The international debate on EBBC-efficacy of bronchial brush cytology in evaluation of bronchopulmonary lesion

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Background: Fiber optic bronchoscopy is the most commonly used method for diagnosing lung cancer. Several techniques such as biopsy, bronchial brushing and bronchial washing are traditionally used together because of their combined high diagnostic value.

Objective: The main objective of this study was to evaluate the efficacy of bronchial brush (BB) cytology in comparison to bronchial wash cytology (BW) in the diagnosis of bronchopulmonary lesions.

Methods: Totally 1,691 patients (77% males and 23% females) were investigated for suspected lung cancer between January 2000 and December 2010 in Rizgary Teaching Hospital in Erbil, Kurdistan. The age of patients varied between 11 to 100 years. Flexible bronchoscopic samples of bronchoalveolar lavage (wash) and bronchial brush cytology were taken and processed as per standard procedures of cytology.

Results: The results indicated that the mean age was 62.2±0.35 for the male patients and 57.5±0.77 for female patients. We found that 92.5% of the male patients and 54.1% of the female patients were smokers. Clinical findings and bronchoscopy examination showed that 693 patients had lung cancer, 83.7% of them were males and only 16.3% were female patients, with male to female ratio approximately 5:1.

Pulmonary cytology from BB and BW is valuable tool in the diagnosis of lung malignancies and has been used in the present study. Complete cytological results were available from 1,074 patients. Cytology revealed 19% cases of malignancy and 10% were diagnosed as atypical/suspicious. Benign and inadequate (hypocellular specimens) were 74% and 7.2% respectively. Interestingly, it has been found that 57% of the malignant samples were from BB cytology compared to 43% from BW cytology. Further, it was found that atypical/suspicious and hypocellular samples from BB cytology were 20% and 9%, respectively, compared to 80% and 91% respectively, from BW cytology (p<0.001). BB cytology showed 65% sensitivity, 90% specificity and 71% accuracy, while BW cytology showed 48.5% sensitivity, 81% specificity and 68% accuracy. Positive predictive value and negative predictive value from BB cytology were 95% and 44.3% respectively, while the values for BW cytology were 62% and 71% respectively. The most common type of tumors found in this study was squamous cell carcinoma.

Conclusion: This study confirms that bronchial brush cytology was superior to bronchial wash cytology in the diagnosis and morphological typing of lung cancers