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Title: Is low body fat responsible for increased susceptibility to nontuberculous mycobacterial lung disease?

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Body: Background: Nontuberculous mycobacterial lung disease (NTMLD) in immunocompetent patients without previous lung disease is increasing. Purpose: To determine the hypotheses that leaner individuals with low body fat is a predisposing factor of NTMLD. Methods: Following a retrospective review of clinical data and radiographic findings of the chest between January 2005 and December 2012, 148 patients with NTMLD were enrolled in this study. We evaluated the extent of lung involvement on chest computed tomography (CT) based on the lobar distribution and subcutaneous fat mass (SFM) using cross-sectional CT scans at mid pole level of left kidney. An age- and sex-matched control group consisted of 142 with negative chest CT finding. We compared the SFM between the control and NTMLD, and evaluated relationship between SFM and disease severity according to the extent of NTMLD. Results: The median age of patients was 62 years (23-95), and 60.8% of patients were female. 70.9% were classified into nodular bronchiectatic group. The NTMLD group had significantly lower SFM than the control group (39.3 vs 53.0, p=0.001). In NTMLD, patients with fibrocavitary type showed lower SFM than patient with nodular bronchiectatic type (23.6 vs 41.9; p=0.014). There was no significant difference in SFM between localized (≤ 3 lobes) disease and extensive (> 3 lobes) disease (43.5 vs 35.9, p=0.06). In nodular bronchiectatic type, the difference in SFM according to disease severity was not shown (localized vs. extensive, 19.3 vs 26.7; p=0.788). Conclusion: Patients with NTMLD had low body fat, that was measured by SFM in chest CT. Low body fat appears to be responsible for host susceptibility to NTMLD.