How to Improve Adenoma Detection - Through better Technique

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Overview

1. Bowel Preparation
2. Withdrawal time
3. Position Changes
4. Anti-spasmodics
5. Rectal retroflexion
Colonoscopy: Changing times
### Colonoscopy outcomes

<table>
<thead>
<tr>
<th>Attempted colonoscopy</th>
<th>All Cancer</th>
<th>Right-Sided Cancer</th>
<th>Left-Sided Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Any</td>
<td>0.69 (0.63–0.74)</td>
<td>1.07 (0.94–1.21)</td>
<td>0.39 (0.34–0.45)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Polypectomy for endoscopist</th>
<th>Proximal cancers</th>
<th>Distal cancers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>P value</td>
</tr>
<tr>
<td>&lt;10%</td>
<td>1.00 (referent)</td>
<td>.0001</td>
</tr>
<tr>
<td>10%–14%</td>
<td>1.11 (0.81–1.53)</td>
<td></td>
</tr>
<tr>
<td>15%–19%</td>
<td>0.75 (0.54–1.04)</td>
<td></td>
</tr>
<tr>
<td>20%–24%</td>
<td>0.75 (0.52–1.07)</td>
<td></td>
</tr>
<tr>
<td>25%–29%</td>
<td>0.52 (0.35–0.79)</td>
<td>.0001</td>
</tr>
<tr>
<td>30%+</td>
<td>0.61 (0.42–0.89)</td>
<td>.0077</td>
</tr>
</tbody>
</table>

Variation in detection

- 10-fold for adenomas all sizes\(^1\)
  - 0.1-1.05 adenomas per patient

- 3-4 fold for adenomas ≥10mm\(^2\)

- Cancer miss rates\(^3\)
  - 3.0% vs 5.6% missed/new within 3 years

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\(^1\) Barclay R *et al.* N Engl J Med 2006; 355:2533-2541

\(^2\) Chen SC *et al.* Am J Gastroenterol 2007;102:856-61

\(^3\) Bressler B *et al.* Gastroenterology 2007;132:96-102
Bowel preparation

- Boston Bowel Prep Score
  - Post-colonoscopist cleaning efforts
  - 0-3 for 3 colonic segments
  - Validated

Operator factors

Blinded video review withdrawal technique

• Two experienced operators:
  – 48% miss rate versus 17% miss rate

  1. examining the proximal sides of flexures & folds
  2. cleaning and suctioning
  3. adequacy of distension
  4. adequacy of time spent viewing

1 Rex DK. Gastrointest Endosc 2000;51:33-36
Withdrawal time

“In all models, only mean procedure time was associated with polyp detection rates”
Imperiale TF et al. Gastrointest Endosc 2009;69:1296-8

Simmons DT et al. Aliment Pharmacol Ther 2006;24:965-71
Extending withdrawal

Sawhney M et al. Gastroenterology 2008;135:1892-8
“What you do with the time…”

Technique Score Aspects

- Highest ADR vs lowest ADR operator
  - Withdrawal time same: 6.6 vs 7.4 mins, P=0.36
  - Technique score 36 vs 63, P<0.001

Lee RH et al. Gastrointest Endosc 2011;74:128-34
Barium Enema

Left Lateral

Right lateral

Rubesin SE et al. Radiology 2000;215:642-650
Dynamic Position Changes

East JE et al. Gastrointest Endosc 2011;73:456-63
Luminal Distension

16% • Improved with dynamic position changes

• Adenoma detection improved with better luminal distension
  P<0.001

7%

East JE et al. Gastrointest Endosc 2007;65:263-69
Antispasmodics

- Antispasmodics are used by 20% UK colonoscopists\(^1\)
  - Hyoscine N-butylbromide (Buscopan)
  - Glucagon

- Potentially flatten haustral folds revealing more colonic mucosa

- Reduce spasm

- No improved polyp detection with glucagon\(^2\)

\(^1\) Bowles CJ et al. Gut 2004;53:277-83
\(^2\) Cutler CS et al. Gastrointest Endosc 1995;42:346-50
Antispasmodics

- Spasm improved with Buscopan
  - If spasm severe PDR improved: 1.2 vs 0.4, P=0.06

Lee JM et al. Hepatogastroenterology 2010;57:90-4
Rectal retroflexion

- **Flexiscope trial (480 patients)**¹
  - 12 (2.5%) polyps seen only on retroflexion
    - 4 adenomas (3 TAs <5mm, 1 x 15mm TVA)

- **Large colonoscopy series (1502 cases)**²
  - 40 (2.7%) had a distal rectal polyp
  - 8 retroflexed view only
    - 1 x 4mm tubular adenoma

¹Hanson J *et al.* Dis Colon Rectum 2001;**44**:1706-82
²Saad A *et al.* World J Gastroenterol 2008;**14**:6503-5
Continuous Quality Improvement

- adenoma detection rates presented at a group retreat
- own adenoma detection rate with benchmarking
- unblinded data were discussed at group meeting.
- discussion with practice leaders

Key messages

• Operator technique has a large impact on polyp detection

• Conclusive level 1a evidence is lacking for most interventions suggested

• “What you do with your withdrawal time...” rather than time itself

• Changing established practice most difficult issue