New e-cigarettes affect users' airways

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A photo of 117mm e-cigarette. Image: Wikipedia.

(Medical Xpress) -- E-cigarettes, or electronic cigarettes, are promoted as a safer alternative to smoking. However, a new study published in the journal *Chest*, shows that these e-cigarettes cause immediate changes in the airways and may not be a as safe as they are promoted to be.

An e-cigarette is a battery operated device that users use to inhale vaporized liquid nicotine in place of regular tobacco cigarettes. The idea behind them was to give smokers something they could smoke without the exposure to the toxins that are found in cigarette smoke. It also allows users to "Smoke" without exposing others to second-hand smoke.

This small new study was conducted by researchers in Greece and led by Constantine I. Vardavas from the Center for Global Tobacco Control at the Harvard School of Public Health.

The study had 30 participants, all healthy non smokers. Some of the smokers were asked to puff on the e-cigarettes for five minutes while others were given the same e-cigarettes but with the nicotine cartridge removed. The researchers discovered that after only five minutes of exposure, the users smoking the cartridge-filled e-cigarettes showed signs of airway constriction and inflammation.

If this airway change is possible after only five minutes of use, the question then becomes what are the possible long-term complications? While this is not known yet, it definitely shows the need for more long-term studies on the product and its risk of leading to conditions such as various lung diseases like emphysema.

E-cigarettes are made with only five ingredients (nicotine, water, propylene glycol, glycerol and flavoring) that are approved by the FDA and have been marketed as causing no negative health effects. However, this new study shows that this is not the case and that more studies need to look at the potential dangers of this smoking alternative.

While many e-cigarettes are promoted to be a way to help quit smoking, the researchers warn consumers against it and advise that they follow proven quitting methods such as nicotine gum and patches and medications such as bupropion and varenicline.

More information: Acute pulmonary effects of using an e-cigarette: impact on respiratory flow resistance, impedance and exhaled nitric oxide, *CHEST* December 2011 112443. doi: 10.1378/chest.11-2443

Abstract

Background: Debate exists as to the scientific evidence for their claims that e-cigarettes have no health related ramifications. Our aim was to assess whether using an e-cigarette for five minutes has an impact on pulmonary function tests and exhaled nitric oxide (FeNO) among

healthy adult smokers.
Methods: 30 healthy non smokers (ages 19-56, 14 male) participated in this laboratory based experimental vs. control group study. Ab lib use of an e-cigarette for 5 minutes with the cartridge included (experimental group n=30) or removed from the device (control group n=10) was assessed.
Results: Using an e-cigarette for 5 minutes was found to lead to an immediate decrease in exhaled FeNO within the experimental group by 2.14ppb, (p=0.005) while not in the control group (p=0.859). Total impedance (Z5Hz) in the experimental group was found to also increase by 0.033kPa/(L/s) (p