investigated. Univariate and multivariable analysis (MVA) was performed.

Results Two hundred sixty-four patients were included. The median D90 was 89 (86–95) Gy. P16, PD-L1>1% and L1CAM>10% expression was noted in 81.4%, 17% and 17.4% respectively. P16 -ve status (OR 2.4 (1–5.7), p=0.04), necrosis on MRI (OR=2.1(1.1–4.3), p<0.02) independently predicted for HRCTV-BT >40cc in addition to FIGO stage and tumor width. PD-L1>1% was associated with reduced local (82% vs. 94%, p=0.02) and pelvic control (79% vs 89%, p=0.02). HRCTV D90 <85Gy was associated with inferior 5-year local control in p16+ patients especially if PDL-1 was co-expressed (figure 1). On MVA, PD-L1>1% was the only independent predictive factor for 5-year local event (HR 3.3, p=0.04) and L1CAM for pelvic event (HR 5.5 (1.3–23.3), p =0.02) (table 1).

Conclusion/Implications P16 -ve status and necrosis on MRI independently predict for poor response to EBRT (HRCTV-BT >40cc) and PD-L1 and L1CAM independently predict local and pelvic control suggesting impact of molecular features on radiotherapy response.Further validation is planned in EMBRACE-II.

AS16. Screening/Early detection

SO020/#114 PIVOTAL CLINICAL STUDY TO EVALUATE THE EFFICACY AND SAFETY OF AS-SISTIVE ARTIFICIAL INTELLIGENCE-BASED SOFTWARE FOR CERVICAL CANCER DIAGNOSIS

[1]Seongmin Kim*, [2]Sanghoon Lee, [2]Jae Yun Song. *[1]CHA Ilsan Medical Center, Gynecologic Oncology Center, Goyang-si, Korea, Republic of; [2]Korea University College of Medicine, Obstetrics and Gynecology, Seoul, Korea, Republic of*

10.1136/ijgc-2023-IGCS.34

Introduction The accuracy of colposcopy depends on the skill and proficiency of the colposcopist. This study evaluated the feasibility of an artificial intelligence (AI) system as an assistive tool for diagnosing high-grade cervical intraepithelial neoplasia lesions compared to the human interpretation of cervical images

Methods This two-centered, crossover, double-blind, randomized controlled trial included 886 randomly selected images. Four colposcopists (two proficient and two inexperienced) independently evaluated the cervical images once with and without the aid of the Cerviray AI® system (AIDOT, Seoul, Korea).

Results The AI aid demonstrated improved areas under the curve on the localization receiver-operating characteristic curve compared with the colposcopy impressions of colposcopists (difference 0.12, 95% confidence interval [CI], 0.10 – 0.14, p-value < 0.001). Sensitivity and specificity also improved on using AI system (89.18% vs. 71.33%; p < 0.001, 96.68% vs. 92.16%; p < 0.001, respectively). Additionally, the classification accuracy rate improved with the aid of AI (86.40% vs. 75.45%; p < 0.001).

Conclusion/Implications This study highlights the feasibility of using an AI system as an effective assistive tool for both proficient and inexperienced colposcopists in cervical cancer screening. AI interpretation can be used as an assisting tool in combination with human colposcopic evaluation of the exocervix.

AS06. Genetics and epidemiology

SO021/#370 IMMEDIATE GERMLINE SEQUENCING IS SUPERIOR TO MULTI-STEP SCREENING STRATEGIES FOR IDENTIFYING LYNCH SYNDROME IN WOMEN WITH SYNCHRONOUS/ METACHRONOUS ENDOMETRIAL AND COLORECTAL CANCERS

[1]Angel Chao*, [1]Chyong-Huey Lai, [2]Ren-Chin Wu. *[1]Chang Gung Memorial Hospital, Obstetrics and Gynecology, Guishan, Taiwan; [2]Chang Gung Memorial Hospital, Pathology, Guishan, Taiwan*

10.1136/ijgc-2023-IGCS.35

Introduction We investigated whether two-step testing strategies – consisting of multiplex ligation-dependent probe amplification, somatic mutation screening in cancer tissues, and microsatellite instability analysis – can improve the detection of LS in this clinical population. We also compared the clinical characteristics and overall survival (OS) of women with and without a final diagnosis of LS.

Methods A total of 31 Taiwanese women with synchronous or metachronous endometrial and colorectal malignancies underwent both universal screening – consisting of immunohistochemistry for mismatch repair protein expression, MLH1 promoter methylation analysis, and germline mutation testing – and two-step testing for the detection of LS.

Results On applying traditional universal screening, the prevalence of LS in the study patients was 16.1% (5/31). Interestingly, the application of extensive two-step molecular testing was able to identify three previously undetected cases. Patients with and without LS in our cohort did not differ significantly both in terms of clinical characteristics and OS.

Conclusion/Implications The application of extensive two-step molecular testing may increase the identification of cases that have been previously undetected on traditional universal screening. Patients with and without LS were found to be similar both in terms of clinical characteristics and OS.

AS11. Ovarian cancer

SO022/#851 DEVELOPMENT OF NEXT-GENERATION RNA SEQUENCING-BASED DEEP-LEARNING MODELS TO PREDICT CHEMORESISTANCE RISK IN HIGH-GRADE SEROUS OVARIAN CARCINOMA

[1]Se Ik Kim*, [2]Dong Won Hwang, [1]Maria Lee, [1]Yong-Sang Song. *[1]Seoul National University Hospital, Department of Obstetrics and Gynecology, Seoul, Korea, Republic of; [2]Seoul National University Hospital, Obstetrics and Gynecology, Seoul, Korea, Republic of*

10.1136/ijgc-2023-IGCS.36

Introduction To implement precision cancer medicine in ovarian cancer, precise prediction of treatment response and identification of patients at high risk of disease recurrence are the first steps. Thus, we aimed to develop a next-generation RNA sequencing-based deep-learning model predicting chemoresistance risk in high-grade serous ovarian carcinoma (HGSCC).

Methods We conducted next-generation RNA sequencing on fresh-frozen, chemotherapy-naïve primary HGSOC tissues from 86 patients. Patients were randomly divided into training and test sets at a 1:1 ratio. In the model development phase,

transcriptomic data from both the training set and The Cancer Genome Atlas HGSOC patients (n=419) were used. Using genes selected by the gene expression ratio analysis, we constructed and trained a deep neural network (DNN). Multiple DNN models were combined to build average ensemble models, which were further validated using the test set in the validation phase.

Results All patients in the study population received platinum-based combination chemotherapy: 15 and 71 were identified as chemoresistant and chemosensitive, respectively. Based on the gene expression ratio between chemoresistant and chemosensitive groups, we selected the top 70 genes with high expression ratios. Machine learning algorithms were applied to develop and train DNNs of the selected genes. Then, the five-fold average ensemble models were developed. Among the various ensemble models, the best model predicted chemoresistant cases with high accuracy (AUC, 0.925).

Conclusion/Implications We successfully developed next-generation RNA sequencing-based deep-learning models to predict chemoresistance risk after first-line platinum-based chemotherapy in HGSOC. These newly developed models would help the individualized management of HGSOC patients.

AS04. Endometrial/Uterine corpus cancers

SO023LBA/#1384 PROGNOSTIC PERFORMANCE OF THE 2023 FIGO STAGING SCHEMA FOR ENDOMETRIAL CANCER

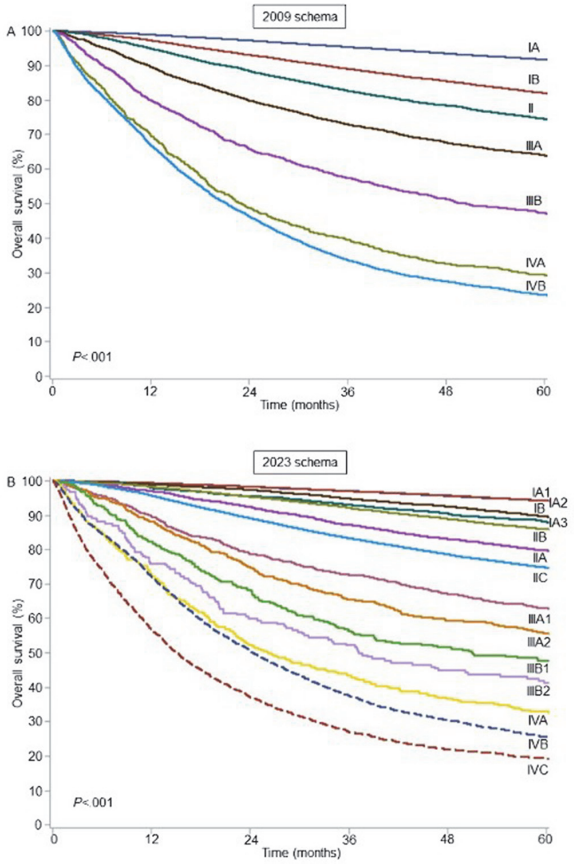
[1]Hiroko Machida*, [2]Ling Chen, [3]Maximilian Klar, [2]Matthew Lee, [1]Mikio Mikami, [4]Laila Muderspach, [5]Joseph Carlson, [4]Lynda Roman, [4]Koji Matsuo, [6]Jason Wright. *[1]Tokai University School of Medicine, Obstetrics and Gynecology, Isehara, Japan; [2]Columbia University College of Physicians and Surgeons, Department of Obstetrics and Gynecology, New York, USA; [3]University of Freiburg Faculty of Medicine, Department of Obstetrics and Gynecology, Freiburg, Germany; [4]University of Southern California,, Gynecologic Oncology, Los angeles, USA; [5]University of Southern California,, Department of Pathology, Los angeles, USA; [6]Columbia University, Obstetrics and Gynecology, New York City, USA*

10.1136/ijgc-2023-IGCS.37

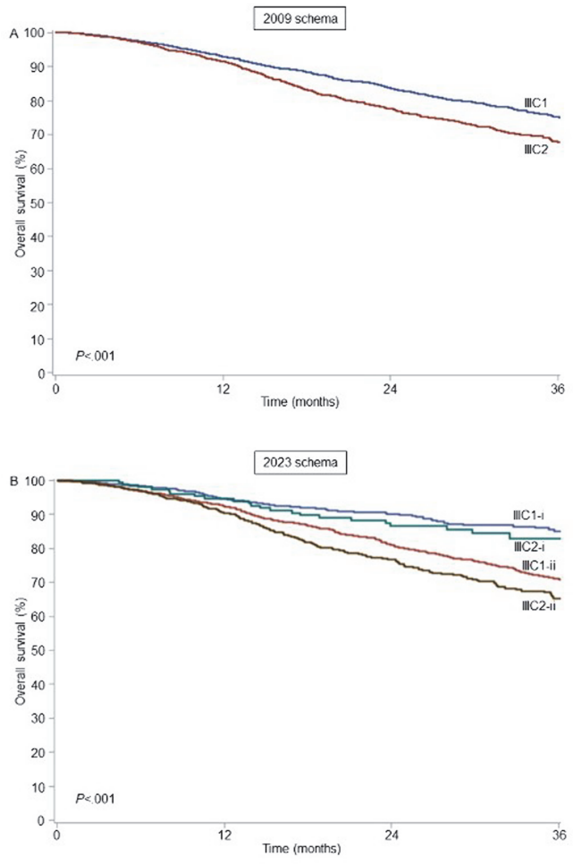
Introduction This study examined prognostic performance of the 2023 FIGO endometrial cancer staging schema.

Methods The National Cancer Database was retrospectively queried to examine 129,146 patients with stage I-IV endometrial cancer per the 2009 FIGO schema. Overall survival (OS) per the 2023 FIGO schema was assessed (figures 1–2).

Results In the 2009 schema, the inter-stage difference in 5-year OS rate was 68.2% (91.4% for IA and 23.4% for IVB; this widened to 74.9% in the 2023 schema (94.1% for IA1 and 19.2% for IVC). In the 2023 schema, 5-year OS rate of IIC was more than 10%-point lower compared to that of IA-IB (74.7% vs 88.0–94.4%). In the 2009 schema, 5-year OS rate of IIIA was 63.9%; this was greater segregated to 88.0% for IA3, 62.9% for IIIA1, and 55.7% for IIIA2 in the 2023 schema. This 5-year OS rate of new IA3 was comparable to IB in the 2023 schema (88.0% vs 89.5%). In the 2023 schema, irrespective to nodal metastatic sites, 3-year OS rates were similar in micrometastasis (IIIC1-i vs IIIC2-i, 84.9% vs 82.9%) but not in macrometastasis (IIIC1-ii vs IIIC2-ii, 71.1% vs 65.2%). In the 2009 schema, the 5-year OS rate of IVB was 23.4%; this was segregated to 25.4% for IVB and 19.2% for IVC in the 2023 schema.



Abstract SO023LBA/#1384 Figure 1



Abstract SO023LBA/#1384 Figure 2