

Effects of Patient and Use Characteristics on Symptoms and Outcome in E-Cigarette, or Vaping, Product Use Associated Lung Injury (EVALI)

Kim N Aldy¹, Dazhe Cao¹, Mary Billington¹, Joshua McFalls¹, Cherie Obilom¹, Paul Wax^{1,2}, On Behalf of the ToxIC Investigators Consortium (ToxIC)

¹University of Texas Southwestern Medical Center, Dallas, TX, USA.

²American College of Medical Toxicology, Phoenix, AZ, USA

Background: EVALI is an illness associated with vaping delta-9-tetrahydrocannabinol (THC) oil and/or nicotine products. Patterns and type of products used vary between patients and have unclear consequences on clinical outcome.

Research Question: How do the patient demographics, pattern of vape use, and type of substance used affect presenting symptoms and clinical outcomes?

Methods: We reviewed the Toxicology Investigators Consortium (ToxIC) Registry for EVALI cases seen between August 5, 2019, and October 31, 2019 at our academic institutions. We assessed demographics, vaping product use, and presenting symptoms. Heavy vaping was defined as once or more per day. Severe illness was defined as ICU admission or BiPAP/intubation. Odds ratio (OR) and 95% confidence interval (CI) were determined by Fisher's exact test.

Results: Twenty-four patients met the Centers for Disease Control confirmed case definition for EVALI. Adolescents and adults did not have differences in ICU admission; however, no patient over 18 required BiPAP/intubation ($p = \text{NS}$). All patients reported vaping THC, and 10 also vaped nicotine. THC plus nicotine as compared to THC alone did not lead to increased ICU admission (OR 0.13, CI 0.002–1.64) or BiPAP/ intubation (OR 0.27, CI 0.005–3.95). Heavy vs light vaping did not make a difference in severity of illness as defined by ICU admission (OR 0.7, CI 0.06–10.5) or BiPAP/intubation (OR 0.44, CI 0.03–7.49). Flavored THC was not associated with BiPAP/intubation when compared to use of unflavored ($p = \text{NS}$). Vomiting ensued in 81% of heavy THC users, but only 63% of light vaping patients reported vomiting ($p = \text{NS}$). Twenty-one patients received steroids. Flavoring and heavy vaping were not associated with the need for steroids.

Conclusion: In our EVALI cohort, demographics, pattern of vape use, and type of substance used did not significantly affect presenting symptoms and clinical outcomes.