FIT for colonoscopy: Benefits of the faecal immunochemical test for triaging symptomatic patients

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The Lancet Regional Health - Europe 2022;23: 100528
Published online xxx
https://doi.org/10.1016/j.lanepe.2022.100528

Colonoscopy has proven efficacy for detection of neoplasia and other clinically relevant disease states, which has led to a reduction in colorectal cancer (CRC) incidence and mortality.[1] It is used around the world in different settings, including for screening of the general population, investigating the cause of a positive faecal occult blood test, and surveillance of patients at elevated risk of CRC. Colonoscopy is also used to investigate the cause of gastrointestinal symptoms or iron deficiency anaemia, both of which can indicate presence of CRC.[2] With an increasing awareness of the risk factors for CRC, as well as an ageing population, there are increasing demands for colonoscopy. Between 2005 and 2015, the number of colonoscopies with polypectomy reimbursed by the Australian Medicare Benefits Schedule increased by 177%.[3] This growth is expected to continue across the world, impacting already strained health care systems. Strategies are urgently needed to carefully manage colonoscopy workload while not adversely impacting patient care. In this issue of *The Lancet Regional Health - Europe*, Booth *et al.*,[4] present results from a meta-analysis that highlights the utility of the faecal immunochemical test (FIT) to triage symptomatic patients for colonoscopy. This is an important and timely review as many countries around the world feel the pressure of limited colonoscopy resources.

The process to triage patients with gastrointestinal symptoms and iron deficiency anaemia for colonoscopy varies between countries. England is one of the only countries that has clear guidelines to recommend FIT for triage of low-risk symptomatic patients presenting to primary care.[5] In 2017, a FIT triage process was incorporated into the National Institute for Health and Care Excellence (NICE) guidelines for patients with low-risk symptoms, including abdominal pain or weight loss (for age >50y), change in bowel habit or iron deficient anaemia (<60y), or non-iron deficient anaemia (>60y).[6] FIT can detect a bleeding lesion (such as a CRC or advanced adenoma) in the colon, using an immunoassay for haemoglobin in a small sample of faeces. For low-risk symptoms, individuals returning a faecal haemoglobin result <10μg/g faeces are managed in primary care, unless symptoms progress. It is important to note that FIT was not recommended for the moderate and high-risk symptoms under these guidelines, as evidence for FIT to triage in these groups was lacking.

Booth and colleagues reviewed the diagnostic accuracy of a one-sample FIT in all symptomatic patients. There were 31 studies analysed, with nine of these studies including cohorts with high-risk symptoms. Thirteen of the studies were conducted in primary care, and most studies used the OC-Sensor (Eiken Chemical Company, Japan) or HM-JACKarc (Hitachi Chemical Diagnostics Systems, Japan) FIT. The review was biased towards study cohorts from the UK with a one-sample FIT, with 74% of the studies reviewed from the UK, while many countries that typically use two-sample FIT were not eligible for inclusion. A further limitation was that the outcome of interest was only CRC, other advanced lesions were not considered, and not all individuals had a colonoscopy investigation. However, when the data were limited to those that had at least 90% of the cohort undergoing colonoscopy or CT colonography, the meta-analysis showed that the diagnostic accuracy of the FIT for CRC (at a threshold of 10μg/g faeces) was similar between high- and low-risk symptoms (Table 1). Sensitivity was improved further by reducing the positivity threshold to the limit of detection of the assay, however, this was associated with a reduction in specificity by up to 16.6% (Table 1). If all symptomatic patients were triaged with FIT, then the modelling presented suggests that the use of a threshold of 10μg Hb/g faeces could reduce the need for colonoscopy by 23% in England. These projected reductions would be even larger in countries that currently send all symptomatic patients for diagnostic colonoscopy. The use of FIT to triage for colonoscopy will be highly beneficial to the treating physician and easily transferable across all health care settings.

DOI of original article: http://dx.doi.org/10.1016/j.lanepe.2022.100518

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	High-risk symptoms	Low-risk symptoms	All symptoms (low, moderate, high)
Positivity threshold 10μg Hb/g faeces			
Sensitivity	88.7%	88.7%	91.0%
Specificity	78.5%	88.5%	75.2%
Positivity threshold at limit of detection			
(HM-JACKarc: 2μg Hb/g faeces; OC-Sensor: 4μg Hb/g)			
Sensitivity	92.8%	94.7%.	94.7%
Specificity	70.3%	71.9%	66.5%

***Table 1*: Sensitivity and specificity of faecal immunochemical tests for detection of colorectal cancer in high-risk, low-risk and all symptoms.**

A reduction in the use of colonoscopy is a high priority. This will decrease waiting times and minimise health care and patient associated costs. Environmental costs must also be considered- endoscopy is a significant contributor to a hospital's carbon footprint through water wastage, single-use consumables, travel time for patient and carer, and resource-intensive decontamination processes.[7] Colonoscopy should be reserved for those who need it most urgently and those at highest risk for significant bowel disease. The meta-analysis by Booth *et al* for CRC detection with FIT in all symptomatic patients, provides the evidence needed for more jurisdictions to implement these non-invasive tests to determine the need for diagnostic colonoscopy, and to safely defer procedures. It will simplify the triage process for patients presenting with symptoms and negates the need to refer a patient for further specialist review. We look forward to this also being explored more in other indications for colonoscopy, which has the potential to further guide policy for colonoscopy triage internationally.

Contributors

ELS and JMW contributed equally to writing and revising this commentary.

Declaration of interests

ELS has previously received funding and consumables for investigator-led studies from Eiken Chemical Company (Japan). ELS is a member of a committee to standardise the analysis of FIT samples.

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