Szu-Yu Huang 黃思于
(Y1)

Pretreatment Carcinoembryonic Antigen Can Assist Cancer Antigen 125 in predicting lymph node metastasis in endometrial carcinoma

Szu-Yu Huang[1], Hao Lin[1], Chen-Hsuan Wu[1], Shao-Chi Wang[1], Yu-Che Ou[2], Ching-Chou Tsai[1], Hung-Chun Fu[1] *

[1]Department of Obstetrics and Gynecology, Kaohsiung Chang Gung Memorial Hospital and Chang Gung University College of Medicine, Kaohsiung, Taiwan.

[2]Department of Obstetrics and Gynecology, Chia-Yi Chang Gung Memorial Hospital, Chia-Yi, Taiwan

Objective: To investigate the cost-effective pretreatment tumor markers CEA and CA125 to predict lymph node metastasis (LNM) in endometrioid endometrial cancer (EC) and to develop a prediction model.

Methods: We conducted this single-center retrospective study of endometrioid EC patients treated with complete staging surgery between January 2015 and June 2022. We attempted to identify optimal cut-off values of CEA and CA125 for predicting LNM using receiver operating characteristic (ROC) curves. Stepwise multivariate logistic regression analysis was used to identify independent predictors. A nomogram for predicting LNM was constructed and validated using bootstrap resampling.

Results: Based on the ROC curves, the optimal cut-off values of CEA and CA125 were 1.4 ng/ml (area under the ROC curve [AUC] 0.62) and 40 U/mL (AUC 0.75), respectively. Of the 405 patients evaluated, multivariate analysis showed that CEA (OR: 1.94; 95% CI: 1.01-3.74) and CA125 (OR: 8.75; 95% CI: 4.42-17.31) were independent predictors for LNM. Our nomogram showed good discrimination with a concordance index of 0.779. Calibration curves for the probability of LNM showed optimal agreement between the predicted and the actual probability. The risk of LNM for both markers below cut-off was 3.6%. The negative predictive value and negative likelihood ratio were 96.6% and 0.26, respectively, with moderate efficiency to rule out the possibility of LNM.

Conclusion: Here we reported a cost-effective method of using pretreatment CEA and CA125 levels to identify endometrioid EC patients at risk for LNM, which could be help in decision-making with regards to lymphadenectomy before surgery.

Shao-Chi Wang 王劭琪
(Y2)

Estrogen/Progesterone Receptor Expression and CA125 as Preoperative Predictors to Estimate Lymph Node Metastasis in Endometrial Endometrioid Cancer

Shao-Chi Wang[1] M.D.; Hung-Chun Fu[1] M.D. Ph.D.; Chen-Hsuan Wu[1] M.D.;
Yu-Che Ou[1,2] M.D.; Jui Lan[3] M.D.; Hao Lin[1] M.D.
[1]Department of Obstetrics and Gynecology, Kaohsiung Chang Gung Memorial Hospital and
Chang Gung University College of Medicine, Kaohsiung, Taiwan.
[2]Department of Obstetrics and Gynecology,
*Chia-Yi Chang Gung Memorial Hospital, Chia-Yi, Taiwan.*
[3]Department of Anatomic Pathology, Kaohsiung Chang Gung Memorial Hospital and
Chang Gung University College of Medicine, Kaohsiung, Taiwan.

Objective: We aimed to evaluate whether the combination of estrogen/progesterone receptor (ER/PR) expression and CA125 could be used as a biomarker to predict lymph node metastasis (LNM) in endometrioid-type endometrial cancer (EC).

Materials and Methods: We retrospectively investigated endometrioid EC patients treated with complete staging surgery between January 2015 and December 2020. Of the 396 patients evaluated, the optimal cut-off values of ER/PR H-score and CA125 were 407 (AUC 0.645, p=0.001) and 40 U/mL (AUC 0.762, p<0.001), respectively. Multivariate analysis showed that CA125 ≥ 40 U/mL (OR: 8.03; 95% CI: 3.44-18.77) and ER/PR H-score <407 (OR: 5.22; 95% CI: 1.87-14.60) were independent predictors. A LNM predictive nomogram was constructed using these two variables. Calibration curves for the probability of LNM showed optimal agreement between the predicted and the actual probability with a concordance index of 0.807. Our model gave a negative predictive value and a negative likelihood ratio of 98.3% and 0.14, respectively.

Conclusion: ER/PR expression combined with pretreatment CA125 can help estimate risk of LNM and aid in decision-making with regards to the need of lymphadenectomy in endometrioid-type EC patients.

Yen-Fu Chen 陳彥甫
(Y3)
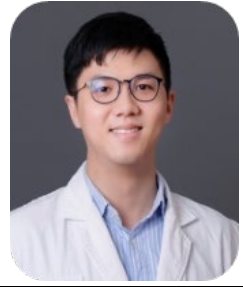
Maintenance chemotherapy in platinum-sensitive recurrent epithelial ovarian cancer

Yen-Fu Chen[1],MD

Chien-Hsing Lu[1], MD,PhD

[1]Department of Obstetrics and Gynecology, Taichung Veterans General Hospital, Taiwan.

Objective: To study whether maintenance chemotherapy lead to longer progression free survival in patients with platinum-sensitive relapsed epithelial ovarian cancer.

Materials & Methods: This is a retrospective cohort study with data from a tertiary medical center over a decade in Taichung city, Taiwan. A total of 72 patients who showed complete response or partial response after six cycles of second-line chemotherapy, based on the images of CT scan and incorporated the criteria of RECIST 1.1 and CA 125 Agreed by the Gynecological Cancer Intergroup (GCIG). They were divided into two groups according to the number of cycles of chemotherapy they received, which included a standard group (6 cycles) and a maintenance group (more than 6 cycles).

Results: Overall, 72 patients were included in this analysis: 41 in the maintenance group and 31 in the standard group. Of all patients, overall survival (OS) showed significant difference between standard and maintenance group (73.9 months v.s 35.7 months, p=0.031) favoring standard group. However, secondary cytoreduction surgery was performed less often in the maintenance group than in the standard group (17% versus 67.7%).

In patients without secondary cytoreduction surgery or radiotherapy, who received salvage chemotherapy alone (n=44), 29.5% (13/44) of patients received 6 cycles of chemotherapy and 70.5% (31/44) of patients received more than 6 cycles. There was no significant difference in OS and PFS between the two groups.

In subgroup analysis, patients who received salvage chemotherapy alone (n=44), there were 22 patients who presented partial response at the 6th cycle, 13.6% (3/22) of them received standard 6 cycles of chemotherapy and 86.4% (19/22) of them received more than 6 cycles. The maintenance group showed significant improvement in PFS over standard group (3.6 v.s 6.7 months, p=0.007), but there was no significance in OS between two groups.

Chin-Tzu Tien 田謹慈
(Y4)

Clinical characteristics and a two-year follow-up of unsatisfactory conventional Pap smears: a retrospective case-control study

Chin-Tzu Tien[1], Pei-Chen Li[1], Chi-Jui Chen[2], Dah-Ching Ding[1,3]*

[1]Department of Obstetrics and Gynecology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, and Tzu Chi University, Hualien 970, Taiwan.

[2]Department of Internal Medicine, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, and Tzu Chi University, Hualien 970, Taiwan.

[2]Institute of Medical Sciences, Tzu Chi University, Hualien 970, Taiwan.

Objective: The objective of this study was to follow up on 2-year of individuals having unsatisfactory reports of Pap smears and to analyze the contributing factors.

Methods: This was a retrospective study at Hualien Tzu Chi hospital that performed about 5,000– 6,000 Pap smears annually. Women who had unsatisfactory results due to scant cellularity between January 1, 2015– December 31, 2016, were included in this study. The control group comprised age-matched women with normal Pap smears at a 1:4 ratio during the same period. We followed the clinical characteristics and the two-year outcomes. Patients who were unavailable for follow-up assessments or had insufficient clinical information were excluded.

Results: A total of 887 Pap smears were included. 717 and 170 women had normal Pap and unsatisfactory Pap tests, respectively. After excluding women who were unavailable for follow-up, the final analysis included 248 and 67 women with normal and unsatisfactory Pap tests, respectively. The mean age was not significantly different between the two groups. Multivariate analysis revealed that premenopausal status and increased discharge were associated with the risk of unsatisfactory Pap tests. Of the 67 women with unsatisfactory Pap tests, all tested negative for malignancies at a two-year follow-up assessment.

Chien-Teng Liao 廖建滕
(Y5)

Evaluating Cervical Intraepithelial Neoplasia with Colposcopy Based on Artificial intelligence-assisted Model built by Convolutional Neural Network and Fuzzy Algorithm

Chien-Teng Liao[1], Yi-Hung Sun[1,2], Chih-Yu, Tsai[3], Kun-Da, Ho[1]

[1]Department of Obstetrics and Gynecology, Chimei Medical Center, Tainan, Taiwan

[2]Institutes of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan

[3]Institute of Electronic Engineering, National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan

Objective: Cervical cancer is one of the most common cancers in Taiwanese women. Regular cervical cytology is necessary for detecting lesions that are not evident before it evolves into cancer. Colposcopy is used to identify the dysplastic lesions early and treat them. However, colposcopy alone is known to miss approximately one-third of high-grade CIN. Recent reports have revealed a lower sensitivity of colposcopy and colposcopy-based biopsies than was generally expected previously and have raised considerable concerns about the probability of missed CIN2+. Various reasons have been proposed to explain this low sensitivity, including insufficient experience of the colposcopist, inability to target the abnormal area with the biopsy forceps, and the occurrence of lesions not being visible on colposcopy. For the above reason, we introduced the deep learning method to judge the degree of CIN through images from colposcopy. The judgment for the degree of the lesion is assisted by the risk factors related to the patient's physical and the colposcopy profile.

Materials and methods: In this study, we enrolled 3,000 colposcopy images from 1,000 patients from the department of obstetrics and gynecology of Chimei medical center as the research data. And we use the convolutional neural network to carry out the training and learning of feature extraction from these colposcopy images and then organize them through the images of designated cases. The changing profile is evaluated for similarity, and finally, the similarity and the patient's physical profiles, includes age, body mass index, and gravidity are evaluated through a fuzzy algorithm to strengthen the probability of determining the cervical intraepithelial neoplasia level. In this study, we used colposcopy images as training data according to three categories of CIN I, CIN II, and CIN III, and the colposcopy images in the three categories were randomly captured as test data.

Result: According to the experimental results, the verification accuracy of our model is at highest as 85.38% when the iteration = 250 while judging the possibility of CIN grade.

Conclusion: Through the analysis of the probability of lesion classification by the convolutional neural network model, combined with the patient's physical data, the prediction of the degree of the lesion is enhanced. So, doctors can avoid the subjective experience when computer-aided AI model can provide a diagnostic reference to physicians, to achieve auxiliary diagnosis and give the most suitable treatment to the patients.

Peng-Hsuan Huang 黃芃瑄
(Y6)

Predictors of Surgical Outcomes of Laparoscopic Myomectomy with Barbed Sutures

Peng-Hsuan Huang[1#], Hsin-Fen Lu[1#], Wan-Hua Ting[1], Hui-Hua Chen[1], Ho-Hsiung Lin[1,2], Sheng-Mou Hsiao[1,2,3*]

[1]Department of Obstetrics and Gynecology, Far Eastern Memorial Hospital, New Taipei, Taiwan

[2]Department of Obstetrics and Gynecology, National Taiwan University College of Medicine and National Taiwan University Hospital, Taipei, Taiwan

[3]Graduate School of Biotechnology and Bioengineering, Yuan Ze University, Taoyuan, Taiwan

Peng-Hsuan Huang and Hsin-Fen Lu contributed equally in this work.

Objective: Our study is aimed to identify predictors of surgical outcome of laparoscopic myomectomy with two different barbed sutures (i.e., V-Loc™ versus Quill™).

Methods: All consecutive women with symptomatic uterine myomas who underwent laparoscopic myomectomy were reviewed.

Results: Surgical outcomes did not differ between the V-Loc™ and Quill™ groups. Multivariable regression analyses revealed that the number of removed myoma (coefficient=6.7 minutes) and the diameter of the dominant myoma (cm, coefficient=4.5 minutes) were predictors of surgical time. Similarly, the number of removed myoma (coefficient=23.8 mL) and the diameter of the dominant myoma (cm, coefficient=48.6 mL) were the predictors for blood loss. The number ≥ 3 of removed myoma and the diameter ≥5.7 cm of the dominant myoma were the cutoff values to predict ≥240 minutes of surgical time. The number ≥3 of removed myoma and the diameter ≥8.0 cm of the dominant myoma were the cutoff values to predict ≥1000 mL of blood loss.

Conclusion: The number of removed myoma and the diameter of the dominant myoma can be used to predict surgical time and blood loss. In addition, the surgical outcome of laparoscopic myomectomy with the use of Quill[TM] suture seems similar to that of V-Loc[TM] suture.

Angel Hsin-Yu Pai 白欣玉 (Y7)

Unraveling the Epithelial Microarchitecture of the Endometrium in Patients with Adenomyosis

Angel Hsin-Yu Pai, MD[1] ,Chih-Feng Yen, MD, PhD[1,2] *

[1.] Department of Obstetrics and Gynecology, Chang Gung Memorial Hospital Linkou branch, and Chang Gung University College of Medicine, Taoyuan, Taiwan

[2.] School of Medicine, National Tsing Hua University, Hsinchu, Taiwan

Objective: As the first maternal layer of cells that an embryo comes into contact and communicates with, the endometrial luminal epithelium (LE) plays a crucial role in determining receptivity and embryo-endometrial crosstalk. Clinically, patients with adenomyosis often present with suboptimal reproductive outcomes, which suggests possible underlying disparities to normal population. The objective of this study is to investigate the morphological differences of the endometrial LE during window of implantation (WOI) in patients with adenomyosis.

Materials and Method: Biopsies of eutopic endometrium from patients with and without adenomyosis were collected throughout the menstrual cycle. After *in vitro* culturing, the endometrial glandular cells (EGCs) were first grown into a 3D spheroid of organoid then underwent treatment, fixation, and slicing into ultra-thin sections (60-70nm). Observed with both transmission electron microscopy (TEM) and scanning electron microscopy (SEM), the ultrastructure of LE and 3D spheroid of EGCs organoid were analyzed and compared. Additionally, immunohistochemistry (IHC) staining with primary monoclonal mouse anti-human acetylated α Tubulin antibody (Santa Cruz) was performed to localize the expression of surface cilia on the LE.

Results: SEM analysis identified four cell types with varying characteristics in the endometrial LE, which included microvilli-rich cells, pinopode cells, vesiculated cells, and ciliated cells. Meanwhile, TEM evaluation revealed notable differences between EGC of adenomyotic samples and control. Significantly less amount of microvilli and shorter primary cilia were observed on the cell surface of LE from patients with adenomyosis when compared to control samples. In addition, besides more scantily dispersed, the cilia of cultured EGCs from patients with adenomyosis were markedly shorter in length (200-600nm vs 500-1200nm) and slimmer in width, when compared to those of control.

Conclusion: This study has identified pronounced morphological differences in the LE of patients with adenomyosis that could have potentially affected their reproductive outcomes. Alteration or disruption of this histoarchitecture during WOI may impair the LE-embryo interaction and be detrimental to the process of implantation in patients with adenomyosis.

Chen-Ti Wang 王貞棣
(Y8)

Exploring the Endometrial Expression of Alpha1-Antitrypsin Isoforms in Patients with Endometriosis

Chen-Ti Wang, MD[1], Angel Hsin-Yu Pai, M.D[1], Hung-Hsueh Chou, MD[1,2], Ting-Chang Chang, MD[1], Wei-Chung Vivian Yang, PhD[3], Chih-Feng Yen, MD, PhD[1,2], *

[1] Department of Obstetrics and Gynecology, Chang Gung Memorial Hospital at Linkou; College of Medicine, Chang Gung University, Taoyuan,
[2] School of Medicine, National Tsing Hua University, Hsinchu, and
[3] The PhD Program for Translational Medicine, Taipei Medical University, Center for Reproductive Medicine, Taipei Medical University Hospital, Taipei, Taiwan

[Background and Objective] Alpha-1 antitrypsin (AAT) is a single-chain glycoprotein belonging to the serpin superfamily, with several isoforms of posttranslational glycosylation (isoAAT). IsoAAT functions as an endogenous protease inhibitor and plays a crucial role in safeguarding tissues against inflammatory cell-released enzymes. Serum isoAAT levels have been proposed as a potential marker for extrauterine endometriosis, with a higher sensitivity and specificity than CA-125. This study aimed to assess the endometrial expression of isoAAT in patients diagnosed with endometriosis.

[Materials and Methods] A retrospective laboratory analysis of surgical specimens obtained from endometrioma patients with age < 42 years during 2009/07-2013/12 was conducted. Paired endometrial tissue biopsies from the eutopic endometrium, ovarian endometriosis, and pelvic endometriosis, in the proliferative and secretory phase, were included. Immunohistochemistry (IHC) staining using primary monoclonal mouse anti-human AAT antibody (V-Check, Taiwan) was performed to localize the expression of isoAAT. HSCORE ranging between 0 - 300 was used to assess staining quantity and intensity. Mean±SD was used to express the data.

[Results] The study included 24 patients, with 12 patients in the proliferative phase (mean age: 34.3±4.3 years) and 12 patients in the secretory phase (mean age: 33.2±5.6 years). IHC staining showed isoAAT expression in both the eutopic and ectopic endometrial tissue. Notably, isoAAT expression was predominantly observed in the endometrial stromal cells rather than in the glandular cells. Furthermore, isoAAT expression was substantially increased during the secretory phase compared to the proliferative phase. In specimens of ovarian endometrioma, isoAAT expression was exclusively observed in the ectopic endometriotic tissue, while the fibrotic capsule and ovarian parenchyma had various staining intensities.

[Conclusion] The findings imply that isoAAT expression manifests in both eutopic and ectopic endometrial tissues in patients of endometriosis. The discerned expression pattern of isoAAT, characterized by heightened expression in the endometrial stromal cells and the secretory phase, insinuates a plausible application for the diagnostic and therapeutic management of endometriosis. Extensive studies are undergoing.