19. Title: The external validation of International Ovarian Tumor Analysis (IOTA) ADNEX model in differential diagnosis of ovarian tumors.

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Introduction: The aim of the study was the external validation of the International Ovarian Tumor Analysis (IOTA) ADNEX model for differential diagnosis of adnexal tumors.

Material and methods: A total of 342 patients with adnexal masses (231 benign and 111 malignant) treated at the Division of Gynecologic Surgery, Poznan University of Medical Sciences, Poland were enrolled into the study. Prior to the surgery, clinical data and CA125 levels were obtained and the ultrasonography was performed by an experienced sonographer according to IOTA guidelines. We have evaluated the multiclass diagnostic performance of the ADNEX model with the incorporation of relative risk for the analyzed tumor type.

Results: The model achieved very high Area under ROC curve, which was equal to 0.921 (95%CI 0.881 - 0.951). The highest accuracy of the model was found at 30% threshold. At this threshold, the sensitivity, specificity, positive and negative predictive values were as follows: 90%, 84.2%, 73% and 94.8% respectively. In the multiclass analysis, sensitivity and specificity for the diagnosis of benign, borderline, stage I ovarian malignances, stage II-IV ovarian malignancies and metastatic tumors were as follows: 76% and 94%, 55% and 88%, 30% and 90%, 59% and 89%, 25% and 94% respectively.

Conclusions: The ADNEX model achieved very high accuracy in differentiating between malignant and benign adnexal tumors. The ADNEX model is characterized by very high specificity in multiclass differentiation of ovarian tumors.