INNO-LiPA Extra-II kit (Fujirebio), based on PCR-reverse hybridization.

Results Among 110 women with CIN2/3 (n=19) and invasive cancer (n=91), early antibodies to any HPV early antigen were detected in 58 (53%). The difference between CIN2/3 (47.4%) and cancer (53.8%) was not significant (p=0.62). All 58 were positive for antibodies to HPV16 CE2/NE6/E7. HPV18/31/45 E7 antibodies were detected additionally in 1.1 and 2 cases, respectively. Among 40 controls (normal cytology and negative HPV DNA on Hybrid Capture), any early HPV antibodies were detected in 8 (20.0%) cases with HPV16 CE2/NE6/E7 in 3 (7.5%), HPV18 E7 in 2 (5%), HPV31 E7 in 5 (12.5%), and HPV45 E7 in 3 (7.5%). On HPV genotyping, 88 (80.0%) cases had any high-risk (hr)HPV type, commonest being HPV16(69%), HPV18(5%), HPV31/33(3% each), HPV35/45/59(2% each). Single hrHPV infections were detected in 77 patients, 7 had single hrHPV infections other than HPV16. Multiple hrHPV infections were detected in 11 (10%) patients.

Conclusions The serological test detects a high proportion of cases detected by INNO-LiPA. Further development of this simple, affordable technology holds promise to facilitate cervical screening and triage in community settings.

DEEP LEARNING BASED PREDICTION OF CERVICAL INTRAEPITHELIAL NEOPLASIA ON COLPOSCOPY

Angela Cho, Shin Eunseo*, Chul Min Park, Sungyob Kim. Jeju National University Hospital, Obstetrics and Gynecology, Jeju, Korea, Republic of

Objectives Deep learning is a type of machine learning that uses a neural network structure composed of multiple layers through data learning. Among artificial neural networks used for deep learning, convolutional neural networks show excellent performance in image recognition and classification, and are mainly used to analyze visual images. However, there have been few studies about CNN based prediction of cervical intraepithelial neoplasia yet. The purpose of this study is to examine whether the accuracy of CNN model to detect high grade squamous intraepithelial lesion (HSIL) on colposcopic image can be improved when segmentation information for acetowhite epithelium is added.

Methods We collected 3,699 images of colposcopy conducted at Jeju National University Hospital from 2008 to 2021. The images were labeled with negative (negative colposcopic findings without biopsy), chronic cervicitis and low grade squamous intraepithelial lesion on biopsy) and positive (HSIL on biopsy). We composed dataset with collected images and augmented dataset to 20,000 images, and using Resnet-18, -50, -101 model, we classified colposcopic images into negative and positive. Then, we segmented acetowhite epithelium on colposcopic images using SegNet, and add these segmented images for classification.

Results Using Resnet-18, -50, and -101 model, the sensitivity in intraepithelial neoplasia yet. The purpose of this study is to examine whether the accuracy of CNN model to detect high grade squamous intraepithelial lesion (HSIL) on colposcopic image can be improved when segmentation information for acetowhite epithelium is added.

DETECTION OF PROGRESSION OR REJECTION OF GYNECOLOGIC CANCERS BY CIRCULATING TUMOR DNA (ctDNA)

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Objectives The use of post-operative circulating tumor DNA (ctDNA) to detect cancer recurrence has been reported in various studies but the literature describing variable changes in ctDNA is limited. The objective of this study is to describe the utility of single and serial ctDNA values in detecting the progression or regression of gynecological cancers.

Conclusions Establishment of national large level population-based mammography screening appears to be feasible. Women can be mobilized to attend. Substantial number of early cancers can be detected which would lead to cancer mortality reduction.
Methods This is a retrospective observational study including nineteen patients, aged $\geq$18 years who had the ctDNA test completed at hematology/oncology clinic of William Beaumont – Royal Oak and Troy Hospitals, Michigan, USA.

Results Among the nineteen patients, fifteen had breast, three had ovarian, and one had endometrial cancer. The median age at diagnosis was 57 years, and 73.7% of patients had either stage III or IV disease. Our primary endpoint, the correlation of single ctDNA results with imaging showing either progression or residual disease, showed a sensitivity and specificity of 100% and 93.3%, respectively. Secondly, serial ctDNA analysis in ten patients revealed both sensitivity and specificity of 100% for up-trending ctDNA to detect progression, down-trending to detect regression, and negative results to detect the absence of disease. The positive ctDNA results detected disease progression with a median lead-time of 36.5 days compared to imaging.

Conclusions Given the high sensitivity and specificity to detect disease progression and regression in gynecologic cancer by single and serial values in our study, we conclude that ctDNA can be a valid way to monitor for changes in disease status. Further clinical studies are required to prove the utility of ctDNA in detecting changes in disease status.

Abstract EP349/#554 Table 1

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Receipt of Same Day HPV Results</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes N=531 (74.3%)</td>
<td>No N=184 (25.7%)</td>
</tr>
<tr>
<td>Arrival time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 09:00</td>
<td>98 (89.0%)</td>
<td>12 (11.0%)</td>
</tr>
<tr>
<td>09:00-09:59</td>
<td>183 (86.3%)</td>
<td>29 (13.6%)</td>
</tr>
<tr>
<td>10:00-10:59</td>
<td>142 (72.4%)</td>
<td>54 (27.6%)</td>
</tr>
<tr>
<td>11:00-11:59</td>
<td>66 (64.1%)</td>
<td>37 (35.9%)</td>
</tr>
<tr>
<td>12:00-12:59</td>
<td>36 (59.0%)</td>
<td>25 (40.1%)</td>
</tr>
<tr>
<td>After 13:00</td>
<td>6 (18.2%)</td>
<td>27 (81.8%)</td>
</tr>
</tbody>
</table>

Objectives 1. To determine the role of HPV testing after excisional treatment of cervical precancer. 2. To determine clinical factors associated with persistence of cervical precancer post-treatment.

Methods A retrospective chart review was conducted on patients who had a LEEP for cervical precancer (CIN3/AIS/HSIL) between 2016–2018 at a colposcopy unit in a university-affiliated centre in Toronto. Persistence/recurrence of disease was defined as a finding of high-grade cytology or pathology results during the time of follow-up. Univariate and multivariate regression models were run with persistence/recurrence and HPV positivity at exit testing as an outcome.

Results A total of 284 patients were included. The median follow-up time was 19 months. Of the LEEP specimens, 90.8% (n=258) demonstrated HSIL and 3.9% (n=11) had AIS. 28.5% (n=81) of the LEEP specimens had positive margins. In follow-up, 72.9% had negative cytology, 17.6% had ASCUS/LSIL, 1.8% had ASC-H/LSIL-H and 6.7% had HSIL. At the final follow-up, 27.8% (n=79) were HPV+.

Overall rate of persistence/recurrence was 11.3% (n=32); median time to persistence/recurrence was 6.5 months. Multivariate regression models demonstrated that follow-up HPV positivity (OR=22.0) and positive margins (OR=3.7) were significant for predicting persistence/recurrence. Similarly, in univariate regression models, positive margins were significant (OR=2.2) for predicting HPV positivity in exit testing.

Conclusions Persistence/recurrence of precancer can occur due to incomplete treatment of lesions by local excision and by persistence of HPV infection. Surveillance strategies for women treated for cervical precancer require a risk-based approach such as that suggested in the ASCCP guidelines.