Isolation and characterization of microparticles in sputum from cystic fibrosis patients

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Résumé en anglais	BACKGROUND: Microparticles (MPs) are membrane vesicles released during cell activation and apoptosis. MPs have different biological effects depending on the cell from they originate. Cystic fibrosis (CF) lung disease is characterized by massive neutrophil granulocyte influx in the airways, their activation and eventually apoptosis. We investigated on the presence and phenotype of MPs in the sputum, a rich non-invasive source of inflammation biomarkers, of acute and stable CF adult patients.METHODS: Spontaneous sputum, obtained from 21 CF patients (10 acute and 11 stable) and 7 patients with primary ciliary dyskinesia (PCD), was liquefied with Sputasol. MPs were counted, visualized by electron microscopy, and identified in the supernatants of treated sputum by cytofluorimetry and immunolabelling for leukocyte (CD11a), granulocyte (CD66b), and monocyte-macrophage (CD11b) antigens. RESULTS: Electron microscopy revealed that sputum MPs were in the 100-500 nm range and did not contain bacteria, confirming microbiological tests. CF sputa contained higher number of MPs in comparison with PCD sputa. Levels of CD11a+-and CD66b+-, but not CD11b+-MPs were significantly higher in CF than in PCD, without differences between acute and stable patients. CONCLUSIONS: In summary, MPs are detectable in sputa obtained from CF patients and are predominantly of granulocyte origin. This novel isolation method for MPs from sputum opens a new opportunity for the study of lung pathology in CF.
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