Endosonography vs. conventional bronchoscopy for the diagnosis of sarcoidosis: A randomized controlled trial

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Background: Tissue verification of non-caseating granulomas is recommended for diagnosing sarcoidosis. Granulomas can be detected by transbronchial lung biopsies at bronchoscopy (guideline standard) or alternatively by endosonography with fine-needle aspiration of intrathoracic lymph nodes. The current standard has limited diagnostic yield and is associated with pulmonary hemorrhage and pneumothoraces. Methods: A randomized controlled trial to compare both diagnostic methods performed in 14 hospitals in 6 countries between 3/2009 and 11/2011. Patients with suspected sarcoidosis stage I/II in whom tissue verification was indicated were randomly assigned to bronchoscopy with transbronchial and endobronchial biopsies (arm A) or endosonography-guided fine-needle aspiration of mediastinal/hilar lymph nodes (arm B). Additionally, all patients underwent bronchoalveolar lavage (BAL). The primary end point was the detection of granulomas. Results: 149 patients were randomized to bronchoscopy, 155 to endosonography. Significantly more granulomas were found in arm B (114 patients, 74%) versus arm A (72 patients, 48%) (p<0.01). Sensitivity to detect granulomas for arm B was 80% (95% CI, 73%-86%); for arm A 53 % (95% CI, 45%-61%). Sensitivity of the BAL for sarcoidosis based on CD4/CD8 ratio was 54% (95% CI, 46%-62%) for flow-cytometry; 24% (95% CI, 16%-34%) for cyospin analysis. Two serious adverse events occurred in arm A, one in arm B; all patients recovered completely. Conclusions: Endosonography with nodal aspiration is superior to bronchoscopy with transbronchial and endobronchial biopsies for the assessment of granulomas in patients with sarcoidosis stage I/II.