

# Cypermethrin inhalation induced hypersensitivity pneumonitis (HP)

## A rare pulmonary presentation of the neurotoxin

Sruthi Samala, DO; Rahul Gaiba, MD;

Gary Wendell, MD

Crozer Chester Medical Center, Upland, PA

### INTRODUCTION

- Cypermethrin is a synthetic pyrethroid, an active ingredient in household pesticides which causes lethal hyper-activation of the central nervous system in insects and pests.
- Ingestion of cypermethrin by humans is known to cause neurotoxicity and gastrointestinal symptoms. However, effects of acute inhalation of this compound remain unlisted.
- We report a rare presentation of cypermethrin inhalation with pulmonary manifestations.

### CASE HISTORY

- 58-year-old male presented with progressively worsening symptoms of sore throat, productive cough, dyspnea, and wheezing.
- Symptoms started within a few hours after using a cypermethrin fumigator at home without adequate inhalation protection.
- He was a truck driver, had a 15 pack-year smoking history and denied any sick contacts, recent travel or drug use.

### EXAMINATION

- Afebrile and hemodynamically stable, respiratory rate 30cycles/min, and oxygen-saturation 60% on room-air requiring BiPAP to maintain saturation above 93%.
- On exam, he was alert, oriented, but listless and in acute respiratory distress.
- Scattered wheezes and fine crackles were auscultated over the lungs bilaterally.

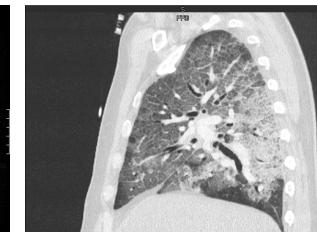
### WORKUP

- Leukocytosis with predominant neutrophilia and bandemia was present.
- CXR showed diffuse alveolar and interstitial opacities
- 2D-Echocardiography was normal.
- Chest CT-Angiography showed extensive bilateral ground-glass opacities with interlobular septal thickening sparing the lung-bases suggestive of pneumonitis.
- Negative c-ANCA, p-ANCA, rheumatoid-factor and HIV antibodies

*CXR on presentation*



*CT chest scan on presentation*



### DIAGNOSIS

- Diagnosis of HP was made in the setting of symptom onset following exposure to cypermethrin after excluding differential diagnoses.

### DISCUSSION

- Treatment is supportive care with supplemental oxygen via BiPAP, albuterol-nebs, steroids, furosemide and empiric antibiotics until no growth on sputum cultures was confirmed.
- His symptoms resolved significantly and was weaned from BiPAP to nasal cannula.
- Day 8 - symptoms resolved entirely and discharged home with supplemental oxygen, corticosteroids and outpatient follow-up

### CONCLUSION

- Our case illustrates the exceptional acute pulmonary toxicity of cypermethrin. HP was reported with chronic exposure.
- Need to consider HP in patients with acute inhalational exposure to cypermethrin.
- It is crucial to recognize these symptoms, establish definitive exposure to the compound and exclude differential diagnoses as there are no reliable tests for definitive diagnosis.