Funding Source

Lung Cancer Surgery: Decisions Against Life Saving Care

Sponsored by the American Cancer Society

Grant #: RSGPB-05-217-01-CPPB
Racial Disparities in the Treatment of Early Stage Lung Cancer: Which Interventions Will Work?
Proportion responding that they believe that clinically similar patients receive different care on the basis of race/ethnicity by proximity to practice (n=344)

Why Study Early Stage Lung Cancer?

- Fatal Disease
- Surgery only reliable chance of cure
- No treatment only 6% survive five-years
- A few absolute contraindications are defined
- Have to have strong reasons to refuse or recommend against

<table>
<thead>
<tr>
<th>Race</th>
<th>Lung Cancer Surgery</th>
<th>5-year survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>77%</td>
<td>34%</td>
</tr>
<tr>
<td>African-American</td>
<td>64%</td>
<td>26%</td>
</tr>
</tbody>
</table>

44 excess deaths per 1000 lung cancer cases due to decisions against surgery!
Survival of Medicare Beneficiaries 65 Years of Age or Older Who Were Given a Diagnosis of Stage I or II Non-Small-Cell Lung Cancer between 1985 and 1993, According to Treatment and Race

• Administrative data controlled for insurance, income, and co-morbidities.

• No specific reasons for treatment disparity despite near certain death within 4 years post-diagnosis
Methods

- 5 communities
- Pulmonary, Oncology, Thoracic Surgery, ED, and Generalist Practices
- Direct referral vs chest CT review protocol
Inclusion Criteria

• > 18 years old

• Tissue diagnosis of non-small cell lung cancer or > 60% probability using a Bayesian Model

• Clinical / Radiological Stage I or II disease

• English Speaking
Timing of Enrollment

• Patient informed of the diagnosis of definite or probable lung cancer

• Survey administered verbally by trained RA before treatment plan established
The Questionnaire

106 items Including:

- Demographics
- SF-12
- Mental Adjustment to Cancer Scale
- Trust
- Perceptions of provider-patient communication
• “Exposure to air”
• Perceived certainty of diagnosis
• Attitudes about lung cancer
• Dyspnea
• Decision participants
• Religiosity
Chart Abstraction

- Timing: At least 4 months after diagnosis
- Surgery: Yes / No and Date
- PFT’s
- Co-Morbid Diagnoses
- Clinical Stage
- Surgical Stage
Statistical Analysis

• Primary Outcome: Lung Cancer Surgery Within 4 Months of Diagnosis
Results

- Patients enrolled – 437
  - 7 patients not Caucasian or AA
  - 32 with advanced cancer
  - 6 with benign dx
  - 6 with FEV-1 < 25% predicted (no surgeries below this level)
- 386 met entry criteria and remained eligible for lung resection surgery
Results

• 67 percent (N = 257) with biopsy proven diagnosis at enrollment
  - 62% surgical resection

• 33 percent CT-defined probable disease
  - 64% surgical resection

• 88 percent tissue diagnosis confirmed
## Results: Demographic Data

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td>29</td>
</tr>
<tr>
<td>Married</td>
<td>64</td>
</tr>
<tr>
<td>Male</td>
<td>56</td>
</tr>
<tr>
<td>Insured</td>
<td>92</td>
</tr>
<tr>
<td>Education &gt; High School</td>
<td>35</td>
</tr>
<tr>
<td>Median Age</td>
<td>66 yrs (range 26 to 90)</td>
</tr>
</tbody>
</table>
4 Month Surgery Rates

- All enrollees (N = 386)
  - Caucasian: 66%*
  - African-American: 55%

*p = .05
4 Month Surgery Rates

- Tissue confirmed only (N = 339)
  - Caucasian 75%*
  - African-American 63%

*p = .03
<table>
<thead>
<tr>
<th></th>
<th>Percent Surgery if Agree</th>
<th>Percent Surgery if Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faith alone can cure disease</td>
<td>52</td>
<td>70</td>
</tr>
<tr>
<td>One or more family members will have to approve surgery</td>
<td>57</td>
<td>66</td>
</tr>
<tr>
<td>If I have surgery and the cancer is exposed to air it will spread</td>
<td>53</td>
<td>70</td>
</tr>
<tr>
<td>My quality of life in 12 months will be better if I have lung cancer surg.</td>
<td>75</td>
<td>41</td>
</tr>
<tr>
<td>My doctor listened to me when I had something to say</td>
<td>71</td>
<td>36</td>
</tr>
</tbody>
</table>
Regression Analysis - All Patients

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Odds Ratio for Lung Ca Surg</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA Race</td>
<td>.75</td>
<td>.57 – .99</td>
</tr>
<tr>
<td>Comm. Score (5 of 25 less)</td>
<td>.42</td>
<td>.32 – .74</td>
</tr>
<tr>
<td>Belief QOL worse in 12 months + surg</td>
<td>.27</td>
<td>.14 – .50</td>
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<tr>
<td>Top quartile age (&gt;73 yrs)</td>
<td>.32</td>
<td>.20 – .51</td>
</tr>
<tr>
<td>Bottom quartile MCS of SF-12</td>
<td>.51</td>
<td>.28 – .91</td>
</tr>
<tr>
<td>Religiosity (Faith alone q)</td>
<td>.56</td>
<td>.39 – .79</td>
</tr>
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</table>
Regression Analysis - African Americans

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<tbody>
<tr>
<td>Comm Score (5 of 25 less)</td>
<td>.27</td>
<td>.15 – .51</td>
</tr>
<tr>
<td>Co-morbid illness 2 or more</td>
<td>.04</td>
<td>.01 – 0.25</td>
</tr>
<tr>
<td>No Regular Source of Care</td>
<td>.20</td>
<td>.10 - .43</td>
</tr>
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Regression Analysis - African-Americans

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<th>Odds Ratio for Lung Ca Surg</th>
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</tr>
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<tbody>
<tr>
<td>Belief QOL worse in 12 months with surg</td>
<td>.25</td>
<td>.08 – .79</td>
</tr>
<tr>
<td>Trust Scale – 10 point increase*</td>
<td>0.54*</td>
<td>.35 – .85</td>
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* The Trust Paradox
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<tbody>
<tr>
<td>Co-morbid illness 2 or more</td>
<td>.45</td>
<td>.10 – 2.0</td>
</tr>
<tr>
<td>Comm Score (5 of 25 less)</td>
<td>.47</td>
<td>.24 – .93</td>
</tr>
<tr>
<td>Worse QOL in 12 months with surg</td>
<td>.25</td>
<td>.17 – .37</td>
</tr>
<tr>
<td>Trust Scale – 10 point increase</td>
<td>1.0</td>
<td>.76 – 1.4</td>
</tr>
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Regression Analysis – White Patients

• No Regular Source of Care
  OR 1.3, 95% CI .32 – 5.3
Co-morbidities


  - Average 3-year survival – no comorbidities 86%
  - Average 3-year survival – severe comorbidities 70%
  - Average 3-year survival without surgery* 10 – 15%

* Bach N Engl J Med 1999; 341:1198
Conclusions

• Excluding patients with PFT defined absolute contra-indications, disparities in treatment for early stage, non-small cell lung cancer remain

• The impact of poor communication is apparent in both White patients and African-Americans

• Lack of a regular source of care exacerbates the effect on African-Americans
Conclusions

• Co-morbid conditions are markedly associated with decisions against surgery for African-American patients

• This impact is NOT apparent with White patients

• This finding suggests a systematic or implicit bias when considering higher risk African-American patients for lung cancer surgery
Possible Solutions
Provider Awareness

• Know that disparities (beyond what is attributable to SES, education, and insurance) exist

• Think in the context of the ideal
Communication


• Health Literacy Appropriate Techniques

(Paasche-Orlow MK et al. Tailored education may reduce health literacy disparities in asthma self-management. Am J Respir Crit Care Med 2005;172:980-6).

• Shared Decision Making / Participatory Communication

Communication

- Peer or spiritual health advisors

(Rosenzweig et al. The attitudes, communication, treatment, and support intervention to reduce breast cancer disparity. Oncol Nurse Forum 2011;38: 85-89).

- Pilot delivered by AA breast cancer survivor
  1. Discussion chemotherapy
  2. Importance of communicating knowledge needs and distress
  3. Explanation of path results and rx plan
  4. Survivor video

- (N = 24) % total dose chemo received / prescribed
  94% vs. 74%
Intervention Design

- **Provider education / awareness**: Lung cancer disparity data and local surgical and co-morbidity data by race

- **Transparency**:
  - Co-morbidity checklist with individual patients
  - Real time registry with warning indicators
  - Provider receives race-specific data feedback

- **Super-navigator** – Enhanced communication; dropout interventions (stratify by low health literacy)
Intervention Caveat

• Super-Navigator

Diagram:
- Surgery Offered: Fact Sheet Delivered
  - Patient Ambivalent or Rejects or Misses F/U
    - Surgical Fact Protocol (Teach-back)
      - Patient Ambivalent or Rejects
        - Kleinman Q's - "Patient Model"
          - Explore Barriers - Negotiate
            - Patient Accepts
              - Follow thru Registry System
            - Patient Rejects
              - Repeat Patient Model / Motivational Interviewing
                - Clergy / Spiritual Counsellor
                  - Narratives
          - Patient Accepts
            - Follow thru Registry System
      - Patient Accepts
        - Stop
  - Patient Accepts
    - Follow thru Registry System