Abstract

BACKGROUND: The lateral decubitus position leads to the greatest changes in regional pulmonary ventilation and is used in respiratory physical therapy routines. OBJECTIVES: To evaluate the influence of the lateral decubitus position on the pulmonary deposition of inhaled radioaerosol particles in young people and report the effects of the decubitus position on routine therapy. METHODS: Eight healthy male volunteers, mean age 23.6 ± 2.5 years, were included in a randomized study in two phases. In the first phase, aerosol was inhaled for nine minutes in a randomly-selected lateral decubitus position and after an interval of 5 to 7 days, the second phase was conducted. Pulmonary scintigraphy was carried out by inhalation of 25 mCi of 99mTc-DTPA. Following inhalation, images were acquired with scintillation cameras and regions of interest (ROI) were investigated in the longitudinal and cross-sectional divisions of the lungs. Statistical analysis included a paired Student's t-test with a significance level of p<0.05. RESULTS: Inhalation in the right lateral decubitus position presented higher counts (p<0.04) in posterior ROI of the right lung than in the posterior ROI of the left lung. In the left lateral decubitus position, the count was higher in the left lung (p<0.02) than in the posterior ROI of the right lung. CONCLUSIONS: The deposition of aerosol particles during inhalation was position-dependent in the two phases of the study, which confirms the validity of technical and therapeutic resources based on the physiology of position-dependent ventilation and suggests that body positioning can be used to advantage in routine therapy.

Keywords
Pulmonary ventilation, posture, scintigraphy, physical therapy.