Contribution of Clinico-Biological Scores in Ovarian Cancer

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Introduction

Ovarian cancer is the most lethal form of gynaecological cancer, with diagnosis most often made at a late stage. It is essential to differentiate benign from malignant forms to improve patient care.

Objective

This study aims to highlight the value of combining clinical and biological data in the form of a score and to evaluate their diagnostic performance in predicting the malignancy of ovarian tumors.

Materials and Methods

This is a comparative study of the diagnostic performance of two main scores: ROMA (Risk of Ovarian Malignancy Algorithm) and RMI (Risk of Malignancy Index).
The ROMA algorithm uses a statistical formula to calculate the probability (%) of malignancy based on CA-125 and HE4 concentrations, and hormonal status. The RMI index combines clinical, biological (only CA125), and ultrasound data.
Based on the results obtained in numerous studies: one American study on 457 patients; two Chinese studies (432 and 1,218 patients respectively); one Belgian study on 155 patients; another Danish study on 690 women; and the most recent Italian study on 581 patients.

Results and Discussion

The results of performance measures, including AUC (area under the curve), sensitivity, and specificity, showed that the ROMA score had a higher sensitivity (80-95%), while the RMI had a higher specificity (80-90%). Regarding the AUC, the results were generally comparable across all patients, with an AUC of 0.958 for RMI versus 0.954 for ROMA.
The RMI index includes an ultrasound assessment and therefore requires an experienced operator.
The ROMA score is less operator-dependent and does not require an additional consultation for an ultrasound scan, thus reducing the time to patient care.

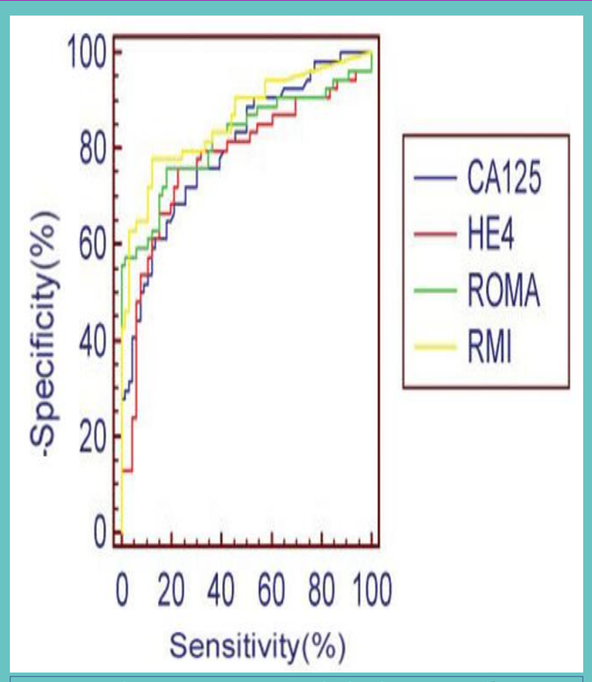

Figure1:sensitivity and specificity correlation between ROMA and RMI scores

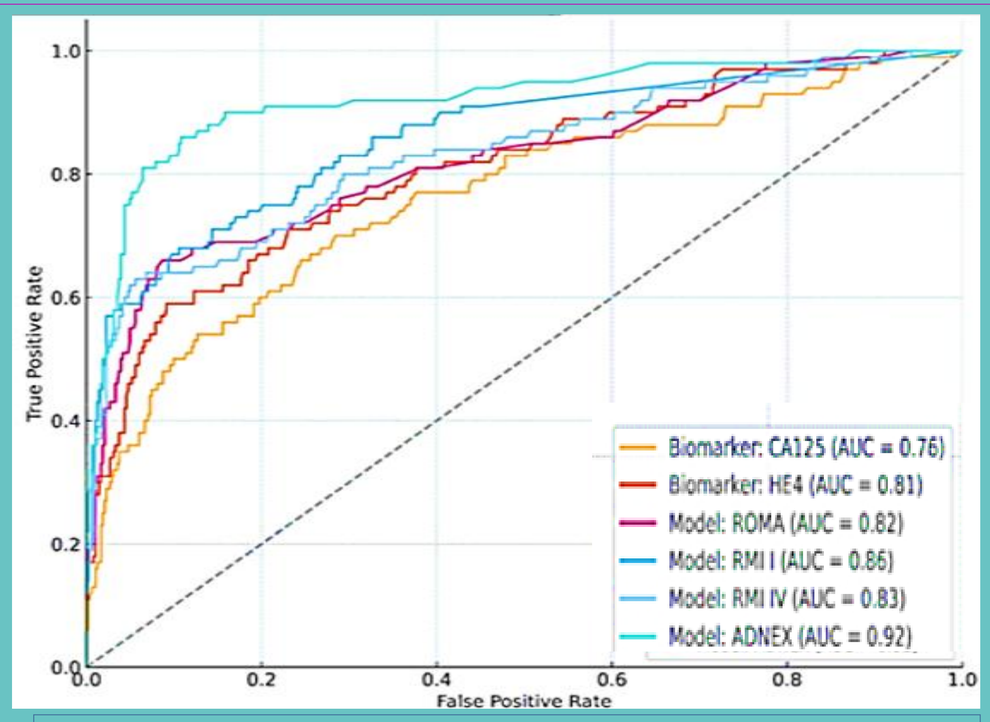

Figure2:AUC comparison of the ROMA and RMI scores

	Sensitivity (IC 95%)	Specificity (IC 95%)	Accuracy (IC 95%)
IOTA	80.7% (72.2-87.1%)	97.5% (95.3-98.7%)	93.6% (91.1-95.5%)
ROMA	81.5% (73.1-87.8%)	85.3% (81.3-88.5%)	84.4% (80.9-87.3%)
RMI	70.6% (61.4-78.4%)	94.3% (91.4-96.2%)	88.8% (85.7-91.3%)

Table1:Sensitivty ; specificity and accuracy comparison of the ROMA and RMI scores

Conclusion

The ROMA and RMI clinical and biological scores represent dynamic and constantly evolving tools that enable individualized care and improve the prognosis of patients with ovarian cancer. The ROMA algorithm provides good results for early malignant forms, but it is more expensive and less effective in mucinous forms.
The RMI index is a simple, easy-to-calculate method that is accessible and widely validated in various study populations. However, it is less effective for early malignant forms and requires an experienced operator.

Bibliographic references

1) Siew Fei Ngu , Yu KaChai , Ka ManChoi,Tsin WahLeung, Justin Li , Gladys S. T. Kwok MandyM.Y.Chu,KaYuTse, Vincent Y. T. Cheung , Hextan Y. S. Ngan and Karen K. L. Chan. Diagnostic Performance of Risk of Malignancy Algorithm (ROMA), Risk of Malignancy Index (RMI) and Expert Ultrasound Assessment in a Pelvic Mass Classified as Inconclusive by International Ovarian Tumour Analysis (IOTA) Simple Rules. Cancers Journal 2022: 14, 810.

2) G.Spagnol , M.Marchetti , M.Carollo, S.Bigardi , M.Tripepi , E.Facchetti ,O. De Tommasi , A.Vitagliano , F. Cavallin , R.Tozzi , C.Saccardi and M.Noventa. Clinical Utility and Diagnostic Accuracy of ROMA, RMI,ADNEX,HE4,andCA125inthePrediction of Malignancy in Adnexal Masses.Cancers Journal 2024:16, 3790.

3) Karlsen.MA,Sandhu.N,Høgdall.C,Christensen.IJ,Nedergaard.L,Lundvall.L,And al. Evaluation of HE4,CA125,risk of ovarian malignancy algorithm (ROMA) and risk of malignancy index (RMI) as Diagnostic Tools of Epithelial Ovarian cancer in patients with a pelvic mass.GynecolOncol:2012;127(2):379;83.