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Title: Diagnostic yield, clinical impact and cost aspect of EBUS-TBNA in mediastinal staging in lung cancer

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Body: Background: In lung cancer minimally invasive staging of the mediastinum with endobronchial ultrasonography with transbronchial needle aspiration (EBUS-TBNA) has become an important alternative to the gold standard of mediastinoscopy. Aims: First: To determine the diagnostic yield of EBUS-TBNA and calculate the reduction in number of mediastinoscopies that can be achieved when this technique is used as initial modality for mediastinal staging in lung cancer. Second: Calculate the reduction in health care costs when EBUS-TBNA is used in this setting. Methods: In a retrospective cohort study all patients in our hospital in whom EBUS-TBNA was performed for mediastinal staging in lung cancer from September 2008 until January 2011 were identified and the results of EBUS-TBNA were analysed. If metastatic tumour cells were found there was no indication for additional mediastinoscopy. Diagnostic yield of EBUS-TBNA and the number of mediastinoscopies that were avoided were calculated, as well as the achieved cost reduction. Results: EBUS-TBNA was performed on 77 patients for mediastinal staging: 47 male and 30 female, average age 62.1 years (extremes 39-81). In 51% of patients (39/77) mediastinal lymph node metastasis were found and mediastinoscopy could be avoided. Sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy were 91%, 100%, 100%, 80% and 93% respectively. The achieved cost reduction was € 321 per patient (31%). Conclusion: Mediastinoscopy can be avoided in more that 50% of lung cancer patients when EBUS-TBNA is used as initial staging modality for mediastinal staging, leading to a significant reduction of health care costs.