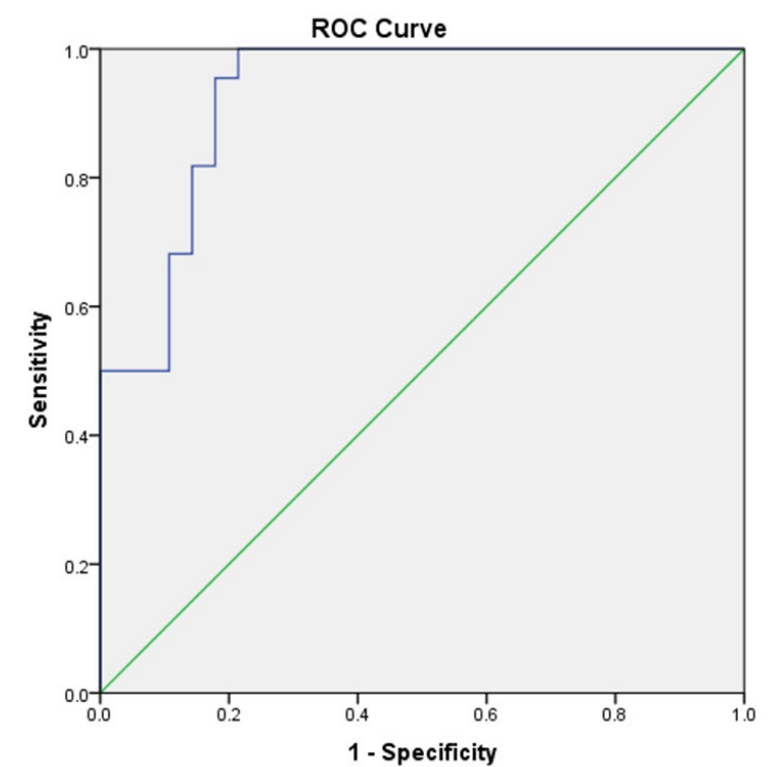


Fig : ROC curve for HE-4 levels with Stage IA vs other Stages of carcinoma

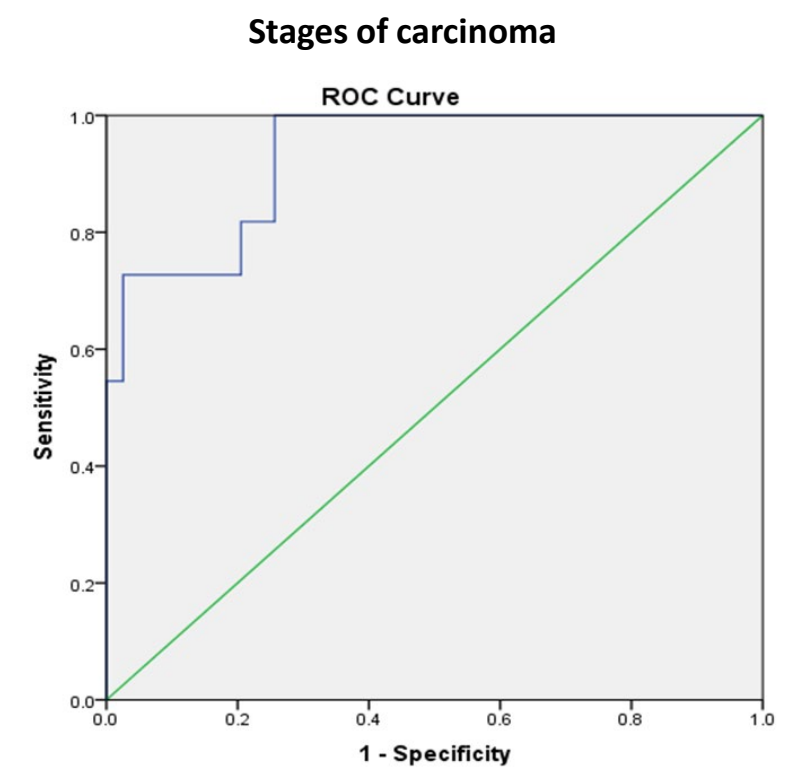


Fig : ROC curve for HE-4 levels with Stage I vs other Stages of carcinoma

Objectives

To measure and correlate the pre-operative serum levels of human epididymis protein (HE-4) and cancer antigen (CA-125) levels with surgical stage, histological grade and types of differentiation in women with carcinoma endometrium undergoing surgery.

Results

Higher serum HE-4 and CA-125 levels correlated with poor grading and extent of myometrial invasion ($p < 0.05$). The optimal cut-offs for serum HE-4 and CA-125 to predict stage IA was 139.9 pM (sensitivity 81.8% and specificity 82.1%) and 10.3 U/ml (sensitivity 72.7% and specificity 71.4%) respectively, whereas to predict stage IA+IB was 188.8 pM (sensitivity 81.8% and specificity 79.5%) and 10.95 U/ml respectively. Higher serum HE-4 levels also correlate with more lymphovascular invasion ($p = 0.002$). However, no correlation was found between HE-4 and CA-125 levels and histological type.

Conclusion

Pre-operative serum HE-4 is a novel biochemical marker for predicting the stage of the carcinoma and can be used along with CA-125 marker in prognosticating patients with endometrial carcinoma with high sensitivity and specificity.

References

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2018 Nov;68(6):394-424.
2. Zhang A, Zhang P. [Clinical value of combined detection of serum human epididymal secretory protein E4 and CA(125) in the diagnosis of endometrial carcinoma]. *Zhonghua Fu Chan Ke Zhi.* 2012 Feb;47(2):125-8.