ABSTRACT

COMPARISON OF RISK OF MALIGNANCY INDEX WITH HISTOPATHOLOGICAL EXAMINATION IN OVARIAN TUMORS

INTRODUCTION:

Ovarian cancer, the most lethal of all gynaecological malignancy represents a significant public health problem to a woman worldwide. It is often asymptomatic at an earlier stage, many of them present in an advanced stage for which the five year survival rate remains low. It is important to discriminate between benign and malignant tumor for selective referral of patients. (2)

Jacob et al (3) in 1990, developed a scoring system, Risk of malignancy index based on the ultrasound score, menopausal status and CA 125 value which were obtained preoperatively.

AIM OF THE STUDY

To evaluate the risk of malignancy index based on CA125, menopausal status and ultrasound score in women with ovarian mass, to arrive at an optimal cut off point of RMI score.

To evaluate the performance of individual parameters and RMI in differentiating benign and malignant ovarian tumors.
To validate the efficiency of risk of malignancy index in discriminating benign and malignant ovarian tumors.

MATERIALS AND METHODS

This prospective study was performed in the Department of Obstetrics and gynaecology, Tirunelveli Medical College and hospital. The study was conducted during the period 2012 to 2014. The study population consisted of 100 patients who were admitted in our hospital with adnexal masses.

INCLUSION CRITERIA

Patients above the age of 25 years admitted in our hospital both in premenopausal and postmenopausal age group with a diagnosis of an ovarian mass were included in the study.

EXCLUSION CRITERIA

Ovarian mass in the pregnant women were excluded because CA 125 levels will be elevated in pregnancy and hence may give a false positive result.

Patients with previously diagnosed disease commonly associated with elevated CA 125 levels were excluded. Patients on peritoneal
dialysis which by constant peritoneal irritation cause an elevated CA 125 levels and are therefore exclude from the study.

Serum CA 125 was determined by radioimmunoassay.

Ultrasound examination was performed using a 3.5-MHz abdominal convex transducer in patients with full bladder or 7.5-MHz vaginal probe in patients after emptying the bladder. Ultrasound score was assigned for the following features.

1. Multiloculations,
2. Presence of solid elements,
3. Bilaterality,
4. Presence of ascites, or
5. Evidence of metastases.

An ultrasound score (U) of 1 was given if none or one of the features was found, and a score of 3 was given if two or more of these features were shown. Postmenopausal status was defined as more than one year of amenorrhea or age older than 50 years for women who had undergone hysterectomy; they were scored as M=3. All other patients who did not meet these criteria were defined in a premenopausal status which scored M=1. The absolute values of serum CA-125 was entered in formula.
Ultrasonographic examination of pelvic organs was performed, menopausal status and level of cancer antigen 125 (CA125) were assessed and finally RMI was calculated for all the patients. RMI was calculated using the formula:

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\text{RMI SCORE} = \text{Ultrasound score} \times \text{menopausal score} \times \frac{\text{CA125 level in U/ml}}{}
\]

After surgery, histopathological (HPE) findings of excised tumors were analysed in order to determine the final diagnosis. The histopathological diagnosis is considered as the gold standard for defining the outcomes finally, based on the standard formulas, sensitivity, specificity, positive predictive value and negative predictive value of the RMI was calculated, as RMI is an index which indicates malignancy with reference to the actual presence or absence of malignancy in the ovarian mass.

**RESULTS**

100 women with ovarian mass above 25 years of age were selected for the study. In our study 79% of the tumor was benign and 21% was malignant. Among them 44.8% patients were in the age group of 51-60 years, 31% in 41-50 years, 13.7% in 30-40 years and 10.3% in >60 years. Hence, the Risk of malignancy increases with increase in age group. Among nulliparous women, 46.6% has malignant ovarian tumor
compared to 24.7% in multiparous women. Postmenopausal women have a higher risk of malignancy when compared to premenopausal women.

Prediction of malignancy by CA 125, ultrasound and RMI was compared and analysed. The optimal sensitivity, specificity, positive predictive value and negative predictive value for RMI were at the cut off value of 200. The diagnostic performance of sensitivity, specificity, positive predictive value and negative predictive value of RMI at cut off value of 200 were 82.14%, 94.44%, 85.19% and 93.15% respectively. Though CA 125 was highly sensitive (sensitivity was 85.18%), specificity and PPV were poor.

The study showed that RMI has the better performance than CA 125, ultrasound score and menopausal score in the prediction of malignancy, particularly surface epithelial ovarian tumors. However in our study they failed to identify germ cell tumor and krukenberg tumor.

CONCLUSION

Risk of malignancy index is a reliable method for differentiating benign and malignant ovarian mass preoperatively. Risk of malignancy index is a multimodal approach that is simple and easily applicable in preoperative evaluation of patients with ovarian tumor. Risk of
malignancy index is a better diagnostic scoring index in discriminating benign and malignant tumor when compared to individual test of ultrasonogram or CA 125 level. The optimal cut off point that best distinguishes benign from malignant ovarian mass for RMI is 200 in the present study.

RMI is the most useful diagnostic index in proper selection of patients who may require referral to tertiary care centers.

Since the specificity of Risk of malignancy index is high, there is a potential role for this index in selection of cases for conservative management or minimal invasive surgery of benign cases like ultrasound guided aspiration or laparoscopic excision of the cysts.