DESCRIPTION/OVERVIEW
Mortality associated with smoke inhalation injury has been reported from 20-80%. Approximately 70% of all fire victims die within 12 hours post burn from smoke inhalation injury-related complications. Airway edema combined with obstructive casts produced from cellular debris, fibrin clots, polymorphonuclear leukocytes, and mucus are believed to cause airway obstruction contributing to pulmonary failure. Fibrin formation and deposition in the alveolar space is considered to be a hallmark of smoke inhalation induced acute lung injury. Heparin inhaled in combination with N-acetylcysteine and albuterol significantly improve pulmonary function, decrease lung injury and improve survival in patients with inhalation injury.

REFERENCES

AREAS OF RESPONSIBILITY
Medical Staff, Nursing, Respiratory Therapy, Pharmacy

GUIDELINE PROCEDURES
Inclusion Criteria:
- Adults
- History of inhaling smoke in an enclosed space
- Carboxyhemoglobin >10% on admission
- Carbonaceous sputum

Exclusion Criteria:
- Known hypersensitivity to heparin or N-acetylcysteine or albuterol
- History of HIT (Heparin-Induced Thrombocytopenia)
- Hemothysis
- Thrombocytopenia ≤ 50,000 platelets/mm³ or a drop in platelets more than 50% from baseline

Nebulized Treatment: All nebulized medications are mixed and administered by respiratory therapists, and must be documented in the eMAR. The patient’s nurse must serve as the witness to heparin nebulization in eMAR documentation. The nebulized therapy order set for inhalation injury includes all three medications listed below:
1. 5000 units heparin mixed in 3mL of NS Neb Q4H RT x 7 days
2. 2.5 mg albuterol in mixed in 3mL of NS Neb Q4H RT x 7 days
3. 600 mg (3 mL) of 20% N-acetylcysteine (Mucomyst) Neb Q4H RT x 3 days
Monitoring:
- Monitor patient’s vital signs at baseline and per unit routine

Notify prescribing physician or resident on call if:
- Severe bronchospasm - wheezing not responsive to bronchodilator
- Stridor
- Increasing airway pressures
- Hypertension: SBP greater than 160 mm Hg or DBP greater than 100 mm Hg
- Arrhythmias
- Nausea/ vomiting

DEFINITIONS
SBP = Systolic blood pressure
DBP = Diastolic blood pressure

SUMMARY OF CHANGES
New document

RESOURCES/TRAINING

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DOCUMENT APPROVAL & TRACKING

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<tr>
<td>Consultant(s)</td>
<td>Lenka Hrebickova, Pharm.D., RPh</td>
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<td>Nursing Officer</td>
<td>Sheena Ferguson, Chief Nursing Officer</td>
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<tr>
<td>Medical Director/Officer</td>
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<tr>
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<td>Sheena Ferguson, MSN, RN, CCRNr, CNS, CNO</td>
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