Surveillance Recommendations for Patients with FAP

R Sim
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Reference

COLORECTAL CANCER SCREENING

Guidance on gastrointestinal surveillance for hereditary non-polyposis colorectal cancer, familial adenomatous polyposis, juvenile polyposis, and Peutz-Jeghers syndrome

M G Dunlop

Gut 2002;51(Suppl V):v21–v27
Large bowel surveillance for FAP family members

In a minority of FAP families a mutation cannot be identified and so annual flexible sigmoidoscopy should be offered to at risk family members from age 13–15 years until age 30, and at three to five year intervals thereafter until age 60 years. Surveillance might also be offered as a temporary measure for people with documented APC gene mutations but who wish to defer prophylactic surgery for personal reasons. Such people should be offered six monthly flexible sigmoidoscopy and annual colonoscopy but surgery should be strongly recommended before 25 years. After colectomy and ileorectal anastomosis, the rectum must be kept under review at least annually for life because the risk of cancer in the retained rectum is 12%–29%. The anorectal cuff after restorative proctocolectomy should also be kept under annual review for life. Recommendation Grade: B
Upper GI surveillance in FAP

- To combat the substantial risk of upper gastrointestinal malignancy in FAP after prophylactic colectomy, upper gastrointestinal surveillance is recommended. While the presence of gastroduodenal polyposis is well recognised, there are few published studies on which to gauge the potential benefit of surveillance. However, the approach seems reasonable and three yearly upper gastrointestinal endoscopy is recommended from age 30 years with the aim of detecting early curable cancers. Patients with large numbers of duodenal polyps should undergo surveillance yearly.

Recommendation Grade: B
Extracolonic manifestations
<table>
<thead>
<tr>
<th>Extracolonic Manifestations of Adenomatous Polyposis Coli (APC) Mutations</th>
<th>Incidence</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duodenal adenomas</td>
<td>80–90%</td>
<td>12% Risk of malignancy</td>
</tr>
<tr>
<td>Gastric hamartomas</td>
<td>50–70%</td>
<td>Must exclude gastric adenoma</td>
</tr>
<tr>
<td>Desmoids</td>
<td>12–35%</td>
<td>27% Risk of complications</td>
</tr>
<tr>
<td>Hepatoblastoma</td>
<td>1%</td>
<td>Most common before age 2 years</td>
</tr>
<tr>
<td>Osteomas</td>
<td>80%</td>
<td>Usually &lt; 1 cm in size</td>
</tr>
<tr>
<td>CHRPE</td>
<td>60%</td>
<td>Marker for screening purposes</td>
</tr>
<tr>
<td>Thyroid cancer (papillary)</td>
<td></td>
<td>Predilection for women</td>
</tr>
</tbody>
</table>

CHRPE, congenital hypertrophy of the retinal pigment epithelium.
Surveillance Recommendations

- Surveillance for FAP patients and family members
- Post-colectomy surveillance
Reference

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VOLUME 21, NUMBER 4  2008
<table>
<thead>
<tr>
<th>Procedure</th>
<th>Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal colectomy with ileorectostomy</td>
<td>aFAP by family history, clinical exam, or genetic testing; mild disease (FAP or MAP) as manifested by fewer than 20 polyps in the rectum and less than 1000 overall</td>
</tr>
<tr>
<td>Proctocolectomy with ileal-pouch anal anastomosis</td>
<td>Severe disease (FAP or MAP) by family history, clinical exam, or genetic test results; cancer in the colon or mid-upper rectum; risk of desmoid tumor by personal or family history or APC mutation between codons 1403–1578.</td>
</tr>
<tr>
<td>Proctocolectomy with ileostomy</td>
<td>When ileal-pouch anal anastomosis contraindicated because of anal sphincter dysfunction or technical problems; low rectal cancer which precludes sphincter preservation.</td>
</tr>
</tbody>
</table>

aFAP, attenuated familial adenomatous polyposis; FAP, familial adenomatous polyposis; MAP, MYH associated polyposis; APC, adenomatous polyposis coli.
Post-colectomy surveillance

- Routine postop – physical and psychological adaptation
- Oncologic issues – if cancer has developed
- TAC/IRA – rectal remnant
- RPC/IPAA – ileal pouch
- PC/ileostomy – distal ileum
- No one surveillance strategy is appropriate in all patients.
- At least once yearly endoscopy appears reasonable
Long-Term Outcome of Metachronous Rectal Cancer Following Ileorectal Anastomosis for Familial Adenomatous Polyposis

Tomohiro Yamaguchi & Seiichiro Yamamoto & Shin Fujita & Takayuki Akasu & Yoshihiro Moriya

Received: 19 July 2009 / Accepted: 9 November 2009
# 2009 The Society for Surgery of the Alimentary Tract
IRA – metachronous rectal cancers

- 59 patients underwent IRA
- 17 (28.8%) developed metachronous rectal cancers, average 8.8 years (range 1.3 - 23.3 years)
- 11 (65%) required radical surgery
- 8 with Tis-T1 invasion had undergone endoscopic surveillance at intervals of 6 months to 1 year after IRA, but the other three T3 patients did not undergo surveillance for more than 2 years
Pouch surveillance

- Persistent rectal mucosa distal to IPAA
- Risk of adenomas and carcinomas within ileal pouch
- Initial endoscopy anywhere from 3 months to 1 year after pouch creation; continued yearly or every other year for life.
- Indigocarmine
- Endoscopic polypectomy for polyps >5mm.
Upper GI surveillance in FAP

Spigelman's Staging System for Duodenal Polyposis and Current Surveillance Recommendation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Points 1</th>
<th>Points 2</th>
<th>Points 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of polyps</td>
<td>1–4</td>
<td>5–20</td>
<td>&gt; 20</td>
</tr>
<tr>
<td>Size of polyps (mm)</td>
<td>1–4</td>
<td>5–10</td>
<td>&gt; 10</td>
</tr>
<tr>
<td>Histology</td>
<td>Tubular</td>
<td>Tubulo-villous</td>
<td>Villous</td>
</tr>
<tr>
<td>Dysplasia</td>
<td>Low-grade</td>
<td>.</td>
<td>High-grade</td>
</tr>
</tbody>
</table>

Staging and Surveillance Recommendations

<table>
<thead>
<tr>
<th>Stage</th>
<th>Points</th>
<th>Surveillance Recommendations*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>Endoscopy every 4 years</td>
</tr>
<tr>
<td>I</td>
<td>1–4</td>
<td>Endoscopy every 2–3 years</td>
</tr>
<tr>
<td>II</td>
<td>5–6</td>
<td>Endoscopy every 2–3 years</td>
</tr>
<tr>
<td>III</td>
<td>7–8</td>
<td>Endoscopy every 6–12 months. Consider surgical consultation</td>
</tr>
<tr>
<td>IV</td>
<td>9–12</td>
<td>Endoscopy every 6–12 months. Surgical treatment indicated</td>
</tr>
</tbody>
</table>

*Endoscopy with direct and side-viewing scope is advocated.

N=43

Results: Upstaged 12%

CONCLUSION:

Ampullary adenomas are commonly found in FAP and are best visualized using a side-viewing endoscope. Therefore, a combination of forward-viewing HRE and chromoendoscopy with side-viewing endoscopy for the periampullary region seems useful for surveillance of duodenal adenomatosis in FAP.
Desmoid Tumours

- Intraabdominal 80%, abdominal wall 10 to 15% and extraabdominal 5%.

Risk factors
- Previous surgery, tend to develop within 5 years.
- Female
- Family history (> 30% of affected family members)
- Presence of osteomas
- Patients with mutations toward the 3' end of the APC gene, mutations beyond codon 1444 specifically

MRI may be helpful in predicting active growth when high-signal intensity is seen on the T2-weighed images.
Desmoid Tumours

- MRI may be helpful in predicting active growth when high-signal intensity is seen on the T2-weighed images.46
<table>
<thead>
<tr>
<th>Table 2</th>
<th>Screening Recommendations for Patients at Risk for a Polyposis Syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>For the patient whose family medical history suggests FAP or whose APC mutation is between codons 200–2500</td>
<td>Flexible sigmoidoscopy or colonoscopy begin at puberty, then flexible sigmoidoscopy annually</td>
</tr>
<tr>
<td>For the patient whose family medical history suggests aFAP or MAP, or whose APC mutation is before codon 157 or after codon 2500</td>
<td>Colonoscopy beginning at age 18–21 years; Every 1–2 years</td>
</tr>
<tr>
<td>For all patients with a known or suspected APC mutation</td>
<td>Esophagastroduodenoscopy every 1–5 years according to Spigelman stage, beginning at 20 years</td>
</tr>
</tbody>
</table>

FAP, familial adenomatous polyposis; APC, adenomatous polyposis coli; aFAP, attenuated familial adenomatous polyposis; MAP, MYH associated polyposis.
Small bowel adenomas

- Small bowel adenomas occur and are rarely a problem, although cancers have been reported.
- Prevalence of small bowel polyps related to the duodenal polyposis stage and subject's age. The location, size and number of polyps progress as duodenal polyposis stage advances.
- Capsule endoscopy (CE) surveillance of asymptomatic FAP patients is presently unproven and should not replace upper endoscopy.
- CE underestimated the number of small bowel polyps and did not reliably detect large polyps (especially periampullary) but identified polyps in areas not accessible by standard endoscopy.
Other extra-gastrointestinal tumors

- Rare
- Papillary Thyroid Cancer (2%) - 20-30y.o.
- Pancreatic adenocarcinoma (2%)
- **Gastric adenocarcinoma (0.5%)** - 3x higher in Asians
- Hepatoblastoma in children less than 5 years of age (<1%).
- These should be searched for during routine clinical and imaging follow-up.
Effectiveness of screening

- Screening asymptomatic FAP patients for all of its possible manifestations is unproven.

- For children, to identify hepatoblastoma, some recommend annual alpha-fetoprotein and abdominal ultrasound from birth until the age of 10 years.

- For all FAP patients, an annual physical examination should include an evaluation for soft tissue or bone lesions, and a thorough thyroid examination with a low threshold for performing an ultrasound of any suspicious lesion.
Symptomatic patients

- Abdominal pain, new onset diabetes mellitus or acute pancreatitis
- CT abdomen to rule out desmoid tumors of the mesentery or pancreatic adenocarcinomas (or IPMT).
- MRI indicated if CT not diagnostic - outline vascular involvement of a desmoid tumor and may predict its growth
- CT brain can also be used in symptomatic patients to search for a medulloblastoma.
Long-term compliance with endoscopic surveillance advice for FAP. Colorectal Disease (epub 10 Jul 2009) N=328

Result: One in five at-risk for FAP and one in four with a retained rectum are under-compliant with screening advice. Low self-efficacy, non-use of sedatives during surveillance and pain after surveillance are negatively associated with compliance behavior in at-risk individuals.

Recommendation: Sedatives should be patient-tailored for FAP-individuals undergoing colorectal cancer surveillance and adequate pain medication provided after endoscopy, based on experiences and needs of the patients.