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Title: Acute effect of e-cigarette on pulmonary function in healthy subjects and smokers

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Body: Electronic-cigarette is marketed as potentially safer tobacco exposure product, but there are not enough data concerning its impact on the respiratory system. Therefore, we set out to investigate the acute effects of an e-cigarette on respiratory functions in healthy subjects and in smokers with and without chronic airway obstruction (COPD and asthma). We studied 32 consecutive subjects (16 men), 8 were never smokers and 24 were smokers (11 with normal spirometry, and 13 patients with COPD and asthma). Spirometry, static lung volumes, airway resistance (Raw), airway conductance (sGaw) and a single breath nitrogen test (the slope of phase III; ΔN2/L), were measured before and after the use of an e-cigarette smoked for 10 minutes. Immediately after smoking an e-cigarette for 10 minutes there was: a) a statistically significant increase in Raw %pred (from 223±80 to 246±86, p=0.008), b) a statistically significant decrease in sGaw %pred (from 46±20 to 41±17, p=0.005), and c) a statistically significant increase in ΔN2/L %pred (from 146±100 to 164±121, p=0.002). Ten minutes smoking of e-cigarette causes a significant increase in airway resistance and in the slope of phase III, and a decrease in airway conductance in our group. These data show that there is an immediate effect of a single e-cigarette smoking. Further studies are needed to establish the immediate and long-term effects of an e-cigarette smoking.