Optimizing Respiratory Function in Cancer Patients: The Role of the Pulmonologist
Session 17 Dyspnea

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Faculty Disclosure

No disclosures
Parenchymal
Tracheobronchial
Pleural
Vascular
Parenchymal
Airway
Parenchymal

- Cancer-related
  - Infectious
  - Aspiration
  - Therapy-induced
    - Radiation
    - Chemotherapy
    - Immunotherapy
- Non-cancer related
  - Pulmonary edema
  - Interstitial lung disease
Parenchymal

- Esophageal cancer
  - Treated with 5-fluorouracil and oxaliplatin followed by radiation (50 Gy) to the esophagus
- Hypoxic respiratory insufficiency
  - Multifactorial
Bronchoalveolar Lavage

Endobronchial Biopsy

Transbronchial Biopsy

Transbronchial Needle Aspiration
Tracheobronchial

- Hemoptysis, dyspnea, stridor
- In cases of bleeding, various airway interventions (laser, cryotherapy, argon plasma coagulation)
- Consider placement of stents
Lung cancer (IIIB) with respiratory failure 10.2013
Bronch with tumor destruction and tracheal stent
Treated with chemotherapy (carboplatin, taxol) and radiation. Repeat scan 2.2013
Tracheobronchial

TYPE OF INTERVENTION

Diffuse
Concentric

Brachytherapy

APC / Nd:YAG

PDT / APC / BrachyRX

APC / Nd:YAG

Stent / BrachyRX

Stent

Endoluminal

APC / Nd:YAG

Extraluminal

Endo and Extraluminal

Bleeding

CIS

Extrinsic compression

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Pleural

Malignant pleural effusion

Paramalignant pleural effusion

Parapneumonic effusion

Other etiologies (cardiac, renal, liver dysfunction, drugs, thromboembolic)

Cancer and pleural effusion
Pleural

• Thoracentesis
  – Diagnostic and therapeutic
  – Bedside
  – Can be done in the setting of coagulopathy
  – Can be repeated if poor performance status or if underlying cause not responsive to systemic therapy

• Pleuroscopy
  – Diagnostic in unexplained exudative pleural effusion
  – Can be therapeutic with pleurodesis (agent, indwelling pleural catheter)
Indwelling Pleural Catheter (IPC)

- Chest wall
- Pleural space with fluid
- Subcutaneous portion of catheter with polyester cuff
- External portion of catheter with valve
- Intrapleural portion of catheter with fenestrations

George M, Oncologic Emergencies, in press
 Courtesy of R. Morice, M.D.
Pleural – Malignant Pleural Effusion

**Local therapy**
- Thoracentesis
- Chest tube, chemical pleurodesis
- Thoracoscopic, chemical/mechanical pleurodesis
- Indwelling pleural catheter
- Pleuro-peritoneal shunting
- Pleurectomy (decortication)
- Radiation therapy

**Systemic therapy**
- Chemotherapy
- Stem cell transplant
- Oxygen
- Palliation
- Opioids
- Hospice

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# Pleural - Pleurodesis

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Expected survival</th>
<th>Pleurodesis Rate, %</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thoracentesis</td>
<td>&lt; 3 weeks</td>
<td>N/A</td>
<td>Minimally invasive, outpatient</td>
<td>No pleurodesis</td>
</tr>
<tr>
<td>Indwelling pleural catheter (IPC)</td>
<td>&gt; 3 weeks</td>
<td>42 to 58</td>
<td>Minimally invasive, outpatient</td>
<td>Indwelling chronic catheter and care, two to three times per wk drainage, infection risk, tube can clog</td>
</tr>
<tr>
<td>Tube thoracostomy</td>
<td>&gt; 3 months</td>
<td>Approximately 70</td>
<td>Minimally invasive, talc pleurodesis</td>
<td>Inpatient hospitalization, pain at tube site, limited mobility</td>
</tr>
<tr>
<td>VATS/medical thoracoscopy</td>
<td>&gt; 3 months</td>
<td>Approximately 80</td>
<td>Inspection of pleura with biopsy, talc pleurodesis</td>
<td>Invasive, inpatient hospitalization, tube thoracostomy after procedure</td>
</tr>
</tbody>
</table>
Vascular

- Pulmonary embolism
  - Anticoagulation
  - Thrombolytics
  - Catheter-directed thrombolytics
- Pulmonary hypertension
  - Sequelae of pulmonary embolism
  - Related to medications
  - Oxygen
  - Specific pulmonary vasodilators

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Airway

- Obstructive lung disease
  - COPD, asthma, chronic bronchitis
  - Constrictive bronchiolitis
- Restrictive
  - Neuromuscular disease
  - Kyphoscoliosis
  - Parenchymal
- Oxygen
- Bronchodilators
- Pulmonary rehabilitation
Supportive

• Oxygen, High flow oxygen
• Non-invasive positive pressure ventilation
• Medications

Before BIPAP

After BIPAP

Figure 3. Kaplan-Meier Plot of the Probability of Survival from Randomization to Day 90.

J Prat, NEJM 2015
In conclusion

• Close coordination of care between pulmonologist and oncologist crucial
• Diagnose and treat potential reversible etiologies of dyspnea
• Additive therapies for symptom management and supportive care extremely helpful
Questions?