Lung Cancer Screening & Care of the Lung Cancer Patient

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Lung Cancer: Stage 4 (>50%)
Stage 1A Lung cancer

50%- 5 year survival
National Lung Cancer Screening Trial

August 2002 to April 2004

• 53,454 patients deemed high risk enrolled
  • 33 Medical Centres
  • Ages 53-75
  • >30 pack-year

• Randomized to CXR or Low-Dose CT scan
  • 3 annual CT scans or CXRs
  • 20% mortality reduction
Recommendation #1: Who to Screen?

Adults between 55 and 74 years of age who have a 30 pack-year smoking history
- Only include those who smoke or who quit smoking within the past 15 years

Canadian Task Force on Preventive Health Care, 2016
Recommendation #2: Where to Screen?

1. Screening Should only be done in CCO Level 1 Thoracic Centres in a structured screening program
2. Screening centres should have access to:
   • Advanced Interventional Radiology
   • PET Scans
   • Minimally Invasive Trained Thoracic Surgery

AVOID AD HOC SCREENING
Benefits of Screening

- 20% reduction in Lung cancer mortality (NLST)
- Higher rate of detecting early stage lung cancer
- Higher enrolment In smoking cessation program
19% of all participants

10 malignancies
- 2 multiple myeloma
- 1 lymphoma
- 6 breast cancers
- 1 thyroid cancer

[Kucharczyk M, Roberts et al. CARJ 2011]
Harms of screening: NSLT

- For every 1000 patients screened for 3 years
  - 391 had 1 positive CT
  - 351 had false positive result
  - 40 had lung cancer

Of the false positives:
  - 3 experienced a major complication
  - 1 patient died
Lung nodules: False Positives

baseline

2 months follow up
HARM: Overdiagnosis Bias: Intervention when the lung cancer would remain subclinical before death from other causes

70 year old female with COPD
True Survival benefit? *lead time bias*

- **no screen**
  - CT - Dx
  - Sy - Dx

- **screen**
  - CT - Dx
  - survival
  - lead time
Minimize interventions on false positives
Minimize overdiagnosis
Provide access to advanced surgical technique
Osler’s Program (January 2016)

- **2,233** patients screened
- **3,872** screening CTs performed
- Average wait time of only **17** days.
- **423** patients to our SPIN Clinic
- **202** patients to our Smoking Cessation Program
- **2.4%** of patients screened through our existing program had lung cancer
- **16** cancers were identified on follow-up visits recommended by our program
- Residents of Ontario between the ages of 55 and 79 with a 30 pack year smoking history.
- Pilot sites in Oshawa, Sudbury, Ottawa
- Likely to start in 2017-18
Lung-RADS™: a quality assurance tool designed to standardize lung cancer screening CT reporting and management recommendations

- Lung RADS algorithm reduces:
  - Interventions
  - Frequency of scans
### Single Nodule Lung Cancer Screening with... MARC OSSIP

#### Type of Nodule
- **Solid**
- **Subsolid**
- **Hilar**

#### Measured Diameter in mm
- **24**

#### Prior CT?
- **Yes**
- **No**

#### Spiculated?
- **No**
- **Yes**

#### LUNGRADS 4A: 6 month LDCR; PET/CT
- Solid component is a 8mm, 5-15% of malignancy.

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Based on Lung-RADS™ Version 1
Surgical Oncology care is complex, and multidisciplinary. One patient frequently requires:

1. Visit with a surgeon
2. Visit with our Nurse Navigator
3. Visit with an Medical Oncologist
4. Visit with a Radiation Oncologist
5. Visit with a Radiologist
6. Review by a Pathologist
7. Visit with an Anesthesiologist
8. Presentation at a Tumor Board
Importance of Multidisciplinary Rounds: Wednesday 7 AM

- Regularly scheduled meetings where representatives from surgery, medical oncology, radiation oncology, nursing, pathology, and diagnostic imaging discuss all appropriate diagnostic tests and suitable treatment options for an individual cancer patient (CCO 2006)

- **What are the benefits to Patient Care?**

- Patients are more likely to receive treatment according to guidelines (McDermid 2009)

- Treatment plans will change up to 43% after MCC discussion (Santoso 2004)
The patient advocate: The Nurse Navigator

Nurse Navigator role activated within 36 hours of referral
Visit with surgeon within 5 business days
Seamless access to staging tests (PET, biopsy, etc)
9-5 access to Nurse Navigator to help with:
- Test booking and rescheduling
- Quick access to smoking cessation programs
- Access to Dietetic support
Osler’s Thoracic Triangle of Care: Multidisciplinary Work up

- Needle biopsy, Bronchoscopy...
- PET, Mediastinum
- PFT’s, Cardiac...
Educating the Patient

My 3DLung
Prospective studies have found that PET detects unexpected distant metastases in up to 15% of patients, which may lead to changes in patient management.
Staging the mediastinum: Endobronchial Ultrasound
Pathology: Diagnosis
Pathology: Clinical Stage: lymph node status
Patient, Clinical Stage: 1A
Minimally Invasive Thoracic Resection: Right Lower Lobectomy
Patient’s Right Lower Lobe
T1 N1M0
Role of Radiation Oncology

• Primary treatment along with systemic therapy
• Neoadjuvent therapy:
  • Chest wall invasion (Pancoast Tumor)
  • Stage 3A lung cancer
• Adjuvent therapy:
  • Incomplete resection
• Palliative therapy:
  • Pain/compressive symptoms

• Patients with resected Stage 1-2 NSCLC disease are not offered adjuvent radiation therapy
Stereotactic Body Radiation Therapy

- SBRT with curative intent is an option that should be considered for patients with early stage, node-negative, medically inoperable NSCLC.
The role of the Medical Oncologist: After complete resection

**Completely resected stage I**
Postoperative adjuvant chemotherapy is not recommended in all patients.

**Completely resected stage II**
*Postoperative adjuvant cisplatin-based chemotherapy is recommended in this population*

**Completely resected stage IIIA**
Postoperative adjuvant cisplatin-based chemotherapy is recommended in this population.

Targeted therapy being evaluated in many clinical scenarios