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Title: The decrease of surfactant protein D in bronchoalveolar lavage fluid in patients with idiopathic pulmonary fibrosis and nonspecific interstitial pneumonia

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Body: Background: Surfactant protein (SP)-A and SP-D are useful biomarkers for the diagnosis and evaluation of activity of interstitial lung diseases. SP-A and SP-D, which are lung specific proteins, belong to a subgroup of the C-type lectin superfamily. It has been reported that those proteins play important roles in fibrotic lung. Although they are mainly produced by type II pneumocytes and clara cells, it is not clarified these production and clearance in fibrotic lung. Methods: To elucidate those issues, we measured levels of SP-A, SP-D and KL-6 by enzyme-linked immunosorbent assay in BAL fluid (BALF) and serum of 24 IPF patients, 36 NSIP patients (8 patients diagnosed by surgical biopsy, 28 patients clinically diagnosed) and 17 sarcoidosis patients. The levels of SP-A and SP-D in BALF were compared with those from 20 healthy controls. We investigated also the relationship of protein levels between serum and BALF. Results: In IPF and NSIP patients, SP-D levels in BALF were significantly lower than those from healthy controls ($p=0.006$ and $p=0.003$) and sarcoidosis patients ($p=0.02$ and $p=0.01$). SP-A levels in BALF were no significant difference among these patients and controls. The significant positive correlation of SP-D levels between serum and BALF was found in IPF patients ($r=0.529$, $p=0.008$). In NSIP patients, the correlation of SP-D levels between them was not significant. No correlation of SP-A levels between serum and BALF was observed in any patients groups. Conclusion: In IPF patients, SP-D levels in BALF were lower than those in healthy controls and had significant positive correlation with those in serum.