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CORRESPONDENCE

Low Sensitivity of Fecal Immunochemical Tests (FIT) for Detection of Sessile Serrated Adenomas/Polyps Confirmed over Clinical Setting, Geography, and FIT System

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To the Editor,

We were interested to read the study of Cock et al [1] on the clinical sensitivity of fecal immunochemical tests (FIT) for the detection of sessile serrated adenomas/polyps (SSA/SSP), and their conclusion that FIT have low sensitivity for their detection.

Participants in their study were aged over 18 years and underwent colonoscopy in South Australia with FIT analyses performed on the OC-Sensor Diana (Eiken Chemical Co., Ltd, Tokyo, Japan). Indications for colonoscopy were heterogeneous, and were: positive FIT 519 (27.6%), symptoms 561 (29.8%), surveillance 687 (36.5%), screening 18 (1.0%), and other 97 (5.2%). However, it is known that the performance outcomes using FIT vary in different clinical settings and different fecal hemoglobin concentrations (f-Hb) are used as thresholds. [2,3] In addition, quantitative FIT systems use polyclonal antibodies to the globin moiety of human haemoglobin and have different analytical specificities, giving different f-Hb results, particularly at low f-Hb. [3,4] Further, f-Hb varies with sex, being higher in males than females, [5,6], and increases with age [5,6] and deprivation [6,7], but these effects vary from country to country. [8]

In consequence, here we provide information on the value of FIT in the detection of SSA in a more homogeneous population (only those referred from primary care for colonoscopy due to lower bowel symptoms), from a different country (Scotland), and using a different FIT analytical system (HM-JACKarc, Kyowa Medex Co., Ltd, Tokyo, Japan).

Over the first year of our routine use of FIT in primary care (December, 2015 – November, 2016), 1,447 patients with a variety of lower bowel symptoms, but not participating in a surveillance program, completed a single FIT and colonoscopy: the overall prevalence of significant bowel disease was 20.5% (comprising 95 colorectal cancer [CRC] {6.6%}, 133 higher-risk adenoma [HRA: a polyp > 10 mm diam or more than three polyps, and those with villous characteristics and high grade dysplasia] {9.2%}, and 68 inflammatory bowel disease [IBD] {4.7%}). There were 12 SSA (all proximal) and 176 low-risk adenoma [LRA] (< 10 mm diameter, or less than three). The location, median size, number with f-Hb \geq 10 μ g Hb/g feces, and median f-Hb of the SSA, HRA, and LRA are shown in Table 1.

Table 1. Number, median size (mm) with 95% confidence intervals (CI), number with fecal hemoglobin concentration (f-Hb) \geq 10 μ g Hb/g feces, median f-Hb (with 95% CI) of sessile serrated adenoma, higher-risk adenoma, and low-risk adenoma in 1447 patients with lower bowel symptoms, all referred from primary care.

	n	median size, mm (95 % CI)	n with f-Hb \geq 10 μ g Hb/g feces (%)	median f-Hb, μ g Hb/g feces (95% CI)	p-value*
Sessile serrated adenoma	12	9 (6.3 - 10.0)	4 (33.3)	0 (0.0 - 30.5)	
Higher-risk adenoma					
All	127**	15 (12.0 - 15.0)	99 (78.0)	42.0 (26.0 - 75.0)	0.0071
Proximal***	37	15 (12.1 - 18.0)	27 (73.0)	22.0 (12.2 - 53.5)	0.0657
Distal	90	15 (12.0 - 16.5)	72 (80.0)	48.0 (33.5 - 101.5)	0.0035
Low-risk adenoma					
All	176	5 (5.0 - 5.0)	107 (60.8)	17.0 (12.0 - 22.5)	0.1362
Proximal	69	5 (4.0 - 6.0)	37 (53.6)	16.0 (0.0 - 25.1)	0.2725
Distal	107	5 (5.0 - 6.0)	70 (65.4)	17.0 (12.0 - 25.3)	0.0941

** p-value relates to difference in median f-Hb to that of sessile serrated adenomas.*

*** six SSA had diam > 10 mm and were therefore originally classified in the group of 133 higher-risk adenoma, but investigated separately in this analysis.*

**** proximal location is proximal to and including the splenic flexure, distal is distal to splenic flexure.*

Of the 12 SSA, only four (33.3%) had f-Hb greater than the National Institute for Health and Care Excellence (NICE) recommended f-Hb threshold of 10 µg Hb/g feces. [9] Of the 127 HRA and 176 LRA, 100 (78.7%) and 107 (60.5%) had f-Hb greater than 10 µg Hb/g feces. Median f-Hb was lower in SSA than HRA and LRA. These findings are unsurprising because f-Hb is related to severity of colorectal disease and higher f-Hb is found in HRA than LRA, large (> 10 mm) compared with small adenoma, and also adenoma displaying high-grade compared with low-grade dysplasia. [10]

Our data would add to the observations that, in comparison to adenomas, SSA are found less frequently at colonoscopy and, for the various reasons elicited by Cock et al., [1] may not be associated with significant f-Hb. Moreover, our data suggest that their findings on SSA/SSP are likely to be transferable between clinical settings, over geography, and with different FIT systems.

Compliance with ethical standards

Conflict of interest

CGF undertakes paid consultancy with Kyowa Medex Co., Ltd, Tokyo, Japan, and has received financial assistance with attendance at conferences from Alpha Labs Ltd. All other authors declare that they have no conflicts of interest.

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