Lung Cancer: Current Health Disparities in Risk Factors & Outcomes

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Disclosures

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Objectives

Understanding the Current Problem
Where are the health gaps in lung cancer.

Risk Factors
Addressing the risk factors for patients and community.

Action to Help Shrink the Health Gaps
Strategies to consider for your patients.
Case Example

Ms. K is a 68 year old with “asthma”
- Came often to physicians about being short of breath
- Hid her smoking habit
- I saw her in 2017, two years with her “short of breath symptoms”
Epidemiology

Understanding the Current Problem

Lung Cancer
- 156,000 people die from lung cancer every year

Ryan BM. Carcinogenesis 2018; 39:741
Epidemiology

Lung Cancer
- 156,000 people die from lung cancer every year
- Breast Cancer: 43,000

American Cancer Society 2019
Epidemiology

Lung Cancer
- 156,000 people die from lung cancer every year
  - Breast Cancer: 43,000
  - Colon Cancer: 51,000

American Cancer Society 2019
Epidemiology

Lung Cancer - Gaps
- **Gender**
  - Historically, lung cancer affected more men than women
  - Men: 1 in 15 will develop lung cancer
  - Women: 1 in 17 will develop lung cancer
Epidemiology

Understanding the Current Problem

Lung Cancer - Gaps
- Gender
  - Women have been identified to have better outcomes with certain types of lung cancer
  - Risk of death from lung cancer for men is 1.6 times higher versus females

Pinto JA. ESMO Open 2018; 3: e000344
Epidemiology

Lung Cancer - Gaps

- Race
  - Incidence: 32% higher rate in African Americans (AA) versus Caucasians
    - And even higher in African American men
  - Diagnosis of lung cancer happens 3 years earlier in AA versus Caucasians
    - But it is often advanced cancer with minimal survival

Ryan BM. Carcinogenesis 2018; 39:741
MMWR 2010
Rate of Cancer Deaths by Sex and Race/Ethnicity

Lung and Bronchus, United States, 2015

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Rate per 100,000 people
Epidemiology

Understanding the Current Problem

Lung Cancer – Population Perspective
- 1800 people surveyed on thoughts towards lung cancer
  - 67%: Shame
  - 74%: Stigma
  - 75%: Hopelessness

American Lung Cancer Association 2019
Ms. K is a 68 year old with “asthma”
- Came often to physicians about being short of breath
- Hid her smoking habit
- I saw her in 2017, two years with her “short of breath symptoms”
Ms. K is a 68 year old with “asthma”
- We learned that she continued to smoke cigarettes and hid the habit from her family
- Worked 2 jobs during the week to make ends meet
- In 2017, she was diagnosed with lung cancer
Risk Factors

Patient-Level Non-modifiable

Genes & Heritability
- There is an underlying association between genes and lung cancer
  - Especially true of adenocarcinomas of the lung
- AA with 1st degree relative who has lung cancer have 5 times as a risk of developing lung cancer versus Caucasians

Ryan BM. Carcinogenesis 2018; 39:741
Risk Factors

Genes & Heritability
- However, there is the influence of environment
  - African-born black men & women have a 65% lower frequency of lung cancer compared to US-born African Americans
- More studies needed to understand the impact of genes and lung cancer incidence

Ryan BM. Carcinogenesis 2018; 39:741
Risk Factors

Patient-Level Modifiable

Tobacco Use
- Overall prevalence of tobacco use has gone down
  - 19.3% US adults use any tobacco product
  - 14.0% US adults use cigarettes
- First evidence of linking tobacco to lung cancer: 1942
  - US Surgeon General Warning: 1964

MMWR 2018
Risk Factors

Tobacco Use

- Overall prevalence of tobacco use has gone down
- However, in certain populations, it is still high:
  - Minorities
  - Low socioeconomic status
  - Uninsured
  - Less years of formal education
  - Persons with mental health issues

MMWR 2018
Risk Factors

Other Risk Factors
- Alcohol use (>3 glasses/day) for Caucasians
Risk Factors

Community-Level

Environment

- Rural areas
- Socioeconomic status
- Pollution Exposure, Radon Exposure
  - Often worse in more disadvantaged communities

Ryan BM. Carcinogenesis 2018; 39:741
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Case Example

Ms. K is a 68 year old with “asthma”
- We learned that she continued to smoke cigarettes and hid the habit from her family
- Worked 2 jobs during the week to make ends meet
- In 2017, she was diagnosed with lung cancer
Case Example

Ms. K is a 68 year old with “asthma”
- Had a mother and cousin die of lung cancer
- Home located to large highway with much car pollution
- Uninsured until 2016
Call to Action

Lung Cancer Screening
- USPSTF recommendation:
  - Low Dose CT scan for 55-80 years old persons
  - 30-pack year smoking history
  - Currently smoke or quit <15 years ago
Call to Action

Shrink the Health Gaps

Lung Cancer Screening
- CMS approved reimbursement for annual lung cancer screening
Call to Action

Lung Cancer Screening
- Expansion of screening may reduce lung cancer deaths
- However, it may also worsen certain disparities.

Shrink the Health Gaps

Ryan BM. Carcinogenesis 2018; 39:741
Lung Cancer Screening
- AA tend to have lung cancer develop at a younger age (before age of 55)
  - In the largest LCS trial in the VA, AA only made up 14.8% of the cohort
- Early-onset lung cancer is more advanced
- More research is needed to see if we should lower the age of screening for AA

Ryan BM. Carcinogenesis 2018; 39:741
Call to Action

Lung Cancer Screening
- Help with access to care
  - Talk to healthcare professionals about lung cancer
- Help with risk factors
  - Quitting smoking
- Assure that LCS occurs
  - Only 3.9% of eligible persons underwent screening in 2015

Ryan BM. Carcinogenesis 2018; 39:741
Call to Action

Tobacco Cessation Programs
- Tobacco continues to be the number one cause of preventable deaths
- AA may consume less tobacco than Caucasians, but have harder time quitting smoking

Ryan BM. Carcinogenesis 2018; 39:741
Mechanisms of Cigarette Smoke Induced Lung Damage

- Cigarette smoke-derived free radicals and oxidants
- Antioxidant genes
- ‘Susceptibility’ genes

Oxidative Stress

- Inactivation of antiproteases
- Lipid peroxidation
- Depletion of antioxidant defenses
- Neutrophil sequestration
- Transcription of proinflammatory cytokines

Epithelial permeability

INJURY

MacNee, C et al Chest 2000 May; 117(5) Supp 1: 303S-317S
“Gratification Factor”

Shell = Drug Seeking Behavior
Core = Gratification of Compulsion
Stepwise Combination Replacement Therapy with Controllers and Relievers

Controller: Controls intensity and frequency of negative prediction error signal
Rescue: Respond to the signal

CONTROLLER:
- TNP NRT
- Varenicline
- Bupropion

And/ Or

RESCUE MEDS:
- PRN NRT
- NS, Inh, NG, Loz

Mild Tobacco Dependence

CONTROLLER (S): (1 or more)
- TNP NRT
- Varenicline
- Bupropion

And/ Or

RESCUE MEDS:
- PRN NRT
- NS, Inh, NG, Loz

Moderate Tobacco Dependence

MULTIPLE CONTROLLERS:
- TNP NRT
- Varenicline
- Bupropion

And

MULTIPLE RESCUE MEDS PRN NRTs
- NS, Inh, NG, Loz

Severe Tobacco Dependence

MAINTENANCE

Do not discontinue medications prematurely

Increasing Rescue NRT agonist meds
Objectives

- Understanding the Current Problem: Where are the health gaps in lung cancer?
- Risk Factors: Addressing the risk factors for patients and community.
- Action to Help Shrink the Health Gaps: Strategies to consider for your patients.
Actions for Patients & Providers

**EDUCATION**
- Raise awareness around lung cancer and how to be screened.
- Fight the stigma around lung cancer.

**ENGAGEMENT**
- Help communities understand how to identify risk factors around lung cancer incidence.

**IMPLEMENTATION**
- Work with multiple personnel to allocate resources to assure screening occurs and risk factors are challenged.
Case Example

Ms. K is a 68 year old with “asthma”
- Quit smoking in 2018
- Treated for stage IV lung cancer
- Passed away in January 2019
Case Example

Understanding the Current Problem

Ms. K’s Daughter is 50
- Works to help people in the community quit smoking
- Helps people know when to be screened
- Runs support groups for people with lung cancer
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QUESTIONS

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