SERRATED POLYPS IN PATIENTS WITH POSITIVE FIT OR MT-SDNA, OR COLONOSCOPY ONLY: DATA FROM THE NEW HAMPSHIRECOLONOSCOPY REGISTRY

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INTRODUCTION

Use of fecal immunochemical testing (FIT) or multi-target stool-based DNA tests (mt-sDNA) for initial colorectal cancer (CRC) screening increases polyp yield at colonoscopy. Polyps are resected during colonoscopy, preventing CRC. Serrated polyps, including sessile serrated polyps (SSPs), traditional serrated adenomas (TSAs) and hyperplastic polyps (HPs), progress to CRC through methylation, and may account for 30% of all CRC. FIT detects blood in the stool, and is more sensitive at detecting large (1 cm) adenomas than serrated polyps, which are less likely to bleed. In addition to detecting blood, mt-sDNA detects methylated DNA, and has been found more effective than FIT at detecting serrated polyps. We investigated the yield of serrated polyps in colonoscopies after FIT + or mt-sDNA+ and in those with no preceding positive stool test in the population-based New Hampshire Colonoscopy Registry (NHCR).

METHODS

Data from Exact Sciences Laboratories identified NHCR patients with a positive mt-sDNA test resulting from routine care (8/2015-12/2020). We compared NHCR patients with colonoscopy after an mt-sDNA+ or FIT+ test to those with colonoscopy only during the same period. Outcomes were clinically relevant serrated polyps (CRSPs: all SSPs and TSAs, and large (≥ 1 cm) HPs). A logistic regression model predicting CRSP adjusted for age, sex, BMI, presence of large (> 1 cm) adenomas and smoking.

RESULTS

In our sample of 560 mt-sDNA+ patients, 414 FIT+ patients, and 59,438 with screening colonoscopy only, mt-sDNA+ was more likely to yield CRSPs than FIT+ or colonoscopy only ($p < 0.0001$). When stratified by large adenomas, nearly 1 in 5 (18.0%) mt-sDNA+ patients had CRSPs with no large adenomas as compared to 1 in 10 (9.9%) FIT+ and 8% of colonoscopy only patients. A regression model showed that mt-sDNA+ patients were nearly 3 times as likely (OR 2.86, 95% CI 2.19 – 3.69) and FIT+ patients 1.5 times as likely (1.52, 1.05-2.14) to have CRSP as colonoscopy only patients.

Table 1. Clinically relevant serrated polyps (CRSPs: all SSPs & TSAs, HPs ≥1 cm) at colonoscopy in patients with mt-sDNA$^+$, FIT$^+$ and colonoscopy only, stratified by large (≥1 cm) adenomas

Colonoscopy Findings	mt-sDNA$^+$ (N = 560)		FIT$^+$ (N = 414)		Colonoscopy Only (N = 59,438)		P-Value	
	N	%	N	%	N	%	All groups	mt-sDNA$^+$ vs FIT$^+$
CRSP	118	21.1	47	11.4	5126	8.7	< 0.0001	< 0.0001
No CRSP	442	78.9	367	88.6	54,242	91.4		
CRSPS and Large Adenomas								
							< 0.0001	< 0.0001
Large adenoma & CRSP	17	3.0	6	1.5	385	0.7		
Large adenoma & no CRSP	86	15.4	56	13.5	2421	4.1		
CRSP & no large adenoma	101	18.0	41	9.9	4741	8.0		
No large adenoma or CRSP	356	63.6	311	75.1	51821	87.3		

DISCUSSION

At follow-up colonoscopy, mt-sDNA+ tests had a higher yield of CRSPs than FIT+ or colonoscopy only, both with and without synchronous large adenomas. Given the importance of the serrated pathway and the increased CRC risk associated with CRSPs, these data have significant implications for CRC screening.