Diagnostic efficacy of optical coherence tomography in the management of CIN

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Objective: Optical coherence tomography (OCT) is a noninvasive high resolution imaging technique that permits characterization of microarchitectural features up to 2mm in depth in real time. The purpose of this study was to evaluate the feasibility of OCT in the characterization of preinvasive and invasive cancer of the uterine cervix.

Patients and Methods: We conducted a single-institution, board–approved, prospective study on the use of OCT in women with suspected CIN. The images were immediately evaluated independently by two investigators. In addition they were compared to the corresponding histology. Sensitivity and specificity of the new technique were calculated.

Results: We compared 189 images with corresponding histology in 106 women undergoing colposcopy for suspected CIN. With 130 (127) true positive, 22 (23) true negative, 34 (33) false positive and 3 (6) false negative results the sensitivity calculated for both investigators with the threshold at CIN1 was 98% and 95% respectively. The specificity was 39% and 41% respectively.

Conclusion: OCT is a rapid, easy-to-use modality that provides real time microarchitectural information of the cervical epithelium. There is a potential role envisioned for this new technique in the management of preinvasive and invasive cancer by identifying pre-malignant states and the depth of tumor invasion.