Histological Analysis of Swiss Mice Exposed to Industrial and Straw Cigarette Smoke


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Smoking is considered a major public health problem because of the high prevalence of smokers and mortality due to tobacco-related illnesses. The present study aimed to analyse the histology of the liver, kidney, tongue, trachea and lungs of mice exposed to industrial and straw cigarette smoke. We used 16 Swiss mice were divided into three groups: GC (exposed to environmetal air); GC1 (exposed to industrial cigarette smoke) and GE2 (exposed to straw cigarette smoke). For the animals exposure, we used an inhalation chamber for rodents, with continuous monitoring of CO at a concentration of 350ppm. The protocol was performed for seven days, 1h/day for four weeks. The animals were anesthetized with Zoletil 50 ® and underwent laparotomy. We used the Kruskal Wallis test followed by Student-Newman-Keuls test. The presence of eosinophilic cells, hyperchromatic and cellular infiltration was found in the liver tissue in both groups (p = 0.0170 industrial cigarette and straw cigarette p = 0.0092) when compared with the control group. There were no significant differences in renal and tongue tissue. There was a destruction of the alveolar spaces in lung tissue for the cigarette industrial (p = 0.0014) and straw cigarette groups (p = 0.0464). The atelectasis was significant only in the industrial cigarette group (p = 0.0022) whereas the cellular infiltration only had significance in the straw cigarette group (p = 0.0014). We observed metaplasia in the experimental groups and modification of normal epithelium in the trachea, and the absence of eyelashes was only found in industrial cigarette group (p = 0.0022). The change in goblet cells occurred in straw cigarette group (p = 0.0187). It was found that the industrial and straw cigarette caused major changes in liver tissue, lung and trachea of rodents exposed to smoke for four weeks.

Keywords: industrial cigarette, straw cigarette, Swiss mice, histology