

296. TOXICITY OF E-CIGARETTE CONSTITUENTS

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Introduction. Most e-cigarettes coils compounds are recognized safe, but those designations are for oral consumption and less to flavorings used in e-cigarettes. Most of these chemicals were never studied for toxicity via inhalation route and there are few studies confirming that heated substance maintains its primary chemical structure. Majority of articles state that nicotine is the main source of health injuries while using e-cigarettes, but there are few about other compounds and their impact on health.

Aim of the study. The aim of the study was to determine the toxicology of the e-cigarette constituents other than nicotine and its impact on human health.

Materials and methods. The bibliographic study was done, based on scientific articles published during 2016-2020 in journals from PubMed and Google Scholar databases, using the keywords “e-cigarette constituents”, “propylene glycol”, “e-cigarette flavors”.

Results. E-cigarettes often contain ingredients such as propylene glycol and glycerol, mixed with concentrated flavors and, a variable percentage of nicotine. The most common compound of e-liquids is propylene glycol, which seems to be safe if administrated i/v or i/m in small concentrations as a vehicle for low water soluble medicines. Exposure to propylene glycol aerosols has been shown to cause irritation to the eyes and throat, while heated it may lead to formation of carbonyl compounds (formaldehyde and acetaldehyde), which are involved in irritation of respiratory tract, eyes and skin. Glycerol, another humectant, may lead to mild squamous metaplasia of airways, while the combusted glycerol leads to formation of acrolein that suppresses the Lipopolysaccharide-Induced Inflammatory Cytokine Production, causing COPD and asthma, as well as it and could impair vascular repair capacity. Diacetyl and acetylpropionyl, that is used to confer creamy flavor, may cause chronic cough, bronchitis, asthma, and obliterant bronchiolitis. The majority of coils have great amounts of metals (Pb, Ni, Cr, Cd, La, etc.) themselves, but also in e-cigarette construction, that are inhaled while smoking and lead to severe generalized health problems.

Conclusions. Public opinion towards e-cigarettes is duplicitous, being necessary scientific studies to establish their damaging actions or harmlessness. The latest research attests that many components of e-liquids are toxic by themselves; other could produce some toxic compounds when heated and aerosolized. Regardless of the origin of the harmful compounds – original in the e-cigarette or formed as a result of heat, they can produce chemical reactions that could injure the lungs, bronchi, eyes and skin.

Key words: toxicity, e-cigarettes, e-liquids, inhalation

297. NON-INVASIVE ASSESSMENT OF LIVER FIBROSIS IN AUTOIMMUNE HEPATITIS

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