

Effect of Diagnostic Findings on Treatment and Patient Outcome in E-cigarette, or Vaping, Product Use Associated Lung Injury (EVALI)

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Background: E-cigarette, or vaping, associated lung injury (EVALI) is an emerging disease linked to THC oil and/or nicotine product vaping. This research was performed in collaboration with the ACMT Toxicology Investigators Consortium. This research was performed in collaboration with the ACMT Toxicology Investigators Consortium. The clinical course, severity, and range of interventions in affected patients around the country have varied widely.

Research Question: How do diagnostic findings affect steroid treatment and clinical outcome in EVALI patients?

Methods: We reviewed the Toxicology Investigators Consortium (ToxIC) registry for EVALI cases seen between August 5, 2019, and October 31, 2019 at our three academic institutions. Severe illness was defined as ICU admission or BiPAP/intubation. Fisher's exact test was utilized to assess diagnostic findings in relation to severity of illness.

Results: Twenty-four patients met the Centers for Disease Control-confirmed case definition for EVALI. Aspartate aminotransferase (AST) and/or alanine aminotransferase (ALT) was elevated in six patients. AST and/or ALT elevation were not associated with ICU admission ($p = \text{NS}$). Chest X-ray was performed in all 24 patients. Six patients had a normal initial chest X-ray, with five receiving subsequent chest computed tomography (CT) revealing diffuse ground glass opacities. Normal vs abnormal initial chest X-ray was not associated with less ICU admission ($p = \text{NS}$). Bronchoalveolar lavage (BAL) was performed in 10 patients. Eight patient samples were sent for oil red O staining, and five had positive lipid laden macrophages. None of those with lipoid pneumonia required ICU admission or BiPAP/intubation ($p = \text{NS}$). Five patients received oral steroids and 16 required intravenous steroids. Initial normal chest X-ray did not have a significant effect on the perceived need for oral vs IV steroids ($p = \text{NS}$).

Conclusion: In our population of patients with confirmed EVALI, diagnostic findings did not affect type of steroid treatment started or clinical outcome.