INTRODUCTION:
Ovarian cancer is the most common gynecological cancer causing significant mortality. The incidence of ovarian cancer is between 5.4 to 8.0 per 100000 population in different parts of the country. It is the third leading site of cancer among women after cervix and breast. The mortality in ovarian cancer is closely related to disease stage (the 5 year survival is higher than 70% in stage I or II but decreases to 40% and 20% in stage III or IV, respectively). An early differential diagnosis and a timely surgical and/or chemotherapeutic treatment are very important.

It is difficult to differentiate patients with ovarian cancer from patients with benign adnexal masses because of non-specific clinical symptoms and lack of reliable screening. Various diagnostic tests have been developed to improve the accuracy of ovarian cancer prediction. No single test can accurately predict ovarian cancer. Multimodal approach using a combination of parameters represents the ideal option.

CA125 has so far been the best-performing single tumor marker used in diagnostics and monitoring of OC. CA125 is found elevated in several benign gynecologic and non-gynecologic diseases leading to unnecessary surgery for a large group of patients with a benign pelvic mass in whom malignancy is suspected.

Risk of malignancy index (RMI) is presently the most accurate tool for stratifying patients into high and low risk groups. RMI was calculated as the product of serum CA125 level, US findings and menopausal status, according to the criteria described by Jacobs et al. RMI combines three pre-surgical features: serum CA-125 (CA-125), menopausal status (M) and ultrasound score (U).

HE4 as a single tumor marker has been reported as good as CA125 for detection of OC. Combined, HE4 and CA125 enhance the sensitivity and specificity for differentiating OC. Moore et al. developed the risk of ovarian malignancy algorithm (ROMA), a simple biomarker based algorithm compared to RMI which require ultrasound. The recommended cut off values for ROMA are >13.1% for premenopausal women and >27.7% for postmenopausal women.

A new Rajavithi ovarian cancer predictive score (R-OPS) based on a combination of menopausal status, morphological US findings of solid lesions, and serum levels of CA125 and HE4 was developed by Yanaranop et al. The R-OPS tends to have greater accuracy for predicting ovarian malignancy in Asian women compared to RMI and ROMA. The R-OPS appears promising, but the further validation tests using a diverse ethnic population are required to confirm the performance and validity of this new test.
Table 2: Comparison of RMI, ROMA and R-OPS performance in premenopausal group

<table>
<thead>
<tr>
<th>Test</th>
<th>AUC-ROC</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
<th>Diagnostic Accuracy</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premenopausal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMI</td>
<td>0.846</td>
<td>75%</td>
<td>76.47%</td>
<td>50%</td>
<td>84.67%</td>
<td>76%</td>
<td>0.006</td>
</tr>
<tr>
<td>ROMA</td>
<td>0.838</td>
<td>75%</td>
<td>64.71%</td>
<td>50%</td>
<td>84.62%</td>
<td>68%</td>
<td>0.007</td>
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<tr>
<td>R-OPS</td>
<td>0.801</td>
<td>62.5%</td>
<td>76.47%</td>
<td>55.56%</td>
<td>81.25%</td>
<td>72%</td>
<td>0.017</td>
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<tr>
<td>Postmenopausal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMI</td>
<td>0.668</td>
<td>56.25%</td>
<td>52.63%</td>
<td>50%</td>
<td>58.82%</td>
<td>54.29%</td>
<td>0.091</td>
</tr>
<tr>
<td>ROMA</td>
<td>0.875</td>
<td>75%</td>
<td>68.42%</td>
<td>66.67%</td>
<td>76.47%</td>
<td>71.43%</td>
<td>&lt;0.001</td>
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<td>R-OPS</td>
<td>0.845</td>
<td>81.25%</td>
<td>84.21%</td>
<td>81.25%</td>
<td>84.21%</td>
<td>82.86%</td>
<td>0.001</td>
</tr>
</tbody>
</table>

CONCLUSION:
Predicting the risk of malignancy in adnexal mass is an important factor to improve the survival rate in ovarian cancer. We conclude that R-OPS and ROMA could be valuable tools in predicting ovarian cancer. ROMA uses serum CA125 and HE4 values and hence can be used in places where radiological imaging would be difficult. On the other hand, R-OPS which uses imaging, as well serum CA125 and HE4 values, such an algorithm can be used as diagnostic tool where imaging facilities are available for better accuracy.

REFERENCES: