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Title: Different cutoff values of serum SP-D for German and Japanese to diagnose idiopathic interstitial pneumonias are related to different SFTPD gene polymorphisms

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Body: Introduction: Surfactant protein (SP) -D is a member of the C-type lectin superfamily. Serum SP-D is applied as a diagnostic biomarker for various interstitial lung diseases in Japan, but not in European countries. It is also known that rs721917 single nucleotide polymorphism (SNP) in surfactant protein D (SFTPD) gene might influence serum SP-D levels. Aims: This study was aimed to evaluate serum levels and genetic backgrounds of SP-D both in German and Japanese cohorts. Methods: Serum levels of SP-D were measured and compared between patients with idiopathic interstitial pneumonias (IIPs) and healthy subjects (HS) both in German and Japanese cohorts. In addition, rs721917 SNP was genotyped by polymerase chain reaction. The power of serum SP-D to discriminate IIPs from HS was examined by receiver operating characteristic analysis based on ethnicity and rs721917 genotype. Results: The serum levels of SP-D in IIPs were significantly higher than in HS for both German and Japanese cohort (both $p < 0.001$). The discriminating cutoff values of serum SP-D were higher in the German than in the Japanese cohort. Furthermore, the T/T genotype of rs721917 SNP, which is more frequent in German HS than in Japanese HS, was correlated with high levels of serum SP-D, and the cutoff value of serum SP-D was different according to rs721917 genotype. Conclusions: Our data suggest the possibility of serum SP-D to be used as diagnostic biomarkers for IIPs in Germans. The cutoff value of serum SP-D is higher in the German than in the Japanese cohort, and this difference might be related to the difference of rs721917 genotype distribution.