C-45

Accuracy of Ki-67 Index Obtained from FNA Specimens in the Diagnosis and Grading of Pancreatic Neuroendocrine Tumors

Austin Livingston[1]; Erin Strong[1]; Kathleen Christians[1]; Susan Tsai[1]; Abdul Khan[1]; Kulwinder Dua[1]; Bryan Hunt[1]; Catherine Hagen[1]; Douglas Evans[1]; Callisia Clarke

[1]Medical College of Wisconsin

BACKGROUND: Proliferative index as determined by Ki-67 immunostaining of histology sections (IHC)carries significant prognostic and therapeutic relevance for patients with pancreatic neuroendocrine tumors (pNETs). However, the experience with assessment ofKi-67 from needle biopsy specimens (endoscopic ultrasound-guided fine-needle aspiration; EUS-FNA) is not well defined. Importantly, FNA biopsy is the most common form of tissue acquisition used to confirm the diagnosis of a potentially malignant neuroendocrine tumor.

METHODS: We performed a retrospective of all patient with suspected pNET referred for diagnostic EUS-FNA at the Medical College of Wisconsin between 2009 and 2018. We compared the Ki67 index obtained from FNA biopsies (cytology) and tumor histology.

RESULTS: EUS-FNA of pNETs was performed in 80 consecutive patients and was diagnostic in 69 (86%). Of the 11 (14%) non-diagnostic samples, 9 had insufficient tissue, 1 was unable to be classified by cytomorphology, and 1 was unsuccessful due to tumor anatomy. Surgical specimen were available for comparison with the FNA biopsies in 51(73.9%) of the 69 patients. Cytologic Ki-67 correlated with histologic Ki-67 (Pearson's coefficient r= 0.92). Using histology as the gold standard, 43 (84%) of 51 tumors were accurately graded by cytology. Of the 26 histologic G1 tumors, 25 (96%) were accurately identified by cytology and 1 was inaccurately classified G2. Of 17 G2 tumors, 11 (65%) were correctly classified on cytology and 6 (35%) were inaccurately classified as G1. All 7 G3

tumors were accurately graded on cytology. Overall accuracy in classification was 44 (86%) of 51. 49 (98%) tumors were accurately deemed well–differentiated on cytology, while 1 G3 well differentiated pNET was in accurately reported to be poorly differentiated.

CONCLUSION: Ki-67 index as determined on cytology by EUS-FNA biopsy correlates with the histologic assessment of Ki-67. G2 tumors at the lower end of Ki-67 are at highest risk of being misclassified.