OC03.03

Transvaginal colour Doppler ultrasound in early diagnosis of ovarian cancer: our experience since 1999

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Objectives: Ovarian cancer mortality remains high mainly due to late diagnosis. Since 1999, we have performed colour Doppler transvaginal (CDTV) ultrasound to screen for ovarian cancer. The purpose of this paper is to assess the efficiency of CDTV ultrasound to detect ovarian cancer in early stages.

Methods: Screening by CDTV ultrasound was annually performed in asymptomatic women with no family history of ovarian cancer. Women with abnormal screenings had repeat tests after four to six weeks. If the finding remitted, CDTV ultrasound follow-up was performed at one year. If the abnormality persisted, the study was completed with tumour markers, CT scan, and laparoscopy.

Results: A total of 606,770 CDTV ultrasound screenings performed in 153.403 women were reviewed. Malignant tumours were diagnosed and histologically confirmed in 107 patients. Borderline lesions were detected in 46 of them (44,2%). The mean age of the patients was 47 years (±±12). 76 (73%) of these tumours were in stage I (including two cases of Fallopian tube carcinoma); seven were in stage II; 21 were in stage III; and three lesions detected were metastases. 61 percent of the patients had normal levels of CA 125, measured after the lesions were detected by CDTV ultrasound study.

Conclusions: Although consensus about the benefits of transvaginal ultrasound as a screening procedure is not unanimous, our data suggest that tumours in patients screened with CDTV ultrasound are detected at earlier stages. Additional randomised studies are needed to support these findings.

OC03.04

An external validation of the O-RADS risk stratification to differentiate between benign and malignant adnexal masses

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Objectives: The aim of this study was to perform an external validation of O-RADS risk stratification to differentiate between benign and malignant adnexal masses.

Methods: This is a retrospective diagnostic accuracy study of data collected from patients with adnexal pathology who underwent transvaginal ultrasound, performed by gynecologists or radiologists prior to surgery. The study was conducted in a tertiary university oncology hospital between 2012 and 2020. All reports used the ovarian-adnexal reporting and data system by O-RADS group. Definitive pathology after tumour surgical removal was the reference standard used in this study. Sensitivity, specificity, positive (PPV) and negative predictive values (NPV) were calculated.

Results: A total of 746 patients were examined and reported. 29 women were excluded as they were not taken into surgery. A total of 717 women, 520 premenopausal and 197 postmenopausal, were included. The pathology report revealed 77 malignant and 640 benign tumours. O-RADS had a sensitivity, specificity, PPV and values NPV of 90%, 86%, 45% and 98%, respectively.

Conclusions: In this external validation study, the O-RADS risk stratification tool showed a high diagnostic performance for the differentiation between benign and malignant adnexal masses.

OC03.05

External validation O-RADS ultrasound risk stratification and management system

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Objectives: To assess the performance of O-RADS Ultrasound Risk Stratification to distinguish benign and malignant adnexal masses.

Methods: 262 adnexal lesions were included in 227 patients who underwent pelvic transvaginal ultrasound at a single-site tertiary care referral centre between August 2015 and April 2017. Exclusions included O-RADS 1 normal ovary, bilateral oophorectomy, pregnancy, incomplete imaging and high genetic risk for ovarian cancer. Adnexal masses were assessed by two independent readers blinded to clinical and histologic outcome who assigned O-RADS score based on criteria. Additional descriptors and clinical indices for the IOTA ADNEX model were also assessed and used to determine the ADNEX overall risk of malignancy. The reference standard was histopathology or minimum 2-year follow-up imaging. ROC curve analysis was used to assess the performance of the O-RADS model and to compare the O-RADS and ADNEX models.

Results: Of the 262 adnexal lesions, 187 (71.3%) were benign and 75 (28.6%) were malignant. All O-RADS 2 category lesions had benign outcome. The frequency of malignant outcome was 3.1% (1/32) for O-RADS 3, 34.9% (22/63) for O-RADS 4 and 77.6% (52/67) for O-RADS 5. AUC for O-RADS was 0.91 (95% CI 0.88-0.94) and 0.95 for the ADNEX model (95% CI 0.92-0.97) with ADNEX showing statistically significant better performance ($p < 0.05$). Adding acoustic shadowing as an independent variable to the O-RADS model increased the AUC 0.94 (95% CI 0.91-0.96), with no statistically significant difference between the adjusted O-RADS and ADNEX models ($p = 0.3$). The optimal threshold for distinguishing benign and malignant masses was O-RADS 3 with sensitivity 1 and specificity 0.53 (95% CI 0.46-0.61). Using O-RADS 4 as a cut-off resulted in decrease in sensitivity to 0.99 (95% CI 0.96-1) with increase specificity to 0.70 (95% CI 0.64-0.77).

Conclusions: The O-RADS Ultrasound Risk Stratification System can differentiate benign from malignant adnexal masses with high accuracy. The addition of acoustic shadowing to the ORADS model further improves diagnostic performance.

OC03.06

Origin of acoustic shadowing as a discriminatory tool in determining the nature of neoplastic adnexal masses

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Objectives: Acoustic shadowing is considered a predictor of benignity in adnexal masses but may also be seen in malignant ones. We aimed to investigate whether the origin of the shadow can help determine the nature of a mass.