

Clinical Manifestations of EVALI in Adolescents Before and During the COVID-19 Pandemic

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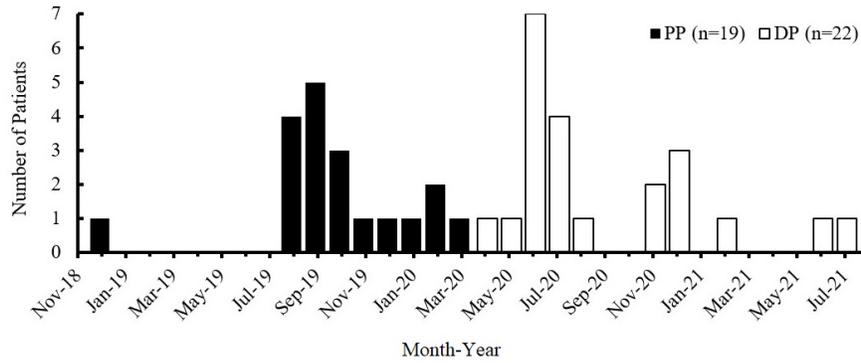
Abstract

Introduction: E-cigarette, or vaping, product use-associated lung injury (EVALI) results from inhaling the aerosol of e-cigarettes and has similar clinical features to coronavirus disease 2019 (COVID-19). EVALI case counts since the declaration of the COVID-19 pandemic is unknown. **Methods:** A retrospective electronic health record chart review of adolescents hospitalized at one institution with EVALI was conducted. Clinical characteristics and hospital course of patients hospitalized during the pandemic were compared to those pre-pandemic. **Results:** The clinical presentation of adolescents hospitalized prior-to (n=19) and during the COVID-19 pandemic (n=22) were similar with respect to constitutional, respiratory, and gastrointestinal symptoms. All patients hospitalized during the pandemic were tested for COVID-19 at least once. Only one patient had a positive SARS-CoV-2 RT-PCR test result. 31 out of 39 patients treated with corticosteroids had clinical improvement within 24 hours (79%). Patients hospitalized during the pandemic had a shorter median length of stay (5 vs 7 days, p<0.01), and were less often discharged with home oxygen (1 vs 6 patients, p=0.04). Pulmonary function tests improved pre-to post-corticosteroid treatment and post-corticosteroid to follow-up. **Conclusions:** Eliciting a history of vaping in adolescents presenting with constitutional, respiratory, and gastrointestinal symptoms is important to identify EVALI cases, which have continued throughout the COVID-19 pandemic. A shorter length of stay with less need for mechanical ventilation and home oxygen in adolescents hospitalized during the pandemic may reflect increased familiarity with EVALI characteristics. Corticosteroids led to clinical and pulmonary function improvement.

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Figure 1: Monthly EVALI Hospitalizations



Number of EVALI cases hospitalized/month from December 2019-July 2021. Highest number of hospitalizations (n=7) was in June 2020.

Figure 2. Pulmonary Function Test results Pre-Corticosteroid Treatment, Post-Corticosteroid Treatment, And On Follow-Up At The Pulmonary Clinic, Prior To- And During The COVID-19 Pandemic

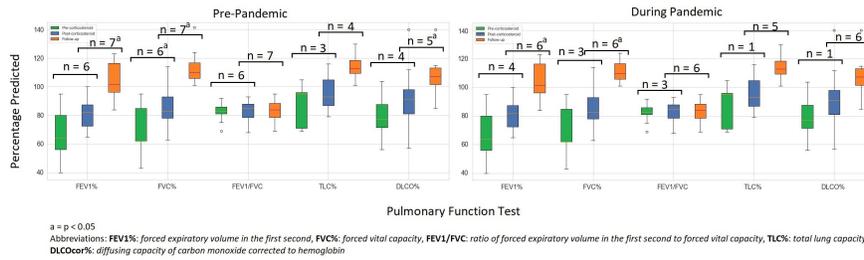
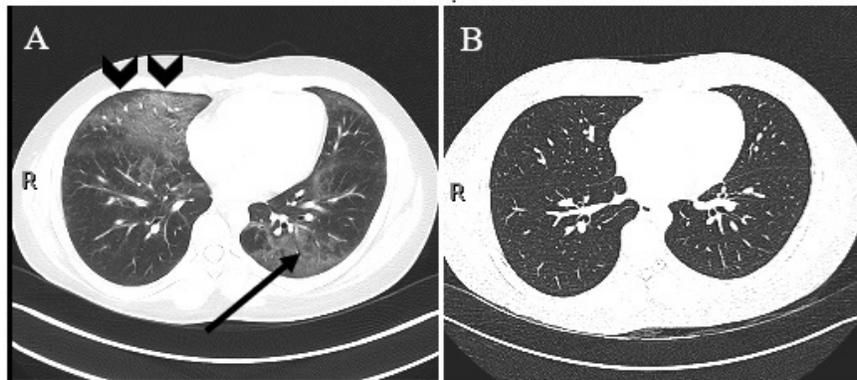


Figure 3. Chest Computed Tomography (CT) of a patient hospitalized with EVALI



16-year-old patient, initially treated for atypical Kawasaki disease, then with IV steroids after THC vaping history uncovered. CT chest showed bilateral ground glass opacities, subpleural sparing (arrowheads) and a reverse halo sign (arrow) (A). Follow up CT showed complete resolution of ground glass opacities (B).

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