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EARLY DETECTION OF COLORECTAL CANCER

Epidemiology of CRC

- Colorectal cancer (CRC) is a common and lethal disease
- Environmental and genetic factors.
- 148,810 new cases of large bowel cancer are diagnosed each year in the United States, of which 108,070 are colon and the remainder rectal cancers
- CRC ranks second to lung cancer as a cause of cancer death, and it is third both in frequency and cause of cancer death among Americans

- The lifetime incidence of CRC in patients at average risk is about 5 percent, with 90 percent of cases occurring after age 50
- A gradual shift toward right-sided or proximal colon cancers has been observed
- Geographic differences
- USA-61 percent of all patients treated for colorectal cancer survive 5 years
- the majority of CRCs are sporadic rather than familial

Genes

- Familial adenomatous polyposis (FAP) and its variants (Gardner's syndrome, Turcot's syndrome, and attenuated adenomatous polyposis coli) account for less than 1 percent of colorectal cancers.
- An attenuated form of APC (AAPC) characterized by fewer adenomas and an older average age of cancer diagnosis of 54 years
- Hereditary nonpolyposis colorectal cancer more common than FAP, and accounts for approximately 1 to 5 % of all colonic adenocarcinomas.
- Lynch syndrome (HNPCC) -early age -right colon
- extracolonic - endometrial carcinoma, ovary, stomach, small bowel, hepatobiliary system, and renal pelvis or ureter .

Other risk factors

- Personal history of CRC
- Adenomas-large-villous or tubulovillous
- Family –CRC , polyp
- IBD
- Radiation
- Diabetes
- Obesity
- Smoking, alcohol
- Diet

Asymptomatic Adults Aged 50 Years and Older

- Tests that detect adenomatous polyps and cancer

1. FSIG every 5 years, or
2. CSPY every 10 years, or
3. DCBE every 5 years, or
4. CTC every 5 years

- Tests that primarily detect cancer

1. Annual gFOBT with high test sensitivity
2. Annual FIT with high test sensitivity
3. sDNA, with high sensitivity , interval ?

TESTS THAT PRIMARILY DETECT CANCER

gFOBT

- high-sensitivity gFOBT (SENSA) - detect a majority of prevalent CRC in an asymptomatic population
- acceptable option for colorectal screening in average-risk
- Any positive test should be followed up with CSPY
- Screening for CRC with gFOBT in the office following digital rectal exam or as part of a pelvic examination should not be done

FIT

- **Annual-**screening with FIT that have been to detect a majority of prevalent CRC in an asymptomatic population
- acceptable option for colorectal screening in average-risk adults aged 50 years and older
- Any positive test should be followed up with CSPY

sDNA

- sufficient data to include sDNA as an acceptable option for CRC screening
- high sensitivity for both cancer and adenomatous polyps
- insufficient data upon which to endorse an interval

Summary of Stool Tests

TEST	INTERVAL	SN & SP	HOW TO	KEY ISSUES
gFOBT	ANNUAL	Unrehydrated hemoccult II 37.1% /87.5% Hemoccult SENSA 79.4%/87.5%	-3 home stool samples needed yearly - red meat, citrus juices/fruit , <250 mg vitamin c for 3 days, avoidance of NSAIDS for 1 wk	1) Primarily detects CRC 2) DRE should not be used 3) Any positive test to be followed with colonoscopy 4) 15-33% reduction in CRC mortality
FIT	ANNUAL	CRC (81.8-94.1%)/97.5%	-1-2 home stool samples - no dietary restrictions - avoidance of NSAID 1 wk	1) Primarily detects CRC 2) Any positive test to be followed with colonoscopy 3) $$
sDNA	UNCERTAIN	CRC (52-91%)/93-97%)	-30 gm of stool -No dietary restrictions -No NSAID restrictions	1) Primarily detects CRC but does not detect all CRC 2) Not dependent on bleeding 3) $$$$ 4) May detect lesions in small bowel and proximally

TESTS THAT DETECT ADENOMATOUS POLYPS AND CANCER

FSIG

- identification of the majority of prevalent CRC when the examination reaches the splenic flexure or beyond 40 cm
- adenomas in the distal colon are an indication for the need for CSPY
- recommended to be performed for screening every 5 years
- combining FSIG performed every 5 years with a highly sensitive gFOBT or FIT performed annually

Colonoscopy

- CSPY every 10 years is an acceptable option for CRC screening in average-risk adults beginning at age 50
- A full bowel cleansing is necessary prior to CSPY
- Sedation usually is used
- chaperone is required to provide transportation after the examination.

DCBE

- DCBE every 5 years is an acceptable option for CRC screening in average- risk adults aged 50 years and older.
- adherence to a thorough colon cleansing
- need for subsequent CSPY if the test is abnormal
- local availability of trained radiologists able to offer a high-quality examination.

Virtual colonoscopy

- CTC is comparable to OC for the detection of cancer and polyps of significant size when state-of-the-art techniques are applied.
- expert panel concludes that there are sufficient data to include CTC as an acceptable option for CRC screening.
- The interval for repeat exams after a negative CTC has not been studied and is uncertain.
- patients whose largest polyp is 6 mm or greater should be offered CSPY
- CTC surveillance could be offered to those patients who would benefit from screening but either decline CSPY or are not good candidates for CSPY
- If CSPY is contraindicated because the patient is not likely to benefit from screening due to life-limiting comorbidity, then neither are appropriate.

GUIDELINES

Patients with History of Polyps at Prior Colonoscopy

Risk category	Age to begin	Recommendation
Small rectal hyperplastic polyps		Colonoscopy or other screening options at intervals recommended for average-risk individuals

Risk category	Age to begin	Recommendation
Patients with 1 or 2 small tubular adenomas	5 to 10 years after the initial polypectomy	Colonoscopy

Risk category	Age to begin	Recommendation
Patients with 3 to 10 adenomas, or 1 adenoma 1 cm, or any adenoma with villous features or high-grade dysplasia	3 years after the initial polypectomy	Colonoscopy

Risk category	Age to begin	Recommendation
Patients with 10 adenomas on a single examination	< 3 years after the initial Polypectomy	Colonoscopy
Patients with sessile adenomas that are removed piecemeal	2 to 6 months to verify complete removal	Colonoscopy

Increased Risk—Patients with Colorectal Cancer

Risk category	Age to begin	Recommendation
Patients with colon and rectal cancer	3 to 6 months after cancer resection, if no unresectable metastases	Colonoscopy

Risk category	Age to begin	Recommendation
Patients undergoing curative resection for colon or rectal cancer	1 year after the resection (or 1 year following the performance of the colonoscopy that was performed to clear the colon of synchronous disease)	Colonoscopy 1-3-5 Low rectal q3-6 mo first 2-3 years

Increased Risk–Patients with a Family History

Risk category	Age to begin	Recommendation
Colorectal cancer or adenomatous polyps in a first-degree relative before age 60 years or in 2 or more first-degree relatives at any age	Age 40 years, or 10 years before the youngest case in the immediate family	Colonoscopy 5 year interval

Risk category	Age to begin	Recommendation
Colorectal cancer or adenomatous polyps in a first-degree relative age 60 or older or in 2 second degree relatives with colorectal cancer	Age 40 years	Colonoscopy 10 year interval

High Risk

Risk category	Age to begin	Recommendation
Genetic diagnosis of FAP or suspected FAP without genetic testing evidence	Age 10-12 years	Annual FSIG to determine if the individual is expressing the genetic abnormality and counseling to consider genetic testing - colectomy

Risk category	Age to begin	Recommendation
Genetic or clinical diagnosis of HNPCC or individuals at increased risk of HNPCC	Age 20 to 25 years, or 10 years before the youngest case in the immediate family	Colonoscopy every 1 to 2 years and counseling to consider genetic test

Risk category	Age to begin	Recommendation
Inflammatory bowel disease, chronic ulcerative colitis, and Crohn's colitis	Cancer risk begins to be significant 8 years after the onset of pancolitis or 12 to 15 years after the onset of left-sided colitis	Colonoscopy with biopsies for dysplasia

Summary

- Goal= reduce mortality by incidence of advanced disease
- Stool test vs Structural test
- Sensitivity/Specificity- single vs program
- Adherence, cost, benefit/risk