

New type of e-cigarette vaping injury described

November 21 2019



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A research case report describing lung injury related to e-cigarette use in a 17-year-old Canadian may be the first documented case of a new form of damage from vaping products. The article, published in *CMAJ*

(*Canadian Medical Association Journal*) provides new evidence on forms of lung injury that can result from vaping.

Recently, several cases of "e-cigarette or vaping product use-associated [lung injury](#)" (EVALI) have been described. However, this patient presented with a new type of vaping-related injury that is similar to "popcorn [lung](#)," a condition seen in workers exposed to the chemical flavouring diacetyl, an ingredient used in microwave popcorn. If inhaled, the chemical causes bronchiolitis, which is characterized by the small airways of the lungs becoming inflamed and obstructed.

A team of authors from Lawson Health Research Institute in London, Ontario, and University Health Network (UHN) in Toronto, who were all involved in the care of the patient, report on the case of life-threatening bronchiolitis. The article describes a previously healthy 17-year-old male who initially presented for care after a week of persistent and intractable cough and was eventually hospitalized and put on life support. After ruling out other causes, the authors suspected flavoured e-liquids as the cause. The youth's family reported that he vaped daily using a variety of flavoured cartridges and used tetrahydrocannabinol (THC) regularly.

"This novel disease pattern of airway injury associated with vaping leading to chronic obstruction appears to be distinct from the alveolar injury characterizing the EVALI cases recently reported in the US, and the 7 confirmed or probable cases in Canada, highlighting the need for further research and regulation of e-cigarettes," writes lead author Dr. Karen Bosma, Associate Scientist at Lawson and Intensivist at London Health Sciences Centre (LHSC).

The CMAJ case study provides detailed medical information on the extent and type of [injury](#) as well as treatment, although the Middlesex-London Health Unit reported on the youth's condition earlier this fall to

extend an early warning of the risks of vaping.

"This case of life-threatening acute bronchiolitis posed a diagnostic and therapeutic challenge," write the authors. "Given the patient's intense vaping exposure to flavoured e-liquid and negative workup for other causes of bronchiolitis, we suspected that bronchiolitis obliterans might have been developing in this patient as in microwave popcorn factory workers exposed to occupational inhalation of diacetyl."

The authors referred the patient to a lung transplant centre for further evaluation and reported the case to authorities (Government of Canada's consumer product incident report system) as an adverse reaction to a consumer product, e-cigarettes. They also alerted Health Canada for further investigation.

The youth narrowly avoided the need for a double lung transplant, but now has evidence of chronic damage to his airways. He is still recovering from his lengthy stay in the intensive care unit, and is abstaining from e-cigarettes, marijuana and tobacco.

Emerging reports indicate that e-cigarettes are causing a variety of lung illnesses and injuries. According to a 2017 report, [e-cigarettes](#) are the most commonly used nicotine products among Canadian youth, with an estimated 272,000 Canadians aged 15 to 24 years reporting [e-cigarette use](#) within the last 30 days.

"This case may represent the first direct evidence of the lung disease most expected to result from e-cigarette use," writes Dr. Matthew Stanbrook, Deputy Editor, CMAJ, in a [linked editorial](#).

Stanbrook urges the federal government to ban these harmful substances and ignore the fear-mongering from the tobacco industry that people will revert to smoking cigarettes.

"From the start, CMAJ has called for a ban on flavourings in e-liquids, restrictions on e-cigarette advertising equivalent to those for tobacco products, and an effective standard for quality and safety to be imposed on every e-cigarette product sold. We do so again now," Dr. Stanbrook writes.

"Life-threatening bronchiolitis related to electronic cigarette use in a Canadian youth" is published November 21, 2019.

More information: *CMAJ* (2019).

www.cmaj.ca/lookup/doi/10.1503/cmaj.191402

Provided by Canadian Medical Association Journal

Citation: New type of e-cigarette vaping injury described (2019, November 21) retrieved 26 April 2024 from <https://medicalxpress.com/news/2019-11-e-cigarette-vaping-injury.html>

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