Comparison of Risk of Malignancy Index (RMI) Models (RMI-1, RMI-2, RMI-3 & RMI-4) to Predict Risk of Malignancy in Ovarian Tumor

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Abstract: _Objective: Comparison of Risk of Malignancy Index (RMI) models (RMI-1, RMI-2, RMI-3 & RMI-4) to predict risk of malignancy in ovarian tumor. Methods: prospective observational study among 100 patients recruited from opd and in patients of department of Obstetrics and Gynaecology, Maulana Azad Medical College, New Delhi. Inclusion criteria - ovarian tumor>5 cms. Patients with ovarian mass>5cm recruited, detailed history taking and examination done, serum CA125 collected, ultrasonography done followed by RMI calculated and to get FNAC/ Histopathology report of the same case and to compare RMI report with histopathology report and to conclude which model is best to predict risk of malignancy in ovarian tumor. Result: RMI-1 sensitivity was 75.43%, specificity 77.46, PPV 57.3, NPV 88.7 and Accuracy 76.88. RMI-2 sensitivity was 79.63, specificity 78.95, PPV 58.44, NPV 90.08 and Accuracy 78.93. RMI-3 sensitivity was 80.35, specificity 80.35, PPV 58.44, NPV 90.9 and Accuracy 78.28. RMI-4 sensitivity was 86.8, specificity 91.0, PPV 63.5%, NPV 97.5 and Accuracy 90. Conclusion: Among these models RMI-4 has maximum sensitivity (86.8%), specificity (91.0%), PPV (63.5%) NPV (97.5%) and accuracy (90.4%)._

Keywords: RMI, Risk of Malignancy Index

1. Introduction

Ovarian tumor represents the most lethal female reproductive tract malignancy worldwide[1]. Many parameters have been evaluated to assess the risk these are age, menopausal status, size of tumor, family history, hormonal assays etc. Current strategies and methods for ovarian cancer detection includes pelvic examination, imaging and tumor markers that usually performed in symptomatic patients.[2] Jacobs et al developed Risk Of Malignancy index (RMI) to standardize and improve preoperative evaluation which includes CA125, menopausal status and ultrasound features.[3, 4, 5.6]

"**RMI (1, 2, 3)** = ultrasound findings $\times$ CA125 $\times$ menopausal status". Scoring system combines the ultrasound features of the mass (U), menopausal status of the patient (M), and serum CA125 level (U/ml) into a risk score (U$\times$M$\times$ serum CA125).

The ultrasound features are 1. Multilocularity, 2. Solid Areas, 3. Bilaterality, 4. Ascites, 5. Intra Abdominal Metastasis.

Total score of >/ 200 used as a cut-off for malignancy.

RMI 4: U$\times$CA125$\times$M$\times$S

Here,

S= Largest diameter of the mass
Score 1 = mass<7cm
2 = mass>/ 7cm

Cut off >/ 450 used for malignancy for RMI 4.

2. Methodology

This study was prospective observational study, study population recruited from outpatient department and in patients from department of obstetrics and gynaecology, maulana azad medical college, Delhi, over 1 year period, 100 patients were recruited in this study.

Inclusion criteria: All ovarian tumor>5 centimeter size.

Exclusion criteria: Surgery performed after 120 days of ultrasound and absence of FNAC/ Biopsy/ Histopathology report.

Prospective observational study among 100 patients recruited from opd and in patients of department of Obstetrics and Gynaecology, Maulana Azad Medical College, New Delhi.

Inclusion criteria: Ovarian tumor>5 cms. Patients with ovarian mass>5cm recruited, detailed history taken and examination done, serum CA125 collected, ultrasonography done followed by RMI calculated and then to get FNAC/ Histopathology report and to compare RMI report with histopathology report and to conclude which model is best to predict risk of malignancy in ovarian tumor.
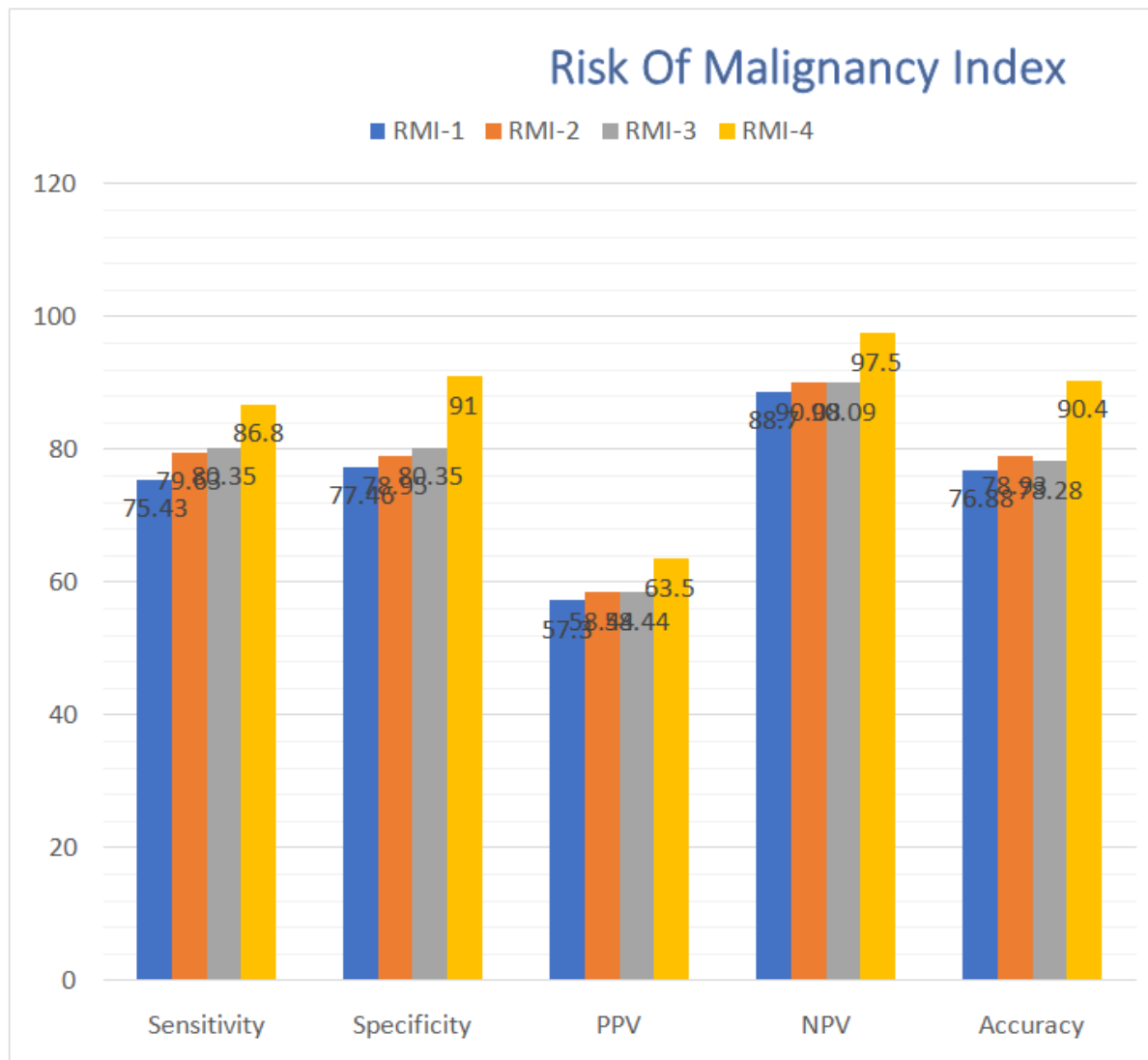
3. Result

RMI-1 sensitivity was 75.43%, specificity 77.46, PPV 57.3, NPV 88.7 and Accuracy 76.88

RMI-2 sensitivity was 79.63, specificity 78.95, PPV 58.44, NPV 90.08 and Accuracy 78.93

RMI-3 sensitivity was 80.35, specificity 80.35, PPV 58.44, NPV 90.9 and Accuracy 78.28

RMI-4 sensitivity was 86.8, specificity 91.0, PPV 63.5%, NPV 97.5 and Accuracy 90.

4. Conclusion

Among these models RMI-4 has maximum sensitivity (86.8%), specificity (91.0%), PPV (63.5%) NPV (97.5%) and accuracy (90.4%).

Declaration

We have no conflict of interest.

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