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Title: Bacteriological analysis of lower respiratory tract in patients with rheumatoid arthritis and other collagen vascular diseases

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Body: Background Lower respiratory tract infections (LRTI, bronchiectasis, bronchitis and bronchiolitis) are common comorbidities in patients with rheumatoid arthritis (RA). According to the recent advances of the treatment modalities of RA and other collagen vascular diseases (CVD) including anti-inflammatory biological agents, an aggressive diagnosis of LRTI including nontuberculous mycobacteriosis (NTM) is becoming more important. Patients and Methods From April 2008 to August 2011, patients with RA and other CVD with suspicion of NTM were enrolled. Additionally, patients with non-CVD with suspicion of NTM were also enrolled as controls. Bronchial washing were directly obtained from the pathological lesions, and bacteriological analyses were demonstrated. Chest CT findings were also evaluated. Results A total of 106 patients (41 with RA, 22 with CVD other than RA and 43 with non-CVD) were enrolled. *P. aeruginosa* (26.8%) were the most frequently detected in patients with RA, followed by *S. aureus* (19.5%) and NTM (7.3%). In patients with CVD other than RA, *P. aeruginosa* (9.1%), *S. aureus* (13.6%), NTM (4.5%) were detected. Additionally, *P. aeruginosa* (7.0%), *S. aureus* (11.6%) and NTM (25.6%) were detected in non-CVD patients. Chest CT findings of patients with RA complicating *P. aeruginosa* infection demonstrated that these patients showed more widespread of granular opacities and bronchiectasis and tendency of exacerbation of these pathological lesions. Conclusion *P. aeruginosa* was frequently detected in patients with RA complicating LRTI, and it is speculated that *P. aeruginosa* infection in patients with RA seemed to be an indicative factor of exacerbation of LRTI.