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Title: Neutrophil-dominant inflammation is associated with severity in high-resolution computed tomography (HRCT) findings in patients with nontuberculous mycobacterium (NTM) infection

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Body: RATIONALE: Pulmonary NTM infections are being recognized worldwide with increasing frequency in immunocompetent patients. The clinical course of this disease varies among patients. However, the mechanism and factors associated with deterioration is not completely understood. The aim of this study was to evaluate the association between cell differentiation status in bronchoalveolar lavage (BAL) fluids and the severity of HRCT findings in patients with NTM infection. METHODS: Twenty immunocompetent patients who were diagnosed with a lung NTM infection by positive cultures and 20 healthy controls were enrolled. Based on the preferential percentage of neutrophils and lymphocytes in BAL fluids, patients were divided into two groups; a neutrophil-dominant and a lymphocyte-dominant group. The HRCT scores indicating the extent and severity of airway disease (modified method of Fowler et al. Eur Respir J 2007) was compared between the groups. RESULTS: The numbers of neutrophils and lymphocytes were significantly higher in patients with NTM (17.4 ± 6.7 and $6.9 \pm 2.1 \times 10^4/\text{ml}$) than those in healthy controls (0.1 ± 0.1 and $0.8 \pm 0.2 \times 10^4/\text{ml}$) ($p < 0.01$, respectively). Among the NTM group, HRCT scores of the lobe in which BAL was performed in the neutrophil-dominant group (8.0 ± 0.7) were significantly higher than the lymphocyte-dominant group (1.7 ± 0.4) ($p < 0.01$). CONCLUSION: Neutrophil-dominant inflammation due to pulmonary NTM infection was related to severity of HRCT findings in patients with NTM infection. These results will help in understanding the biological defense mechanism against NTM.