

TITLE: Vitamin E acetate is not present in licit e-cigarette products available on the UK market

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ABSTRACT

Aims

To determine whether nicotine-containing vaping products submitted to the Medicines and Healthcare products Regulatory Agency (MHRA) under the Tobacco and Related Products Regulations 2016 contain tetrahydrocannabinol or vitamin E acetate.

Methods

Analysis of data on ingredients for all products submitted for notification for the UK market by October 2017 to assess whether any were reported to contain vitamin E acetate or THC. The analysis was not pre-registered and the results should therefore be considered exploratory.

Results

Vitamin E acetate and THC were not listed as an ingredient or emission in any of the 41,809 products that were submitted for notification.

Conclusions

In the UK, vapers and those considering switching from tobacco to vaping can be reassured that licit products available on the UK market do not contain tetrahydrocannabinol or vitamin E acetate.

Background

E-cigarettes, while the the subject of significant global controversy, have been promoted in the UK as a reduced-harm substitute for combustible tobacco use.(1, 2) A recent outbreak of serious respiratory illness among vapers in North America, attributed at least in part to the use of illicit e-liquids containing tetrahydrocannabinol (THC, which is illegal for recreational use in the UK) and vitamin E acetate, has led to concern that similar cases may also arise among vapers in the UK.(3) Although the exact cause of this outbreak is still not known – for example, THC *per se* may not have negative respiratory effects, but may be combined in e-liquids with ingredients which are harmful when inhaled as vapour - it is important to reassure UK vapers that licit products on the UK market do not contain the ingredients that are implicated in these cases. We have therefore searched UK data on nicotine-containing vaping products submitted to the Medicines and Healthcare products Regulatory Agency (MHRA) under the Tobacco and Related Products Regulations 2016 to determine whether there are any that contain these substances.

Methods

The European Union Tobacco Products Directive requires producers of nicotine-containing vaping products to disclose information by brand and variant name on ingredients, emissions, toxicology, nicotine dose and uptake, and sales volumes to the MHRA (4). We have analysed data on ingredients for all products submitted for notification for the UK market by October 2017 to assess whether any were reported to contain vitamin E acetate or THC. Search terms (See online supplementary material) included vitamin E acetate, vitamin E acetate synonyms listed on PubChem (5), and all potential Chemical Abstract Service (CAS) numbers for Vitamin E acetate

(58-95-7, 7695-91-2, 52225-20-4); and THC, its synonyms listed on PubChem (6) and all potential CAS numbers for THC (1972-08-3, 6465-30-1).

Results

A total number of 41 809 products, comprising cartridges and refill containers, were assessed for the presence of Vitamin E Acetate and THC. Vitamin E acetate and THC were not listed as an ingredient or emission in any of the provided products. 854 (2.04%) of notified products had listed flavours but not specific ingredients; their composition is therefore unknown.

Conclusions

Vitamin E acetate has been implicated alongside THC in the recent outbreak of severe disease in the USA (7) and the fact that the outbreak has, to date, been limited to North America suggests that a specific exposure or exposures arising from e-liquids available in that region are responsible. Two prime candidate constituents are THC and vitamin E acetate. In the UK, vapers and those considering switching from tobacco to vaping can therefore be reassured that licit products available on the UK market do not contain these ingredients. THC is illegal in the UK and it is therefore not surprising that this ingredient is not listed as being present in any licit products; our data do not include illicit products and it is possible that illicit products similar to those available in the US are available in the UK.(8) Vapers should use exclusively licit products which are subject to MHRA regulatory procedures.

Our data represent a snapshot of products notified at a single point of time and the dataset does not include products that have been notified since the reporting period.

The reporting system also relies on the integrity of the reports submitted to member states via the European submission portal. On-going improvements to the functionality of the EU system since 2017 have enabled member states to carry out more rigorous assessment of the data provided by producers. Since late 2017 the MHRA has implemented a process to check all products to ensure that they do not contain prohibited substances, including THC and vitamin E acetate. No notified product on the UK published list includes these prohibited substances [personal communication, MHRA]. Our data show that even prior to this more rigorous process, none of the notified products contained THC or Vitamin E acetate and thus should reassure smokers that this particular risk does not apply in the UK. Vapers who are unsure of the provenance of e-liquid products are encouraged to check that the product has been notified and published by the MHRA.(9)

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