56th Annual Meeting
American Society for Radiation Oncology

“Advances in Lung Cancer”
News Briefing

Moderator: Benjamin Movsas, MD, FASTRO

Tuesday, Sept. 16, 2014
7 a.m. (PT)
Long-term Results of RTOG 0236: A Phase II Trial of SBRT in the Treatment of Patients with Medically Inoperable Stage I Non-small Cell Lung Cancer

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Background

• First North American cooperative group trial using Stereotactic Body Radiation Therapy (SBRT).
  ▪ High tech, image guided, focused

• 59 frail patients

• Medical problems preclude surgery, e.g.:
  ▪ Emphysema
  ▪ Heart disease
  ▪ Stroke

• First presented in 2009 (ASTRO) and published in 2010 (JAMA) leading to a significant transition in routine care
Results

Median follow-up 4 years (7.2 years for survivors)

Irradiated Tumors
Well Controlled
Owing to Potent Therapy

60 month
Primary tumor recurrence = 7%

Overall Survival Good but Declining
Partly related to baseline medical problems

60 month
overall survival = 40%
Median survival is 48 months
Results

- Out-of-field Recurrence
  - 7 patients have a reported regional failure, out to 5+ years post SBRT
    - Only 2 patients in previous report
    - 5 year local-regional recurrence 38%
  - 15 patients (31%) have experienced disseminated failure
    - 11 patient in previous report

- Treatment Associated Toxicity
  - No treatment deaths
  - 17 patients had high grade toxicity
    - Nearly same as initial report, even with long term follow-up
    - Toxicities were mostly pulmonary related
Conclusions

- Primary tumor recurrence (treated area) remained very low at 5 years (7%) owing to the potent SBRT regimen.
  - Primary control similar to surgery

- Local-regional failure increased (38% at 5 years compared to 13% at 3 years), due to late failures (up to 6 years post SBRT) in mostly the involved lobe but also the hilum, and mediastinum (all untreated).
  - ? Need better staging or effective adjuvant therapy

- Severe toxicity remained relatively unchanged with longer follow-up.
  - Progressive “late” toxicity did not occur

- Disease free and overall survival in this medically inoperable population at 5 years was 26% and 40%, respectively.
Welcome
An Individual Patient Data Meta-analysis of Outcomes and Prognostic Factors After Treatment of Oligometastatic Non–Small-Cell Lung Cancer

Allison B. Ashworth¹, Suresh Senan², David A. Palma¹, Marc Riquet³, Yong Chan Ahn⁴, Umberto Ricardi⁵, Maria T. Congedo⁶, Daniel R. Gomez⁷, Gavin M. Wright⁸, Giulio Melloni⁹, Michael T. Milano¹⁰, Claudio V. Sole¹¹, Tommaso M. De Pas¹², Dennis L. Carter¹³, Andrew J. Warner¹, and George B. Rodrigues¹.

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Background

• Non-Small Cell Lung Cancer (NSCLC): leading cause of cancer-related death
  ▪ ~1/2 present with stage IV disease
  ▪ cancer spreads from original tumor to other sites in the body (metastases)

• Treatment: typically palliative chemotherapy
  ▪ Survival: a few months

• But, some patients have only a few metastatic deposits (oligo-metastases)

• Reports of long-term survivors with removal of oligo-metastases with surgery/high dose radiotherapy
Analysis

• We performed an individual patient data meta-analysis:
  ▪ 20 cancer centers worldwide, 757 patients
  ▪ 1-5 oligometastases
    o Treated with surgery/high dose radiotherapy
    o Original lung tumor treated aggressively

• Do long term survivors really exist?

• What patient, disease and treatment factors predict for longer survival?

• Can we identify patients most likely to benefit from aggressive treatment?
Results

• Most patients younger, and with only a single metastasis

• Survival at 5 years: 29.4% - higher than average stage IV

• In this group, factors that predicted for longer survival:
  ▪ synchronous vs metachronous
  ▪ Nodal disease

• Risk Stratification Model for survival:
  ▪ Low risk/best survival: metachronous metastases: 5 yr. OS: 47.8%
  ▪ Intermediate risk: synchronous and Node - : 5 yr. OS: 36.2%
  ▪ High risk/worst survival: synchronous and Node +: 5 yr. OS 13.8%
Conclusion

• Some long term survivors do exist

• Selecting the right patients is critical

• We can only apply our conclusions to this patient population (i.e. healthier than average stage IV patient)

• Further clinical trials needed to determine if aggressive treatments are truly beneficial

• In the meantime, we hope our risk classification model can assist physicians in selecting patients most likely to benefit
TARGETING CANCER: TECHNOLOGY & BIOLOGY

ASTRO 56TH ANNUAL MEETING

Welcome
Smoking History Predicts for Increased Risk of Second Primary Lung Cancer: A Comprehensive Analysis

J. M. Boyle\textsuperscript{1}; J. P. Chino\textsuperscript{1}; D. Tandberg\textsuperscript{1}; K. A. Higgins\textsuperscript{2}; C. R. Kelsey\textsuperscript{1}

\textsuperscript{1}Duke University, Durham, NC; \textsuperscript{2}Emory University, Atlanta, GA
Background

• Epidemiology of non-small cell lung cancer:
  ▪ 223,210 new cases → 159,260 deaths in 2014
  ▪ >90% associated with smoking

• Second primary lung cancer
  ▪ Well recognized entity following treatment of initial cancer

• Purpose:
  ▪ To identify and quantify risk factors for development of second primary lung cancer
  ▪ To evaluate the effects of smoking history on other clinical outcomes
Results

Second Primary Lung Cancer

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>No.</th>
<th>5 year percent (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never smoker</td>
<td>98</td>
<td>0</td>
</tr>
<tr>
<td>Quit ≥5 years</td>
<td>493</td>
<td>7.1 (3.2-11.0)</td>
</tr>
<tr>
<td>Quit &lt;5 years</td>
<td>521</td>
<td>7.3 (3.4-11.2)</td>
</tr>
<tr>
<td>Current</td>
<td>372</td>
<td>12.8 (6.5-19.1)</td>
</tr>
</tbody>
</table>
Results

Overall Survival

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>No.</th>
<th>5 year percent (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never smoker</td>
<td>98</td>
<td>54.1 (42.3-65.9)</td>
</tr>
<tr>
<td>Quit &gt;5 years</td>
<td>493</td>
<td>46.1 (40.8-51.4)</td>
</tr>
<tr>
<td>Quit &lt;5 years</td>
<td>521</td>
<td>47.1 (42.3-52.1)</td>
</tr>
<tr>
<td>Current</td>
<td>372</td>
<td>39.0 (33.5-44.5)</td>
</tr>
</tbody>
</table>

Overall Survival

Smoking status

- Never Smokers
- Quit > 5 years
- Quit ≤ 5 years
- Current Smokers

Years

Overall Survival
Conclusion

• Cumulative smoking history drives risk of SPLC amongst survivors of NSCLC

• Never smokers have low risk of SPLC
  ▪ implications for surveillance

• Smoking history exposes patients with NSCLC to greater risk of death

• Increase mortality risk mitigated by smoking cessation

• Smoking cessation should be an important component of care for all lung cancer patients
Questions?

Contact ASTRO’s Press Office
In San Francisco, Sept. 14-17, 2014:
415-978-3503
Via email: press@astro.org

The online press kit:
www.astro.org/AMPress