

Title: Smoke Inhalation Injury

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Introduction: Smoke inhalation is the most common cause of death in burn patients and when combined with smoke inhalation burn mortality is greatly increased. Complications from smoke inhalation injury can be divided into early and late phases leading to barotrauma and uncontrolled inflammatory processes, thus predisposing the patient to pneumonia and Acute Respiratory Distress Syndrome (ARDS).

Method: Case Presentation. We report a 48-year-old white male who presented to ED following removal from a burning housing complex. The patient was autistic and required help to be removed from the building. At the scene he was placed on a non-rebreather mask, SpO₂ was 68%. In the ED, the patient had a 95% SpO₂, GCS of 8 and he was not arousable. Orotracheal intubation was performed with a 7.0 endotracheal tube. He was admitted to the burns ICU, and remained there for the duration of his hospital stay. The patient received volume-targeted ventilation for 14 days SIMV + PS (8–12 cm H₂O) with tidal volumes averaging 600 ml, PEEP between 5–10 cm H₂O, and FiO₂ averaged 0.40. The patient had a tracheotomy performed after 4 ventilator days. He developed multiple-spp. pneumonia, possibly due to his vomiting and aspiration during the intubation procedure, or possibly due simply to the damage inflicted upon his airways by the smoke.

Results: After 8 days of treatment the pneumonia resolved, and clozapine was restarted after a psychiatric consult. He is severely autistic, and this made him violent when he did not take clozapine and also made it difficult to wean from the ventilator. After administering clozapine the patient tolerated mechanical ventilation. The patient was eventually weaned to an aerosol tracheostomy collar at 28% FiO₂.

Conclusion: The patient was discharged 21 days after admission, when his pneumonia and need for assisted ventilation ceased. Mechanical ventilation kept the patient alive by allowing his body to rest from the increased work of breathing due to the insult of an inhalation injury complicated by pneumonia.