

Tc-99m-HMPAO uptake by bronchoalveolar cells

Hatice DURAK,* Oğuz KILINÇ,** Türkan ERTAY,* Eyüp Sabri UÇAN,**
Aydanur KARGI,*** Gamze Çapa KAYA* and Banu Sis***

Departments of *Nuclear Medicine, **Chest Diseases and ***Pathology,
Dokuz Eylül University School of Medicine, Izmir, Turkey

Lung uptake of intravenously injected Tc-99m-HMPAO is observed in smokers and in lung toxicity due to various agents. We investigated the Tc-99m-HMPAO uptake of bronchoalveolar lavage (BAL) cells in the lungs after incubation in *in vitro* conditions (6 patients), intravenous injection (IV) (7 patients) and inhalation (INH) (6 patients) of Tc-99m-HMPAO in order to show whether BAL cells are also responsible for Tc-99m-HMPAO uptake in the lungs. Cell/supernatant (C/S) count ratio was 7.0 ± 3.5 , 29.3 ± 40.8 and 8.4 ± 4.5 for *in vitro*, IV and INH groups, respectively. C/S_{*in vitro*} showed a positive correlation with % alveolar macrophages ($r = 0.943$, $p = 0.0048$) and a negative correlation with % neutrophils ($r = -0.945$, $p = 0.0045$). Cells/whole BAL fluid ratio correlated with the amount of daily cigarette consumption in INH group ($r = 0.95$, $p = 0.0037$). Tc-99m-HMPAO showed adherence to mucus after inhalation. Tc-99m-HMPAO diffuses into alveolar spaces after injection and is present in BAL fluid and BAL cells both after injection and inhalation. Glutathione concentration and oxido-reductive state of the epithelial lining fluid and BAL cells may influence the lung uptake of Tc-99m-HMPAO.

Key words: Tc-99m-HMPAO, bronchoalveolar lavage, radioaerosols, alveolar macrophages, smoking