Evolving Issues in Colonoscopy
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This 3rd part of the lectures today will be presented by:

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Benefits of Screening

• **Cancer Prevention**
  – Removal of pre-cancerous polyps *prevents* cancer
  – Key aspect of current colon cancer screening
  – However, some tests detect cancer but not polyps

• **Improved survival**
  – Early detection of either polyps or cancer improves chances of long-term survival
Protection From Colorectal Cancer After Colonoscopy
Brenner H, Chang-Claude J, Seiler CM, Rickert A, Hoffmeister M.

Background:
• Colonoscopy with detection and removal of adenomas is considered a powerful tool to reduce colorectal cancer (CRC) incidence.
• **Degree of protection** achievable in a population setting with high-quality colonoscopy resources needs to be quantified.

Objective: Assessed association between previous colonoscopy & risk for CRC.

Design: Population-based case-control study in Germany.

Patients: A total of 1688 case patients with colorectal cancer and 1932 control participants aged ≥50 years old.

Results:
• Overall, colonoscopy in the preceding 10 years was associated with **77% lower** risk for CRC.
• Adjusted odds ratios for **any** CRC, **right**-sided CRC, and **left**-sided CRC were 0.23 (95% CI, 0.19 to 0.27), 0.44 (CI, 0.35 to 0.55), and 0.16 (CI, 0.12 to 0.20), respectively.
• Strong risk reduction was observed for all cancer stages and all ages, except for right-sided cancer in persons aged 50 to 59 years.
• Risk reduction increased over the years in both the right and the left colon.
Protection From Colorectal Cancer After Colonoscopy.
Brenner H, Chang-Claude J, Seiler CM, Rickert A, Hoffmeister M.

Limitations:
The study was observational, with potential for residual confounding and selection bias.

Conclusions:
• Colonoscopy with polypectomy can be associated with strongly reduced risk for CRC in the population setting.
• Strong risk reduction with respect to left-sided CRC
• Risk reduction of more than 50% also seen for right-sided colon cancer
If tests such as colonoscopy that can prevent CRC are preferred, why aren’t ONLY these recommended?

Rationales given include:

- Greater patient requirements for successful completion
  - Endoscopic and radiologic exams require a bowel prep and an office or facility visit

- Higher potential for patient injury than fecal testing
  - Risk levels vary between tests, facilities, practitioners

- Patient preference
  - Individuals may not want an invasive test or a test that requires a bowel prep
  - Some prefer to have screening in the privacy of their home
  - Some may not have access to the invasive tests due to lack of coverage or local resources
Time Interval Issues

If at colonoscopy a polyp is found:
the time for the next colonoscopy is a clinical decision which is based on the findings.

If no lesion is found:
If no clinical issues arise, when should the next SCREENING colonoscopy be performed?
  • What is the right interval?
  • On what evidence is that based?

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Table. A Comparison of Recommendations

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Source (Reference)</th>
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<tbody>
<tr>
<td></td>
<td>ACS-MSTF (5)</td>
<td>USPSTF (2)</td>
<td>USPSTF Modeling</td>
<td>Other Modeling</td>
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<td></td>
<td></td>
<td></td>
<td>Findings (4)</td>
<td>Studies (8)</td>
</tr>
<tr>
<td>Hemoccult II annually</td>
<td>No</td>
<td>Yes</td>
<td>Suboptimal</td>
<td>Mixed</td>
</tr>
<tr>
<td>High-sensitivity Hemoccult or fecal immunochemical test annually</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Flexible sigmoidoscopy alone every 5 years</td>
<td>Yes</td>
<td>Yes</td>
<td>Suboptimal</td>
<td>Suboptimal</td>
</tr>
<tr>
<td>Computed tomographic colonography every 5 years</td>
<td>Yes</td>
<td>Insufficient evidence</td>
<td>Not evaluated</td>
<td>Yes (10, 11)</td>
</tr>
<tr>
<td>Colonoscopy every 10 years</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Stool DNA every 5 years</td>
<td>Yes*</td>
<td>Insufficient evidence*</td>
<td>Not evaluated</td>
<td>Suboptimal (12)</td>
</tr>
</tbody>
</table>

ACS-MSTF = American Cancer Society–U.S. Multi-Society Task Force; USPSTF = U.S. Preventive Services Task Force
* Interval not stated.

Genetic Model of Colorectal Cancer

Mutation

- **Bat-26 (HNPCC)**
  - APC
  - K-ras
  - p53

- **Bat-26 (Sporadic)**

**Dwell Time:**
- Normal Epithelium to Adenoma: Many decades
- Adenoma to Late Adenoma: 2-5 years
- Late Adenoma to Early Cancer: 2-5 years
- Early Cancer to Late Cancer: Optimum phase for early detection

Courtesy of Barry M. Berger, MD, FCAP
EXACT Sciences
Colonoscopy SCREENING Interval

• Based on these concepts, a period was chosen
  – NOT data based
  – Relatively high cost, resources, and absence of cost-efficacy data were probably considered

• In practice, the “every 10 year” recommendation is not always followed by clinicians or patients
Time Interval Issues


- This study suggests that approximately 1 in 13 CRCs may be an early/missed CRC, diagnosed after an index colonoscopy in usual clinical practice.
- Women are more likely to have early/missed CRC.
- Unclear if this relates to differences in procedure difficulty, bowel preparation issues, or tumor biology between men and women.

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Time Interval Issues


**Background:** The rate of new or missed colorectal cancer (CRC) after colonoscopy and their risk factors in usual practice are unknown.

**Methods:** Analyzed data from Canada with a new diagnosis of right-sided, transverse, splenic flexure/descending, rectal or sigmoid CRC in Ontario from April 1, 1997 to March 31, 2002, who had a colonoscopy within the 3 years before their diagnosis. Patients with new or missed cancers were those whose most recent colonoscopy was **6 to 36 months** before diagnosis.
Time Interval Issues


**Results:** identified diagnosis of CRC in 3288 (right sided), 777 (transverse), 710 (splenic flexure/descending), and 7712 (rectal or sigmoid) patients. Rates of new/missed cancers: 5.9%, 5.5%, 2.1%, and 2.3%, respectively.

**Conclusions:** Having an office colonoscopy and certain patient, procedure, and physician characteristics were independent risk factors for new or missed CRC. There is a [small] risk (2% to 6%) of these cancers after colonoscopy.

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Lesion Location

• Several studies have reported:
  Right-sided lesions more common
  • In women cp. men
  • In African-Americans cp. Caucasians
• And in a study of patients undergoing colonoscopy in our region at UMDNJ University Hospital*,
  • Right-sided lesions were ALSO more common in Latino’s cp. Caucasians

• Grover K, Bierwirth RJ, Sterling MJ, Rosenblum DM, Ashrafzadeh G, Weiss SH. An Elevated Rate of Adenoma Detection in an Urban Latin American Population Undergoing Colorectal Cancer Screening. Presented at: ACG 2007: The American College of Gastroenterology Annual Scientific Meeting and Postgraduate Course. Presentation based on a review of 2,698 colonoscopies performed at the University Hospital in Newark, NJ from 2005-2006. Of these, 756 were screening colonoscopies performed on asymptomatic patients.

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SUMMARY

• Colonoscopy reduces risk of CRC
• Other studies document finding polyps or CRC on repeat colonoscopies much sooner than 10 years.
• Ulcerative lesions found to be among those particularly missed.
• Gender, racial and ethnic disparities exist in lesion location within the colon.
• A recent study has documented decreased MORTALITY after colonoscopy – so that it is now a proven “life-saving” screening modality
Contact Information

• Website for ECCC:
  – www.umdnj.edu/EssCaWeb

• Older website related to cancer evaluation
  – www.umdnj.edu/EvalCWeb/

• Email: weiss@umdnj.edu

• Telephone: 973-972-4623
YOU ARE INVITED TO JOIN THE ECCC!

Questions?

“The Essex County Cancer Coalition (ECCC) is made possible by a grant from the New Jersey Department of Health and Senior Services’ Office of Cancer Control and Prevention. The mission of the ECCC is to implement the New Jersey Comprehensive Cancer Control Plan in Essex County. For more information on Comprehensive Cancer Control in NJ, please visit: www.njcancer.gov.”

“The ECCC receives significant in-kind support from the University of Medicine and Dentistry of New Jersey. The ECCC works closely with the Essex Cancer Education & Early Detection programs at UMDNJ-University Hospital & St. Michael’s Medical Center.”

For more information on the Essex County Cancer Coalition and useful Internet links, please visit: www.umdnj.edu/EssCaWeb/
Please complete and turn in your evaluation forms:

• “Grins & Gripes”
• Seminar Evaluation

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Supplemental Slides
Colorectal Screening

- Just 40% of colorectal cancers are detected at the earliest stage.
- A little more than half* of Americans over age 50 report having had a recent colorectal cancer screening test --
- Slow but steady improvement in these numbers over the past decade (but not all groups are benefiting to the same degree)
- Disparities exist

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Colorectal Screening Rates Low: Reasons (according to Patients)

- Low awareness of CRC as a *personal* health threat
- Lack of knowledge of screening benefits
- Fear, embarrassment, discomfort
- Time
- Cost
- Access
- “My doctor never talked to me about it!”

*Family members can help encourage discussion and screening*