Another Case of Electronic Cigarettes and Vaping Associated Lung Injury That Changed Its Course with Steroids

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Introduction: Electronic cigarettes and vaping associated lung injury is a well-documented entity in recent times. Pulmonary diseases linked to electronic cigarettes tend to have acute/subacute presentation with rapid progression to many cases requiring mechanical ventilatory support. Management guidelines are not concrete, but interim guidelines have been reported by the center for disease control which includes hospitalization guidelines and management which include imaging, treatment of concurrent infections, pulmonary consultation, and corticosteroids. We here present one such case with significant response particularly to corticosteroids. Case

An 18-year-old female with history of electronic cigarette use presented to the hospital with two weeks of nausea, vomiting, productive cough, and subjective fevers. Laboratory values were significant for a leukocytosis of 14,000/mcl. Within 12 hours of admission patient’s respiratory course declined to requiring mechanical ventilation. Computed tomography of the chest showed diffuse ground glass opacities and patchy symmetric lower lobe infiltrates. Patient was started on empiric antibiotics and a complete work up including infectious, autoimmune and neoplastic workup was sent. Results were significant for ESR of 112, CRP of 12.9 and procalcitonin of 0.70. Bronchoscopy with transbronchial biopsy was performed and patient was started on pulse dose steroids. Pathology results later resulted showing foci of organizing pneumonia, fibrin, interstitial edema and focal hyaline membrane consistent with diffuse alveolar damage. Patient’s oxygenation requirements on ventilator continued to worsen until introduction of steroids after which her oxygenation status improved significantly leading to eventual liberation from ventilator. Infectious workup came back negative and she was taken off antibiotics. She was discharged on tapered dose of steroids and Bactrim for pneumococcal pneumonia prophylaxis.

Discussion: Using electronic cigarettes is often marketed as a safer alternative for smoking combustible cigarettes. But the current medical fraternity is increasing recognizing numerous vaping associated pulmonary illness. Presentation varies but current data shows 98% have respiratory symptoms and 81% have concomitant gastrointestinal symptoms which was also the case with our patient. Radiographic pattern was more consistent with organizing pneumonia pattern, with histopathology showing diffuse alveolar hemorrhage. Treatments in literature review were focused on respiratory support, antibiotics and steroids. Our patient was initially started on broad spectrum antibiotics but continued to require increasing oxygen requirements, but her respiratory status improved once solumedrol 125 mg every 6 hours was introduced to her regimen. Despite the many case reports and evidence that is being published on vaping induced lung injury, very few have discussed the pattern of steroid response and dosing.