



EDITORIAL

Breathe, breathe in the air, don't be afraid to care[☆]

According to global tobacco control,¹ nine out of 28 European Union countries have legislated Electronic cigarettes (ECs) as medicines or consumer products. Furthermore, several countries have licensed ECs to be prescribed as medicines. Nevertheless, no EC medical device is currently available in the market.¹ First-generation ECs devices deliver less nicotine than late-generation ones. These contain larger liquid reservoirs and higher voltage batteries and can deliver as much nicotine as conventional cigarettes.^{2,3} As the EC technology evolves rather rapidly, research studies may be easily outdated once a new EC product has been launched.^{4,5}

An illustrative example is the randomized trial led by Hajek et al. in the United Kingdom (UK) and recently published in the prestigious NEJM.⁶ Participants were smokers motivated to quit recruited from the UK stop-smoking services. Smokers were randomized to either use (i) combined Nicotine Replacement Therapy (NRT) products of their choice or (ii) to switch to an e-cigarette starter pack. Notably, during the trial, there was a need to substitute the EC device because it was discontinued from the market. The limitations of this trial have been discussed elsewhere.^{7,8} However, it is worthy to highlight that three quarters of the participants had previously used NRT (74.9%), while less than half (41.5%) had used ECs. Most UK smokers have already attempted to quit smoking.⁹ This may explain the low 1-year abstinence rates, both in the EC arm (18%) and in the NRT arm (9.9%).⁶ Moreover, it should be highlighted that daily adherence to NRT was rather low (10.3%; n=46) and it was monitored only for a short period (4 weeks).⁶ Information on combined NRT medication (schedule and dosing) is lacking in the manuscript.⁶ Nevertheless, 44 patients on NRT achieved smoking abstinence at one-year follow-up (9.9%).⁶

Robust research is the fundament of smoking cessation national guidelines. They clearly state that the best treatment is a combination of behavioural support and medication.^{10,11} More intensive support and follow-up over time are crucial to achieve the best success rates.^{10–12}

Moreover, “for some patients, it may be appropriate to continue medication treatment for longer periods”.¹² Surprisingly, the study design reported by the authors neglected behavioral counseling and NRT support between the 4th and 26th weeks.⁶

A worryingly outcome of this trial⁶ was the maintenance of EC use at 1-year follow-up in 80% of smokers who switched to EC. Since EC are addictive and their long-term effects to human health are unknown this finding raises major concerns. As pointed out by Hendlin et al.,¹³ the tobacco industry is trying to implement a “perceived transition into a pharmaceutical-like industry through the manufacture and sale of noncombustible tobacco and nicotine products for smoking cessation or long-term nicotine maintenance without the testing and oversight required of traditional pharmaceutical products”.

There is growing evidence from animal, human and *in vitro* studies that EC use may have significant pulmonary toxicity.^{5,14} Thousands of EC flavours are being marketed, but little is known about their toxicity, especially following heating and inhalation.² Most of these studies focused on short-term exposure and acute/subacute health effects of ECs. They revealed health adverse effects, although less pronounced than conventional cigarettes. However, it is difficult to determine whether *in vitro* exposure conditions can be extrapolated to human exposure.² Furthermore, clinical studies examining the long-term impact of EC use on lung health are likely to take decades. Therefore, to address this knowledge gap, we should be aware of relevant studies such as the one conducted by Garcia-Arcos et al.¹⁵ These authors concluded that exposure to inhaled nicotine-containing e-liquid triggers effects normally associated with Chronic Obstructive Pulmonary Disease development: cytokine expression, airway hyper-reactivity and lung tissue destruction. These effects are nicotine-dependent both in the mouse lung and human airway cells. Therefore, inhaled nicotine may contribute to airway and lung disease, in addition to its addictive power.¹⁵

[☆] Pink Floyd in Dark side of the moon, 1973.

Past knowledge^{16,17} should guide our decisions and challenge us to rely on research conducted without any conflict of interest.^{2,18,19} The tobacco industries, EC included, are trying to take advantage of the World Health Organization (WHO) MPOWER strategy,²⁰ finding ways to undermine it:

Monitor tobacco use and hook new consumers;

Protect people from smoking "old tobacco" while promoting ECs as harmless devices to use indoors and weaken smoke-free policies;

Offer help to quit "old tobacco" and misleading consumers, health care professionals and decision-makers, postponing quitting in smokers and promoting dual use.

Warn consumers about the dangers of "old tobacco" to encourage switching to ECs or heated tobacco;

Undermine Enforcement of bans on "old tobacco" with subreptitious marketing;

Raise profits making new products less taxed and more affordable.

Lastly, the tobacco industries interfere with health research by sponsoring studies on their products, recruiting health professionals and scientists, in conflict with the WHO code of conduct.²¹ This splits the public health and scientific community.^{22,23} In conclusion, it is crucial to be alert and cautious regarding the "pharmaceuticalization" of the tobacco industry. Emergent EC and tobacco products are a threat.²⁴ Although its public health impact is still uncertain, the precautionary principle should guide²⁵ effective public health action. Concerted advocacy efforts within the civil society should lead decision-makers to adequately regulate emergent new products and advance tobacco control.

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