HE4, CA125, ROMA and RMI - a prospective comparison in the pre-operative evaluation of adnexal and pelvic masses in an Australian population

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Background
Human epididymis protein 4 (HE4) has been proposed as a novel biomarker for the diagnosis of epithelial ovarian cancer. Using HE4 and CA125, the Risk of Malignancy algorithm (ROMA) has been shown to be effective in the stratification of epithelial ovarian cancer risk¹-³.

Aims
To determine the effectiveness of HE4 and ROMA in the diagnosis of malignancy of women presenting with a complex pelvic mass in an Australian population and compare it to CA125 and the risk of malignancy index (RMI).

Methods
Prospective recruitment of patients was conducted between October 2012 and March 2014 (n=50). CA125 and HE4 serum concentrations were collected with sensitivities, specificities, PPVs and NPVs were calculated for HE4, CA125, ROMA and the RMI. ROC-AUC were also calculated for comparison.

Results
There was a higher HE4 level in patients with ovarian cancer as compared to patients with benign pathology (p=0.008) and this was seen in benign versus stage 1 ovarian cancer patients (p=0.025). HE4 had a better specificity than CA125 for the diagnosis of ovarian cancer in all patients (p=0.022) and this effect was also observed in premenopausal patients (p=0.012).

Furthermore, the ROC-AUC for HE4 was better than CA125 in all patients (p=0.045). The ROMA algorithm was not inferior to the RMI calculation in this population.

Conclusion
In an Australian population, HE4 and ROMA are useful in the diagnosis of epithelial ovarian cancer.

References