Lung Cancer 101

Chad V. Pecot, MD
Assistant Professor of Medicine
UNC, Lineberger Comprehensive Cancer Center
NC Lung Cancer Initiative Summit
August 23rd, 2014

Me and the Pinkertons

DOB: April 19, 1980
Age: 29

DOB: April 19, 1930
Age: 79

Taken with patient insistence.

Me and Dr. B (Pre and Post)

3 Cycles of Cisplatin, Etoposide and Bleomycin
Leading Causes of Death in the US

- Heart Disease: 25%
- Cancer: 23%
- Stroke: 5%
- Respiratory Disease: 6%
- Accidents: 5%
- Alzheimer's: 3%
- Diabetes: 3%
- Flu & Pneumonia: 2%
- Kidney Disease: 2%
- Suicide: 1%
- Kidney Disease: 2%
- Fib & Pneumonia: 2%
- Diabetes: 3%
- Alzheimer's: 3%
- Accidents: 5%
- Stroke: 5%
- Other: 25%


Leading Causes of Cancer Death in the US

- Lung & Bronchus: 29%
- Colorectal: 9%
- Breast: 7%
- Pancreatic: 6%
- Prostate: 5%
- Leukemia: 4%
- Lymphoma: 3%
- Liver: 4%
- Bladder: 3%
- Esophageal: 3%
- Ovarian: 3%
- Brain: 2%
- Kidney: 2%
- All Others: 21%


Lung Cancer

Old view:
- Non-small cell Lung Cancer
- Squamous cell carcinoma
- Large cell carcinoma

Evolving view:
- Adenocarcinoma
- EML4-ALK
- HER2
- FGFR4
- iRas
- EGFR
- BRAF
- PIK3CA

Starting to approach reality:
- BRAF
- MET
- TITF-1
- PIK3CA

Starting to approach reality:
- BRAF
- MET
- TITF-1
- PIK3CA
Lung Cancer: The Facts

Lung Cancer is one of the most deadly cancers

![Bar chart showing 5-yr. Cancer Survival Rates, 2012](image)


Lung Cancer: Risk

- 1 in 13 men and 1 in 16 women will be diagnosed with lung cancer
- Lung Cancer can affect ANYONE

![Pie chart showing lung cancer risk factors](image)

Lung Cancer Can Affect Anyone

Age @ diagnosis

<table>
<thead>
<tr>
<th>Female</th>
<th>20-34</th>
<th>35-54</th>
<th>55-64</th>
<th>65-74</th>
<th>75-84</th>
<th>85+</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3%</td>
<td>1.9%</td>
<td>3.8%</td>
<td>19.9%</td>
<td>30.6%</td>
<td>29.5%</td>
<td>9.0%</td>
</tr>
<tr>
<td>0.2%</td>
<td>1.5%</td>
<td>3.8%</td>
<td>21.8%</td>
<td>31.9%</td>
<td>28.7%</td>
<td>7.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Male</th>
<th>20-34</th>
<th>35-54</th>
<th>55-64</th>
<th>65-74</th>
<th>75-84</th>
<th>85+</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2%</td>
<td>1.5%</td>
<td>3.8%</td>
<td>21.8%</td>
<td>31.9%</td>
<td>28.7%</td>
<td>7.1%</td>
</tr>
<tr>
<td>0.2%</td>
<td>1.5%</td>
<td>3.8%</td>
<td>21.8%</td>
<td>31.9%</td>
<td>28.7%</td>
<td>7.1%</td>
</tr>
</tbody>
</table>

Other Causes of Lung Cancer
- Radon
- Second hand smoke
- Diesel fumes
- Genetic susceptibility
- Radiation therapy
- Cooking fumes (developing countries)
- Asbestos, cadmium, arsenic

Prognosis
- Stage I → 50 – 70% long-term DFS
- Stage II → 20 – 40% long-term DFS
- Stage III → 5 – 20% long-term DFS
- Stage IV → < 5% long-term DFS
Recognizing symptoms: Local/Regional Disease

- Bronchial obstruction:
  - Cough, shortness of breath, hemoptysis
- Chest wall involvement:
  - Pain
- Laryngeal nerve involvement:
  - Hoarseness
- Vena cava involvement:
  - Facial swelling, flush

Recognizing Symptoms: Metastatic Disease

- Bone: Pain
- Brain:
  - Nausea
  - Headache
  - Other central nervous system symptoms
- Liver:
  - Anorexia
  - Painful right upper quadrant
- Adrenal: often asymptomatic

Lung Cancer Treatments

- Local disease = local treatment
  - Surgery
  - Radiation therapy
- Systemic disease = systemic treatment
  - Chemotherapy
  - Targeted therapy
  - Radiation therapy (for palliative purposes)
  - Surgery/radiosurgery for brain metastases
Lung Cancer is Highly Mutated!!!


Action Item: Kill!!!

Clinical Activity in NSCLC (Squamous)
Response to Gefitinib: Molecular status matters

Response to crizotinib

Response: 3 months

Thank you