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Title: Assessment of alveolar clearance with technetium-99m-DTPA radio-aerosol in patients who are active, passive and former smokers; preliminary study

Dr. Yavuz Selim 25972 Intepe dryavuz76@yahoo.com MD ¹ and Dr. Seyhan 25973 Karacavus seyhankaracavus@yahoo.com MD ². ¹ Chest Diseases, Medical Faculty of Bozok University, Yozgat, Turkey, 66200 and ² Nuclear Medicine, Medical Faculty of Bozok University, Yozgat, Turkey, 66200 .

Body: Objective: Smoking is the most important risk factor for pathological changes such as increased inflammation of lungs, fibrosis of airway wall and destruction of alveolar barriers. Recent studies show strong relationship between passive smoking and pulmonary diseases. In our study we investigate alveolar clearance levels in active, passive and former smokers with technetium-99m-DTPA radioaerosol inhalation scintigraphy. Methods: 82 patients with smoking related complaints to chest disease clinic were taken in study. 52(%63.5) were female and 30(%36.5) were male. Mean age was 51.3(±)13. Patients were divided into three groups as active, former smokers and passive. Patients who never smoked and did not expose to passive were accepted as control group. Also patients were divided into subgroups as copd, asthma and healthy. In control group smokers 7(%17), nonsmokers 14(%34) and passive were 20(%41). Mucociliary clearance were evaluated with parameters of T1/2, cap value ve penetration index. Results: A significant difference was stated in healthy group between smokers and passive (p=0.05) and between smokers and nonsmokers (p=0.04). Also a significant difference was determined in patients of copd and asthma in terms of T 1/2 ve cap values between smokers with passive(0,04) and former smokers(p=0,02). There was no significant difference between former and passive smokers. Conclusion: Our study shows that smoking disrupt alveolo-capillary membrane function and increase mucociliary clearance. In the presence of comorbid disease only active smoking increases clearance. There is also increased clearance in passive smokers compared with nonsmokers.