Updates in Dyspnea

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Debra E. Heidrich will be discussing healthcare information and unapproved use of commercial products.

Definitions

- **Dyspnea**
  - Subjective breathing discomfort
  - Sensations include
    - Work effort, tightness, air hunger

- **Respiratory Distress**
  - Physical or emotional suffering caused by breathing difficulties
  - Observable and measurable behaviors

Prevalence

- Common in many advanced diseases:
  - COPD – 90-95%
  - Heart Disease – 60-88%
  - Cancer – 10-70%
  - ALS – 47-50%
  - HIV/AIDS – 11-62%

- Lung Cancer: Dyspnea tends to increase in prevalence and severity in last months to weeks of life.

Multiple/Overlapping Etiologies

- Anemia
- Weakness
- Heart failure/fluid overload
- Obstruction/Superior Vena Cava Syndrome
- Infection
- Pulmonary effusion
- Ascites
- Pulmonary embolism
- Bronchospasm
- Anxiety

Differential Diagnosis Based on Onset

- Sudden
  - Pulmonary embolism, arrhythmia, CHF
- Over hours or days
  - Infection, effusion
- Gradual
  - Tumor growth, anemia, weakness
Dyspnea Assessment

• Self-report is gold standard
  • Simplest: “Are you short of breath?”
  • Numeric rating scale
• Cognitive skills required for self-report
  • Must be conscious
  • Ability to interpret sensory stimuli
  • Ability to follow instructions
  • Ability to concentrate to form a response
  • Ability to communicate
  • Ability to recall previous report is trending

Respiratory Distress Observational Scale

<table>
<thead>
<tr>
<th>Variable</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart rate per min.</td>
<td>&lt; 90</td>
<td>90-109</td>
<td>≥ 110</td>
<td></td>
</tr>
<tr>
<td>Resp. rate per min.</td>
<td>&lt; 18</td>
<td>19-30</td>
<td>≥ 30</td>
<td></td>
</tr>
<tr>
<td>Restlessness</td>
<td>None</td>
<td>Occa-sional</td>
<td>Frequent</td>
<td></td>
</tr>
<tr>
<td>Paradoxical breathing pattern</td>
<td>None</td>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessory muscle use; rise in clavicle during inspiration</td>
<td>None</td>
<td>Slight rise</td>
<td>Pronounced rise</td>
<td></td>
</tr>
<tr>
<td>Grunting at end-expiration</td>
<td>None</td>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal flaring</td>
<td>None</td>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Look of fear</td>
<td>None</td>
<td>Eyes wide open; furrowed brow; open mouth, teeth together</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Treat the Treatable (when appropriate)

• Anemia – transfusion
• Heart failure – adjust cardiac meds
• Fluid overload – diuretics
• Obstruction/Superior Vena Cava Syndrome – chemo/radiation/biological therapies
• Infection – antibiotics
• Pulmonary effusion – drain + sclerosis; consider drainage catheter
• Ascites – drain; consider drainage catheter
• Pulmonary embolism – anticoagulants
• Bronchospasm – bronchodilators

Oxygen Therapy

• Helpful only if hypoxic
• Dyspnea report more reliable guide to effectiveness of oxygen for dyspnea than oxygen saturation

Nonpharmacological Interventions

• Promote calm environment
  • Provide reassurance and presence
  • Position for optimal vital capacity
  • Pace activities
  • Provide a cool sensation to face
    • Fan or open window
    • Cool cloths
  • Limited evidence: Pursed lip breathing, relaxation/imagery, music, acupuncture/acupressure

Pharmacological: Opioids

• Endogenous opioids attenuate dyspnea at CNS level
• Proposed mechanisms:
  • Direct: respiratory center; vasodilation
  • Indirect: relief of anxiety and pain
• Morphine is most studied
  • Oral and parenteral effective
  • Nebulized route not supported by research
  • Various doses studied in mostly non-cancer diagnoses
• Also studied:
  • Hydromorphone
  • Fentanyl – IV/SC and nebulized
Pharmacological: Morphine

- Chronic dyspnea:
  - Opioid-naïve: sustained-release morphine 10-20mg daily in divided doses
  - Chronic opioids: 25% above baseline
- Acute dyspnea:
  - 2-5 mg morphine IV/SC q 5-10 minutes until relief
  - 10-15 mg morphine PO q 30 minutes until relief

Pharmacological: Anxiolytics

- Benzodiazepines
  - Varying study outcomes: as effective as opioid vs. not as effective vs. most helpful in combination with opioid
  - Cochrane review conclusion: do not use as first line
  - Watch for development of delirium
  - SSRIs to treat dyspnea induced/exacerbated by anxiety being studied

Pharmacological: Inhaled Furosemide

- Mostly case reports of effectiveness
- Small study (N=15) – as effective as nebulized saline; more effective than placebo
- Needs additional study

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