Colorectal Cancer

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Reducing the Burden: A July Noon Series to Conquer Cancer

• National Cancer Act of 1971, strengthened the National Cancer Institute, effort to find a cure for cancer
• Viewed as the beginning of the “war on cancer”

• 2003, director of NCI challenged “to eliminate the suffering and death from cancer, and to do so by 2015”
Disclosures

• None
Presentation Overview:

• Colorectal Cancer
  1) Incidence and risk factors
  2) Implement best practices in screening and treatment
  3) Recognize health disparities
  4) Identify community resources for patients
Colorectal

- 3rd most common malignancy in US
  - 103,000 cases colon cancer in 2010
  - 40,000 cases rectal cancer in 2010
- 3rd leading cause of death in US
  - 51,000 deaths in 2010
Colorectal

- Lifetime risk, colon or rectum:
  - Men 5.5%
  - Women 5.1%
Colorectal Cancer Risk Factors

- Older age
- Diet
  - High saturated fats
  - Fiber issue controversial
- Excessive alcohol consumption
- Sedentary lifestyle
- Smoking
- Inflammatory Bowel Disease
Risk Factors: Family History

• “Colorectal cancer usually happens in people with a family history.”
  – 75% of all new cases of colorectal cancer occur in people with no predisposing factors for the disease

<table>
<thead>
<tr>
<th>Hereditary Risk Factor</th>
<th>% of Cancer Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sporadic (no family history)</td>
<td>75%</td>
</tr>
<tr>
<td>Family History</td>
<td>18%</td>
</tr>
<tr>
<td>HNPCC</td>
<td>5%</td>
</tr>
<tr>
<td>Familial Adenomatous Polyposis</td>
<td>1%</td>
</tr>
<tr>
<td>Inflammatory Bowel Disease</td>
<td>1%</td>
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</tbody>
</table>
Colorectal

- Screening accepted due to:
  - Prevention
  - Early Detection
  - Decreased Morbidity
  - Decreased Mortality
  - Decreased Health Care Costs
5-year survival by stage

Percent of people alive 5 years or more after being diagnosed with colon cancer, depending on stage at diagnoses.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Survival</th>
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<tbody>
<tr>
<td>Stage I</td>
<td>93%</td>
</tr>
<tr>
<td>Stage IIA</td>
<td>85%</td>
</tr>
<tr>
<td>Stage IIB</td>
<td>72%</td>
</tr>
<tr>
<td>Stage IIIA</td>
<td>83%</td>
</tr>
<tr>
<td>Stage IIIB</td>
<td>64%</td>
</tr>
<tr>
<td>Stage IIC</td>
<td>44%</td>
</tr>
<tr>
<td>Stage IV</td>
<td>8%</td>
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</table>
Guidelines for Screening

• Joint guidelines
  – American Cancer Society
    • First issued guidelines in 1980
  – US Preventive Services Task Force
  – US Multi-Society Task Force on Colorectal Cancer
  – American College of Radiology
Screening Categories

- **Average risk**
  - Asymptomatic
  - No personal history of CRC or polyps
  - No family history of colorectal neoplasia
  - No IBD
  - No anemia

- **High risk**
Average Risk

• Colorectal cancer in 40-49 age group uncommon
• Recommendation to start at age 50
Average Risk

Options

- FOBT or FIT annually
- Fecal DNA – uncertain interval
- DCBE – every 5 years
- CT colonography – every 5 years
- Flexible sigmoidoscopy – every 5 years
- Colonoscopy – every 10 years

FOBT = fecal occult blood testing
FIT = fecal immunochemical testing
DCBE = double contrast barium enema
Average Risk

One-Stage Screening

Colonoscopy

Two-Stage Screening

FOBT
FIT
Flex Sigmoidoscopy
Fecal DNA

Colonoscopy

FOBT = fecal occult blood testing
FIT = fecal immunochemical testing
DCBE = double contrast barium enema
Fecal Tests – Guaiac based FOBT

**Advantages**
- No bowel prep
- Can be done at home
- Cheap
- Minimal risk to patient

**Disadvantages**
- Must be screened annually
- Perform on 3 sequential stools!
- No NSAIDS x 7 days, no Vitamin C x 3 days, ? No red meat
- Positive test → Colonoscopy
- Most patients don’t follow up with yearly tests
- Compliance low
Fecal Tests –
Fecal Immunochemical Testing

**Advantages**

- Detects human globin
  - More specific for human blood than guaiac-based test
- Not effected by Vitamin C
- More specific for lower GI blood than guaiac tests
- Only 2 samples needed

**Disadvantages**

- More expensive
- No randomized trials
Fecal Tests - Fecal DNA

• Tests stool for the presence of known DNA alterations in the adenoma-carcinoma sequence

• Uses a multitarget DNA stool assay to achieve adequate sensitivity

• Samples for 21 separate point mutations – APC, K-ras, p53

• Sensitivity – 52-91%¹

Colonoscopy
Increased Risk

• 3 categories
  – History of polyps at previous colonoscopy
  – Personal history of CRC
  – Family history CRC or polyps

• All get colonoscopy – no other recommended options
History of polyps at previous colonoscopy

- Hyperplastic polyp – average risk
- 1-2 tubular adenomas – 5-10 yrs after initial polypectomy
- 3-10 adenomas
- 1 adenoma >1cm
- Villous adenoma
- High grade dysplasia
- Sessile adenoma removed piecemeal – 2-6 months to verify complete removal

3 years after initial polypectomy
History of Polyps at Previous Colonoscopy

Hyperplastic

Average Risk

1-2 Tubular Adenomas

5-10 Years

1 Adenoma >1 cm

3-10 Adenomas

Villous Adenoma

High Grade Dysplasia

Sessile Adenoma Piecemeal Removal

3-6 months to verify removal

3 Years Post Polypectomy
Personal history of CRC

• Colon must be cleared preoperatively
• After resection – 1 year later, then 3 years later, then 5 years if all normal and no history of HNPCC
Family history CRC or Polyps

- 1st degree relative <60yo – Start at age 40 or 10 years before the youngest case and screen q5 years
- 1st degree relative >/= 60yo – Start at age 40 and screen same intervals for average risk
When To Stop?

• No direct evidence
• Once nearing end of life
  – Polyps take 10 years to progress to carcinoma
• Depends on judgment of individual patient and MD and life expectancy
Screening Summary

- Colorectal cancer mortality can be reduced with appropriate screening
- Wide variety of screening options if average risk
- If high risk, all patients get colonoscopies but at variable intervals depending on risk factors
Treatment - Diagnosis/Staging

- Colonoscopy with biopsy
- Pre-op staging
  - CT for colon & rectum
  - MRI vs Endorectal ultrasound for rectal
- Planning of treatment
- Lymph node retrieval: ≥ 12
Endorectal US for Rectal Ca

- uT1 - mucosa and submucosa
- uT2 - invades muscularis propria
- uT3 - invades into perirectal fat
- uT4 - invades adjacent structures
- 81% to 94% accuracy with depth of penetration
- 58% to 83% accuracy with lymph nodes
Surgical Treatment for Colon

• Remove the tumor and surrounding lymph nodes
  – Role of Minimally Invasive Surgery – Colon Ca
  – Lymph node retrieval - ≥ 12
Abdominoperineal Resection

- Low rectal cancers
- 4-6 cm from the anal verge
- Factors which favor APR
  - bulky lesions
  - narrow pelvis, obesity
  - anal sphincter weakness

Surgical Treatment for Rectal
Surgical Treatment for Rectal

- Low anterior resection
  - Reduce local recurrence
  - Preserve sexual and urinary function
  - Preserve stool continence
Surgical Treatment for Rectal Cancer

- Rectal Cancer
  - Technical advances
    - Total Mesorectal Excision
    - Sphincter Saving Procedures
  - Distal margins are decreasing
  - Abdominoperineal resection performed less
  - Improved local recurrence and survival rates
  - Neoadjuvant chemoradiation
Neoadjuvant/Adjuvant Tx

Neoadjuvant = give before surgery
Adjuvant = give after surgery

• Rectal Cancer
  – T3 and/or N1 tumor (locally advanced)
  – Therapy may be more effective preop
  – Decreased local recurrence
  – Some improvement in survival reported
  – “Downstaging” of the tumor
  – Allows a restorative procedure
Colorectal Cancer and Disparities

• THE FACTS - Minorities:
  – More likely to die when diagnosed with CRC
  – Utilizing available screening tools at a low rate
  – Diagnosed with CRC at younger age
  – May have more right-sided cancers
  – Present at later stages
  – ? Disparity in treatment selection
  – ? Respond differently to adjuvant therapy
Colorectal Cancer and Disparities

• CDC: Some minorities are more likely to be obese and not participate in physical activity
  – Risk factors for CRC
  – Contribution to the disparities is unknown
• Uninsured/under-insured: limited access to preventive health care
• Survey studies: demonstrate that many minorities do not realize that they are at risk for CRC
• Unacceptable rates: CRC Screening
Colorectal Cancer and Disparities

• Why Disparities??
  – Socioeconomic Status
  – Colorectal Cancer Screening Rates
  – Co-morbidities/Lifestyle Factors
  – Tumor Biology/Genetics
  – Receipt of Treatment
  – Benefit of Treatment
    • Quality, tolerance, completion of therapy
    • Post-treatment surveillance
Colorectal Cancer and Disparities

• Treatment differences demonstrated in population-based studies
• Some minorities are less likely to receive surgery, chemotherapy, or radiation therapy
• Why?
  – Not offered
  – Not referred
  – Refusal of care
Colorectal Cancer and Disparities

- Patient education
  - Local, regional, national
- Insure all patients that have colon and rectal cancer – Medicaid/Medicare
- Support of suggested screening recommendations and coverage
- Research – tumor markers
- Patient Navigator models
Identify Community Resources

- www.cancer.net
  - Oncologist-approved cancer information from the American Society of Clinical Oncology
American Cancer Society

- National Colorectal Cancer Awareness Advertising Campaign¹
- TV commercial and print advertisement targeting the general market
- Radio advertisement targeting the African American market

¹ American Cancer Society. National Colon Cancer Advertising Campaign Marketing Research Study Pre- and Post-waves 2007
Colorectal Cancer Act of 2005

- Mandates insurance reimbursement
- Assess screening capacity in Arkansas
- Demonstration Project
  - Develop and implement strategies to promote CRC screening
  - Reimbursement for un-insured/under-insured patients

Results

• September 2006 to September 2008
• 700 patients referred
• 679 eligible
• 553 screened
• 507 received colonoscopy
• 176 had polyps (small growths in colon)
• 96 adenomatous polyps (a precursor to cancer)
• 5 cancers were diagnosed
In 2009, Arkansas law (S.B. 947) was passed creating the Arkansas Colorectal Prevention, Early Detection, and Treatment Program. It provides screenings for CRC to low-income individuals who lack adequate coverage given priority.
Arkansas law (S.B. 947)

- Requires funded programs to provide:
  - Screenings and diagnostic tests to individuals ages 50 years and older, or under age 50 and low income or at high risk for CRC
  - Appropriate case management and referrals
  - Ensure the full continuum of follow-up and cancer care for screened individuals
  - Develop public and professional education programs.

Arkansas Compared to the Nation

• As of March 2009, Arkansas was one of 32 states with laws mandating private insurance coverage, or the offer of coverage, for colorectal cancer screening

Expert Recommendations

- February 2010 the State-of-the-Science conference was held at the National Institutes of Health
- An independent panel gathered and recommended steps to increase CRC screening
- A draft consensus statement was issued outlining these recommendations
Consensus Statement

Strategies

• Eliminate financial barriers to CRC screening and appropriate follow-up

• Conduct research to assess the effectiveness of programs tailored to target population groups to increase CRC screening

• Develop targeted strategies for subgroups that have below-average screening rates
Consensus Statement Strategies

- Most important factors associated with being screened
  - Insurance coverage
  - Access to a regular health care provider

- Determine the relative effectiveness of various CRC screening methods in usual practice settings through studies

- Implement interventions proven to be effective at increasing CRC screening
Colorectal Cancer: Summary

- Colorectal cancer is preventable, treatable
- Disparities exist – some populations not getting screened and have poor outcomes when diagnosed
- Management of colorectal cancer is well-defined
- Sphincter saving procedures are the standard of care
- Adjuvant therapy results in improved survival and local control
- Have you had your colonoscopy?