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Editorial

Comparing prediction models for lymph node metastasis risk in endometrial cancer: the winner may not take it all

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▸ See the article "Comparison of three different risk-stratification models for predicting lymph node involvement in endometrioid endometrial cancer clinically confined to the uterus" in volume 28, e78.

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In the current issue of *Journal of Gynecologic Oncology*, Korkmaz and his/her colleagues [1] analyzed 3 risk-stratification models or guidelines for predicting lymph node involvement in endometrial cancer: the classification criteria from the Gynecologic Oncology Group (GOG) 99 study, the model from the Mayo Clinic study, and the European Society for Medical Oncology (ESMO)-modified criteria. After analyzing 625 women retrospectively, they found that the area under the curve (AUC) of the 3 classifications are very similar, 0.75, 0.76, and 0.78, respectively.

A few years ago, I reported similar analysis on the same journal analyzing 3 different risk classification criteria; 1) a model modified from the GOG pilot study; 2) one from the GOG-33 data; and 3) one from Mayo Clinic data [2]. The report concluded that the negative predictive values from the 3 models were very similar (97.1 to 97.4), and the negative likelihood ratios were very similar also (0.20 to 0.22). Similarly, in the report from Korkmaz et al. [1], the classification performance, especially negative predictive values and negative likelihood ratios, of the 3 studies were not much different across the 3 models. In the study, all 3 models showed false negatives in less than 5% of study population. Even if statistical analysis can found possible difference across the parameters, it is questionable that such small difference of negative likelihood ratios or negative predictive value can be resulted in clinically meaningful difference for patients given that the effect of lymphadenectomy on patient survival is negligible in endometrial cancer. Such small difference of false negatives across various models predicting lymph node metastasis in endometrial cancer comes from 2 factors; 1) the prevalence of lymph node is low in the overall endometrial cancer population; and 2) most models commonly relies on one strong key factor, myometrial invasion.

During the recent decades, the researchers competitively proposed various risk-classification models, and the trend is expected to be continued in upcoming decade. However, whether these extensive efforts improved clinical outcome and patient experience is questionable. Rather it should be admitted what may change patient outcome may not be which low risk-criteria we use, but the policy of clinician not to perform lymph node dissection in low risk patients. Therefore, it is questionable that gynecologic oncologists can choose one single winner among available low-risk models. In the real world, the clinicians' preference

for risk model is largely dependent on the available medical resources and socio-clinical situation. For example, we developed a low-risk prediction model for lymph node metastasis based on magnetic resonance imaging (MRI) and serum cancer antigen 125 (CA125) data [3-6]. Considering that MRI or serum marker tests are readily available and the cost is not so expensive in developed Asian countries such as Korea, Japan, or China, the approach was very reasonable. However, in some western countries, MRI or serum marker tests are too expensive to freely recommend in endometrial cancer, and there may be a concern for cost-effectiveness about the prediction strategy using MRI [7]. Therefore, considering the difference of practice environment, it may be more practical to allow any low risk model that meets certain requirements rather than to search a single winner. In my opinion, the requirements for clinically useful low-risk prediction model in endometrial cancer should meet following criteria. First, false negatives of a low-risk model should not exceed 4%. Second, the specificity of a low-risk model should be at least 50%. Third, the performance of the model should be externally and prospectively validated across multiple centers.

In conclusion, the current study successfully added more evidence to the existing knowledge about the diagnostic performance of well-known low risk models. However, any of 3 models does not outperform to urge gynecologic oncologists move from their current practice pattern to winner of this analysis.

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