Abstract

The effect of smoking on neutrophil function

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To investigate the role of the neutrophil in the pathogenesis of pulmonary emphysema, we studied the kinetics of radiolabelled neutrophils in the lungs of smokers and non-smokers. Neutrophils were transiently delayed in the lungs during smoking. Furthermore, because of their size, neutrophils must deform in negotiating the pulmonary capillary bed. Exposure to cigarette smoke in vitro decreased the ability of neutrophils to pass through a micropore filter with pore dimensions similar to those of the pulmonary capillary segments, suggesting a decrease in cell deformability. Smoke exposure in vitro also produced a marked change in cell shape without an increase in the release of elastase or in fibronectin degradation by neutrophils.