COLON CANCER SCREENING IN CYSTIC FIBROSIS

Laveena Chhatwani, MD, MSc
Associate Director, Adult Cystic Fibrosis Program
Clinical Assistant Professor of Medicine
Outline

- Background
- Risk of colorectal cancer in cystic fibrosis
- Screening Recommendations
- Challenges and Opportunities
- Summary
Background

- Colorectal cancer (CRC):
  - 2nd leading cause of cancer deaths
  - 134000 new cases in 2016
  - Estimated 49000 deaths in 2016
Background

- Improving pulmonary function in adults with Cystic Fibrosis
- FEV1 is the single best predictor of mortality in CF patients
- US CF Foundation patient registry 2015

### Median FEV₁ Percent Predicted in 18-Year-Olds, 1990–2015

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<tr>
<th>Year</th>
<th>FEV₁ Normal/Mild (≥70%)</th>
<th>FEV₁ Moderate (40% to 69%)</th>
<th>FEV₁ Severe (&lt;40%)</th>
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Colorectal Cancer Risk in Cystic Fibrosis

• Cystic Fibrosis (CF)
  • Concern: cases of CRC in CF population will rise
    • Increased life expectancy + large age-related increased risk of CRC

• Adults with CF: 5 to 10 times risk compared to general population

• CF patients after organ transplantation: 25 to 30 times greater risk compared to general population

Hadjiliadis et al. Gastroenterology 2018; 154: 736 - 745
Colon Cancer in Cystic Fibrosis

- Nearly all CRC in CF patients observed in patients below age 50 years

- Average onset of CRC in CF population is 40 years, or about 20 to 30 years younger than in the non-CF population

- SEER: incidence of CRC in CF population at age 40 to 49 years is similar to incidence of CRC in 65 to 69 year old persons in the non CF population
Why the increased risk?

• Inflammatory and non-inflammatory risk factors

• CFTR gene is a tumor suppressor gene in the intestinal tract in mice
  • Loss of CFTR is associated with intestinal tumor formation

• Loss of CFTR expression in early stage human CRC in non-CF patients is associated with markedly decreased disease-free survival

• Cystic fibrosis: a colon cancer syndrome

Than BL et al Oncogene 2016;35(32):4179-4187
Starr TK et al Science 2009;323(5922):1747-1750
Screening and Prevention: Consensus Recommendations

• All decisions on colorectal cancer screening and surveillance in individuals with cystic fibrosis be based on shared decisions between the provider and individual with CF about treatment, comorbidities, safety and quality of life

• Reviewing guidelines at CF Education Day
• Reviewing guidelines with CF team members
• Discussion at clinic visits

Hadjiliadis et al. Gastroenterology 2018; 154: 736 - 745
Screening and Prevention: Consensus Recommendations

• All colorectal cancer screening and surveillance for individuals with cystic fibrosis are jointly managed by cystic fibrosis health care professionals and an endoscopist: dedicated CF trained endoscopist familiar with CF GI issues

• Collaboration with Stanford Gastroenterology
  • Dr Kirsten Regalia
Screening and Prevention: Consensus Recommendations

- Colonoscopy as the screening exam
- Evidence is insufficient to recommend use of CT colonography, stool based tests or flexible sigmoidoscopy
- Intensive bowel preparation for optimal exam
Screening and Prevention: Consensus Recommendations

- Colorectal cancer screening begin at age 40 years in individuals with CF

- After solid organ transplant, patients who are 30 years or older should begin colon cancer screening within 2 years of transplant
Screening and Prevention: Consensus Recommendations

- CF, Age > 40 years
  - Screening Colonoscopy
    - Negative colonoscopy: Repeat in 5 years
    - Adenomatous polyps: Repeat in 3 years (or less)
Screening and Prevention: Consensus Recommendations

- CF Organ transplant recipient, Age > 30 years
  - Screening colonoscopy within 2 years of transplant
    - Negative Screening Colonoscopy: Repeat in 5 years
    - Adenomatous polyps: Rescreen in 3 years (or less)
Colon Cancer Prevention in CF

- Pharmacologic agents (investigational)

- Effect of CFTR Modulators?
Colon Cancer Screening

- Challenges:
  - Colonoscopy
    - Nature of procedure and intensive bowel preparation
    - Time away from work/life
  - Patient population with underlying lung disease
  - Test findings may provoke anxiety

- Team-based approach to individualize decisions to the patient and in keeping with their values and preferences
Summary

• Let’s discuss colon cancer screening at your next Cystic Fibrosis Clinic Visit!!