Getting the best out of faecal immunochemical tests and faecal calprotectin

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Introduction

- NICE DG30 recommends the use of quantitative faecal immunochemical tests (FIT) in patients at ‘low risk’ for colorectal cancer (CRC).
- We have successfully introduced a pathway for the use of FC to support the diagnosis of IBD.

Aim

- There is no formal comparative evidence base to inform the relative roles for FIT and FC in the ‘low risk’ for CRC population.
- The aim of this study was to benchmark published FIT diagnostic accuracy data against FC ≥100mcg/g as used within the York Faecal Calprotectin Care Pathway.

Methods

- We analysed pre-existing clinical outcome data on FC from two diagnostic accuracy studies and three pathway evaluations performed at York Hospital.
- We included those that fulfilled the criteria for the ‘two week wait’ referral for suspected CRC (NICE NG12: recommendations 1.3.1 to 1.3.3).
- The remaining ‘low risk’ patients fulfilled NICE DG30 were stratified to age in bowel habit.
- Using the cut off FC ≥100mcg/g, we determined sensitivity and specificity in patients under 60 years old with change of bowel habit (Buhlmenn, Alpha Labs).
- We compared this with a published FIT study comparator (Mowat et al at 2015).

York Faecal Calprotectin Care Pathway

New presentation with faecal calprotectin in colorectal cancer patient

New presentation with normal calprotectin in colorectal cancer patient

Repeat presentation with faecal calprotectin in colorectal cancer patient

Repeat presentation with normal calprotectin in colorectal cancer patient

Conclusion

- Despite the large numbers evaluated, the low prevalence of CRC make it difficult to draw any conclusions for a lower age limit upon which to apply DG30 in place of DG11.
- However when looking at combined CRC, high risk adenomatous polyps and IBD, FC data stratified by age in patients with change of bowel habit with FC ≥100mcg/g for CRC.

Table 1: sensitivity and specificity of FIT10mcg/g and FC ≥100mcg/g for CRC.

<table>
<thead>
<tr>
<th>Age range (yr)</th>
<th>Sensitivity (CI)</th>
<th>Specificity (CI)</th>
<th>NPV (CI)</th>
<th>PPV (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ages</td>
<td>89.3 [85-93]</td>
<td>95.0 [93-97]</td>
<td>95.0 [93-97]</td>
<td>95.0 [93-97]</td>
</tr>
<tr>
<td>50-59</td>
<td>66.7 [51-82]</td>
<td>95.0 [93-97]</td>
<td>95.0 [93-97]</td>
<td>95.0 [93-97]</td>
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<tr>
<td>40-49</td>
<td>40.9 [25-61]</td>
<td>95.0 [93-97]</td>
<td>95.0 [93-97]</td>
<td>95.0 [93-97]</td>
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<tr>
<td>30-39</td>
<td>30.9 [10-60]</td>
<td>95.0 [93-97]</td>
<td>95.0 [93-97]</td>
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<tr>
<td>&lt;30 years</td>
<td>18.2 [0-56]</td>
<td>95.0 [93-97]</td>
<td>95.0 [93-97]</td>
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</tr>
</tbody>
</table>

Table 2: sensitivity and specificity of FIT10mcg/g and FC ≥100mcg/g for CRC.

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<thead>
<tr>
<th>Age range (yr)</th>
<th>Sensitivity (CI)</th>
<th>Specificity (CI)</th>
<th>NPV (CI)</th>
<th>PPV (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ages</td>
<td>68.6 [57-85]</td>
<td>83.6 [77-90]</td>
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<tr>
<td>50-59</td>
<td>65.0 [48-84]</td>
<td>85.0 [78-92]</td>
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Results

The overall prevalence of CRC was 0.6%, 7 out of 1229 patients

Summary

- Low prevalence of CRC identified in this ‘low risk’ dataset
- However, looking at a combined outcome of CRC, high risk polyps and IBD, FC has a favourable sensitivity and specificity in patients <50 years

References

NICE Diagnosing Guidance 12 (NG 12), Suspected Cancer Recognition and Referral, recommendaons 1.3.1 to 1.3.3. Published June 2015. Updated July 2017.
NICE Diagnosing Guidance 22 (DG 22), New presentation with normal calprotectin in colorectal cancer patient. Published January 2015.