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Commentary

Lung Injury Associated with the Use of E-Cigarette – (Evali) in the Covid-19 Context

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Abstract

In October of 2019, the Centers for Disease Control and Prevention (CDC) in the USA called e-cigarette or vaping product use-associated lung injury as EVALI, whose symptoms are very similar to flu ones. In face of the current COVID-19 pandemic, we need to highlight important similarities between these two lung diseases. Method: Studies were identified using large-circulation international journals found in two electronic databases: Scopus and Embase. The data was also compared with information from the main international newspapers. Results: Antidepressant effects caused vaping, are associated with the increase of such device use during the pandemic as a way to relieve the mental diseases symptoms. Conclusions: Vaping has been used more frequently during the social isolation period, especially due to cannabidiol and antidepressant properties, which shows the EVALI importance in pandemic periods.

Keywords: 2019 coronavirus disease (COVID-19), E-cigarette, Vaping, EVALI.

Introduction

In October of 2019, the Centers for Disease Control and Prevention (CDC) in the USA called e-cigarette or vaping product use-associated lung injury as EVALI, whose symptoms are very similar to flu ones, but they can take patients to Intensive Care Units or lead to death [1]. Based on the principle that vaping arose as a healthier alternative for smokers to help them abandon tobacco addiction and, secondarily, as a recreational use, the appearance of e-cigarette-related deaths in the United States in 2019 justify the prohibition of these devices in some countries like India and Brazil [2].

Hence, more than 3 million North American young subjects have stated using e-cigarette in the last 30 days, and North American authorities claim there are not sufficient data to state that e-cigarette is less harmful than tobacco cigarette [3]. 2,807 EVALI cases or deaths were reported in the USA in February of 2020 [4]. Under these circumstances, an analysis should be carried out on the increase of EVALI cases due to the aggravated use of e-cigarette, considering it is a flu syndrome that results in serious complications and has similar symptoms of other diseases including COVID-19.

Contextual clues in the EVALI clinical context, during the diagnosis interview, should not only assess respiratory symptoms (cough, dyspnea), gastrointestinal symptoms (pain, nausea, vomiting, diarrhea) and non-specific symptoms (fever, shiver, weight loss), but also question on the e-cigarette use, type, and where it

was found. The CDC highlight the identification of Vitamin E acetate and tetrahydrocannabinol (THC) as one of the main components responsible for EVALI and, therefore, recommend that users do not use vaping containing these additives mainly from online purchase or known resellers [4]. Confirmed cases present clinical symptoms, vaping use in the last 90 days with radiography consolidations or frosted glass in chest tomography and no infectious diseases with viral panel and negative PCR [5].

In face of the current COVID-19 pandemic, we need to highlight important similarities between these two lung diseases. The World Health Organization [6] states this is an acute respiratory disease, whose main symptoms include fever, dry cough, nasal congestion, diarrhea and shortness of breath, which may take the patient to the hospital due to breathing difficulties or chest pressure/tightness [7]. The radiographic pattern shows a predominance of alveolar alterations, opacity in frosted glass, focal consolidations and mixed opacities [8]. Thus, it is constituted as a flu syndrome like the EVALI, which may evolve to acute respiratory syndrome.

A lot of conflicting information arose last year on the positive and negative sides of using e-cigarette, which made the community of users, mainly young subjects, very confused. In addition, part of vaping users are not aware of the e-cigarette formula components and use it mainly based on its discrete appearance, high rate of nicotine in the products, and presence of flavored va-

pors, which is another quite attractive characteristic to the young audience [9]. Isolation measures and global surveillance aimed at containing the COVID-19 pandemic lead to a crisis in illegal drug traffic, with a price increase and purity decrease [10]. Thus, it has been observed that users have sought other drugs as alternatives for this period, such as benzodiazepine, alcohol, and tobacco [5] that increased the use of e-cigarettes all over the world [11].

Therefore, the increase of e-cigarette use may be potentially correlated with the current global scenario. From this perspective, we can highlight a research made by the Young Minds Institute. It emphasizes that the pandemic has been causing great repercussions on young subjects' mental health [12]. This can be analyzed under the view that, with social distancing applied in many countries due to the COVID-19 pandemic, many young subjects have been suffering with routine changes and privation of living with friends and family, as well as privation of outdoor leisure activities, which causes anxiety and depression crises in many of them. Additionally, antidepressant effects caused by CBD vaping, as stated by the WHO, are associated with the increase of such device use during the pandemic as a way to relieve these mental diseases symptoms [7]. With social distance, many young subjects amidst anxiety and depression crises inherent to brain serotonin decrease intensity of CBD vaping use with the aim of increasing these serotonin levels [13].

Thus, the similarity of signs and symptoms between both pathologies and the importance of EVALI disclosure in an international, mediatic and academic scope become clinical indicators, so that questions regarding the use of e-cigarette be added during diagnosis of a respiratory syndrome. Furthermore, surveillance as to the nature and quality of substances used in the e-cigarette should be further improved, in order that there is a better control on the use of this device, both for smokers that want to abandon this traditional cigarette and for young subjects that use it for fun. Also, vaping has been used more frequently during the social isolation period, especially due to cannabidiol and antidepressant properties, which shows the EVALI importance in pandemic periods.

Authors' contributions

MLRN and CBN designed the review, developed the inclusion criteria, screened titles and abstracts, appraised the quality of included papers, and drafted the manuscript. MLRN, RBB, AWLD, TMSV and CBN reviewed the study protocol and inclusion criteria and provided substantial input to the manuscript. MLRN reviewed the study protocol. MLRN read and screened articles for inclusion. All authors critically reviewed drafts and approved the final manuscript.

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Conflict of interests

The authors declare that they have no competing interests.

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