19. MALIGNANCY RISK ASSESSMENT OF OVARIAN AND ADNEXAL LESIONS DISCOVERED ON ULTRASONOGRAPHY

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Introduction. Ovarian cancer is one of the most common gynecologic cancers. Accurate assessment of ovarian lesions is essential in planning clinical management. Ultrasound (US) is the first-line diagnostic tool in adnexal pathology evaluation. Multiple studies and expert consensus support the use of pattern recognition approach in discriminating benign and malignant ovarian lesions. However, the examiners expertise level varies widely. To improve assessment, standardized and evidence-based stratification risk rules and algorithms are developed.

Aim of study. In many cases, an US expert could determine the specific diagnosis of the ovarian lesion or limit it to a specific histological subtype. However, experts are not widely available. In order to standardize the assessment of ovarian findings discovered on US and increase diagnostic accuracy, in 2000 the International Ovarian Tumour Analysis (IOTA) group published a consensus paper on evidence-based terms and definitions to describe adnexal lesions. Also, Ovarian-Adnexal Reporting and Data System (O-RADS) was first published in 2018 the lexicon for US, providing standardized US descriptors of adnexal lesions. Thereafter, to assist clinicians with different levels of training in the stratification of malignancy risk, IOTA developed and validated US-based rules, as well as prediction models based on logistic regression analysis, incorporated later in O-RADS. The aim of study is to examine the current methods of the malignancy risk assessment of ovarian lesions discovered on ultrasonography.

Material and methods. A current literature review of relevant studies, consensus and guidelines were evaluated using the Medline database. Ultrasound, ovarian lesion, differentiation benign and malign were used as keywords for search. From 259 issues the most relevant 29 were evaluated.

Results. Subjective assessment by an expert US examiner has the best accuracy to predict the likelihood of ovarian malignancy. Alternatively, US-based rules, such as “IOTA Simple Rules” may be applied to a lesion based on the presence or absence of 5 benign and 5 malignant US features. The first multiclass risk prediction mathematical model Assessment of Different Neoplasias in the Adnexa (ADNEX) with or without CA125 levels allows discrimination between benign and malignant tumors. Also, estimates the likelihood and risk of any type of adnexal lesions and offers subclassing of malignancy into: borderline tumors, stage I and stage II-IV primary cancers and secondary metastatic tumors. A large multicenter study proved ADNEX as the best model for ovarian lesion assessment. Another effort to improve the US evaluation, reporting and management of a pelvic lesion is the O-RADS, representing a collaboration with the algorithmic-style IOTA ADNEXA model. For risk stratification, the system defines six categories (O-RADS 0–5) based on IOTA data, ranging from normal to high risk of malignancy. Management recommendations in the different risk categories are provided.

Conclusions: Assessment by expert examiners has the highest accuracy to distinguish between benign and malignant ovarian tumors discovered on US. Alternatively, the use of US-based diagnostic models (“Simple rules” and IOTA ADNEX) can assist clinicians to distinguish between benign and malignant ovarian tumors and provide the risk of malignancy. Further, the classification of the lesion into one of the O-RADS categories can guide the management and referral to the gynecological oncology center for differentiating between subgroups of malignancy using IOTA ADNEX or expert opinion.