Inhalation Injury

REFRESHER

RECOGNIZE IT

- Upper airway: singed nasal hairs, facial burns, soot in nose and pharynx, stridor, hoarseness
- Lower airway: wheezing, dyspnea, ARDS
- Systemic toxicity: coma, seizures, shock
- Mechanism: smoke irritants (acrolein, aldehydes, free radicals) trigger neuropeptide release, histamine release, permeability changes, and pulmonary edema

ASSESS

- Assess for airway injury and respiratory compromise — supraglottic injury is irritation, steam/thermal burn, and edema
- SpCO: 0–5% normal non-smoker, 5–10% normal smoker, over 10% abnormal for any person, over 15% significantly abnormal
- CO has 200–300 times the affinity for hemoglobin that oxygen does, so SpO2 can falsely show 100%

ACT — FIRST MOVES

1. Monitor SpCO against SpO2 — do not trust SpO2 alone
2. Take the airway early when there is significant inhalation injury

PEARLS

- Take the airway for: overt signs of upper airway obstruction, evolving upper airway obstruction, worsening gas exchange, or declining mental status
- The chemicals in smoke are the main concern, not the heat — the airway cools smoke before it reaches the glottis

Take Home Message:

Inhalation injury is a chemical injury: watch the airway, measure SpCO, and intubate early when obstruction is evolving.