Diminutive polyps and high risk status

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Disclosures

• Nothing to disclose
Background

- **Optical diagnosis** can replace histopathology for diminutive (1-5mm) polyps

- However, advanced histological features as villosity, high-grade dysplasia (HGD) and CRC can not be assessed

- Interferes with risk-stratification for determining interval surveillance colonoscopy

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1 Hassan et al. CGH 2010
2 Kessler et al. Endoscopy 2011
3 Vleugels et al. EIO 2017
Background

• Previous modeling studies have shown optical diagnosis to be cost-effective\textsuperscript{1-3}

• However, based on assumptions for risk-stratification by diminutive polyps

\textsuperscript{1}Hassan et al. CGH 2010
\textsuperscript{2}Kessler et al. Endoscopy 2011
\textsuperscript{3}Vleugels et al. EIO 2017
Research questions IEE workgroup

1. What is the proportion of diminutive polyps with advanced histological features?

2. What is the proportion of patients that is categorized as high-risk due to diminutive polyps?

3. What are the findings at first surveillance colonoscopy of high-risk patients due to diminutive polyps?

4. Are there differences for these estimates between colonoscopy screening & surveillance and FOBT-screening?
Definitions

• **Low-risk patients:**
  – 1-2 diminutive or small non-advanced adenomas

• **High-risk patients:**
  – Adenomatous polyp with advanced histology (i.e. ≥25% villous component, HGD or CRC)
  – ≥3 diminutive or small non-advanced adenomas
  – Adenomatous or sessile serrated lesion ≥10mm
Outcomes

1. Proportion of diminutive polyps with advanced histological features

2. Proportion of patients that is high-risk due to diminutive polyps

3. Proportion of high-risk outcomes of first surveillance colonoscopy of low- and high-risk patients
Methods

• International, multicenter cohort study

• Project-leaders of prospective databases (at least 1,000 participants) were contacted:
  – Colonoscopy screening & surveillance
  – FOBT-positive screening
Methods

• **Pre-designed datasheet:**
  – Cohort characteristics (origin, quality parameters, GI pathologist involved)
  – Patient characteristics (number, age, sex)
  – Polyp characteristics (number, histology, CRC)
  – Outcomes of first surveillance colonoscopy (normal, low-risk, high-risk or CRC)

• **Outcomes:**
  – Reported as *medians* (range)
### Database characteristics

- 6 colonoscopy screening/surveillance databases (4 US and 2 Europe)
- 4 FOBT colonoscopy databases (4 Europe)

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<thead>
<tr>
<th></th>
<th>Colonoscopy screening/surveillance</th>
<th>FOBT colonoscopy screening</th>
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</thead>
<tbody>
<tr>
<td>Cohort size, n</td>
<td>1647 (1100-12226)</td>
<td>3903 (2817-19976)</td>
</tr>
<tr>
<td>Mean age in years</td>
<td>61 (56-63)</td>
<td>62 (60-65)</td>
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<tr>
<td>Male gender (%)</td>
<td>58 (51-72)</td>
<td>53 (48-57)</td>
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</table>
Question 1. Proportion of diminutive polyps with advanced histology?

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<thead>
<tr>
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<th>FOBT colonoscopy screening</th>
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</thead>
<tbody>
<tr>
<td>Diminutive polyps, n</td>
<td>2379 (1311-8708)</td>
<td>3718 (1227-7283)</td>
</tr>
<tr>
<td>CRC (%)</td>
<td>0% (0-0.04)</td>
<td>0.06% (0-0.29)</td>
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<tr>
<td>Advanced histology (%)</td>
<td>1.4% (0.5-2.8)</td>
<td>6.0% (2.5-18.9)</td>
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Question 2. Proportion of high-risk patients due to diminutive polyp?

<table>
<thead>
<tr>
<th></th>
<th>Colonoscopy screening/surveillance</th>
<th>FOBT colonoscopy screening</th>
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</thead>
<tbody>
<tr>
<td>High risk patients (%)</td>
<td>20.9% (7.0-49.7)</td>
<td>35.0% (29.9-38.7)</td>
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<tr>
<td>High risk due to diminutive polyps (%)</td>
<td>34.1% (27.3-38.7)</td>
<td>10.7% (7.8-14.0)</td>
</tr>
<tr>
<td>Advanced histology (%)</td>
<td>5.7% (1.3-9.7)</td>
<td>4.8% (1.4-10.4)</td>
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<tr>
<td>Multiplicity (%)</td>
<td>29.7% (21.0-36.6)</td>
<td>5.8% (3.6-6.7)</td>
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</tbody>
</table>
Question 3. High-risk findings at surveillance colonoscopy of low- and high-risk patients?

<table>
<thead>
<tr>
<th>Index risk status</th>
<th>Outcome surveillance colonoscopy</th>
<th>FOBT colonoscopy screening</th>
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<tbody>
<tr>
<td></td>
<td>Colonoscopy screening/surveillance</td>
<td></td>
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<tr>
<td>Low-risk</td>
<td>14.1% (13.1-21.0)</td>
<td>12.8% (7.8-17.8)</td>
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<tr>
<td>High risk</td>
<td></td>
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</tr>
<tr>
<td>Advanced histology (%)</td>
<td>16.0% (8.0-29.7)</td>
<td>11.7% (4.6-18.8)</td>
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<tr>
<td>Multiplicity (%)</td>
<td>26.9% (25.0-35.3)</td>
<td>15.4% (6.7-24.0)</td>
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<tr>
<td>Other high-risk (%)</td>
<td>29.5% (19.4-38.0)</td>
<td>17.4% (13.8-20.9)</td>
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Conclusion

• Advanced histology in diminutive polyps is common in FIT-positive, but rare in colonoscopy screening and surveillance

• The proportion of patients defined as high-risk due to diminutive polyps is rare in FIT-positive, but common in colonoscopy screening and surveillance

• Amongst patients that are high-risk due to advanced histology within diminutive polyps, the risk of future advanced neoplasia seems equal to low-risk patients
Strengths

• Prospective databases including current quality indicators

• Majority of samples assessed by GI pathologists

• Comparison colonoscopy screening & surveillance and FIT-positive
Limitations

• Variability between endoscopists in endoscopic sizing of polyps

• Variability between pathologists in grading advanced histology

• Possibility of selection bias for outcomes of surveillance colonoscopy

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Thank IEE working group

Thank you for your attention