

INTRODUCTION

Nonalcoholic fatty liver disease (NAFLD) is known to increase the risk of adenomatous colonic polyps.

However, the role of screening colonoscopy in patients with biopsy-proven NAFLD in detecting advanced colorectal neoplasm is not clearly evidence-based.

AIM

We investigated whether the histological severity of NAFLD is associated with advanced colorectal neoplasm.

METHOD

This study included patients >18 years old who underwent routine colonoscopy between 2013 and 2018 within a biopsy-evaluated prospective NAFLD cohort.

Advanced colorectal neoplasm was defined as an adenomatous polyp greater than 10 mm in diameter and/or with villous histology and/or with high-grade dysplasia or adenocarcinoma.

RESULTS

Among the 476 subjects with biopsy-proven NAFLD (n = 379) and healthy controls without any evidence of NAFLD (n = 97) who underwent colonoscopy, the prevalence of advanced colorectal neoplasm was 11.1% (n = 53).

Patients with advanced colorectal neoplasm had higher grade of steatosis (P = 0.004) and higher stage of hepatic fibrosis (P = 0.044) than those with normal colonoscopic findings or low-grade adenomatous polyp.

Multivariable logistic regression analysis revealed that the presence of nonalcoholic steatohepatitis (NASH) was an independent risk factor for both colorectal polyp (odds ratio [OR], 2.08; 95% confidential interval [CI], 1.12–3.86; P = 0.020) and advanced colorectal neoplasm (OR, 2.81; 95% CI, 1.01–7.87; P = 0.049).

CONCLUSIONS

The presence of biopsy-proven NASH was significantly associated with an increased risk of advanced colorectal neoplasm among patients with NAFLD.

This finding may alert physicians to conduct screening colonoscopy in patients with NASH to detect advanced colorectal neoplasm early.

	No colorectal adenoma (n = 329)	Low-grade tubular adenoma (n = 95)	Advanced colorectal neoplasm (n = 48)	Total (n = 472)	P-value
Histological spectrum of NAFLD					
No NAFLD	63 (19.1%)	14 (14.7%)	5 (10.4%)	82 (17.4%)	.076
NAFL	122 (37.1%)	50 (52.6%)	22 (45.8%)	194 (41.1%)	
NASH	132 (40.1%)	30 (31.6%)	21 (43.8%)	183 (38.8%)	
NAS	3.2 ± 1.9	3.0 ± 1.7	3.4 ± 1.5	3.2 ± 1.8	.524
Steatosis grade, n (%)					
0 (<5%)	74 (22.5%)	15 (15.8%)	5 (10.4%)	94 (19.9%)	.007
1 (5–33%)	80 (24.3%)	40 (42.1%)	20 (41.7%)	140 (29.7%)	
2 (34–66%)	87 (26.4%)	24 (25.3%)	12 (25%)	123 (26.1%)	
3 (≥67%)	88 (26.7%)	16 (16.8%)	11 (22.9%)	115 (24.4%)	
Lobular inflammation, n (%)					
0	87 (26.4%)	20 (21.1%)	6 (12.5%)	113 (23.9%)	.159
1	196 (59.6%)	59 (62.1%)	33 (68.8%)	288 (61.0%)	
2	45 (13.7%)	14 (14.7%)	9 (18.8%)	68 (14.4%)	
3	1 (0.3%)	2 (2.1%)	0 (0%)	3 (0.6%)	
Portal inflammation, n (%)					
Absent	131 (39.8%)	34 (35.8%)	18 (37.5%)	181 (38.3%)	.557
Minimal	105 (31.9%)	31 (32.6%)	17 (35.4%)	153 (32.4%)	
Mild	58 (17.6%)	16 (16.8%)	7 (14.6%)	81 (17.2%)	
Moderate	22 (6.7%)	13 (13.7%)	4 (8.3%)	39 (8.3%)	
Severe	7 (2.1%)	1 (1.1%)	2 (4.2%)	10 (2.1%)	
Ballooning, n (%)					
0	140 (42.6%)	46 (48.4%)	16 (33.3%)	202 (42.8%)	.493
1	46 (14.0%)	44 (46.3%)	30 (62.5%)	247 (52.3%)	
2	16 (4.9%)	5 (5.3%)	2 (4.2%)	23 (4.9%)	
Fibrosis, n (%)					
F0	101 (30.7%)	37 (38.9%)	8 (16.7%)	146 (30.9%)	.029
F1	127 (38.6%)	28 (29.5%)	23 (47.9%)	178 (37.7%)	
F2	57 (17.3%)	16 (16.8%)	7 (14.6%)	80 (16.9%)	
F3	17 (5.2%)	8 (8.4%)	1 (2.1%)	26 (5.5%)	
F4	27 (8.2%)	6 (6.3%)	9 (18.8%)	42 (8.9%)	
NAS, NAFLD activity score; NAFLD, nonalcoholic fatty liver disease; NAFL, nonalcoholic fatty liver; NASH, nonalcoholic					

Table 1. Histological characteristics according to the presence of low-grade tubular adenoma or advanced colorectal neoplasm

	Univariate analysis			Multivariate analysis		
	OR	95% CI	P-value	OR	95% CI	P-value
Age (year)	1.03	1.01–1.06	.001	1.03	1.004–1.06	.024
Sex	1.06	0.72–1.58	.759	0.74	0.41–1.33	.307
BMI (kg/m ²)	1.02	0.96–1.08	.491	1.004	0.92–1.10	.938
Waist circumference (cm)	1.00	0.98–1.03	.915			
Diabetes mellitus	1.27	0.78–2.06	.339			
Hypertension	2.37	1.46–3.86	<.0001	1.64	0.90–2.98	.106
Smoking	1.14	0.70–1.86	.591			
hsCRP (mg/dL)	1.47	0.87–2.50	.154			
HOMA-IR	0.98	0.92–1.04	.447			
Metabolic syndrome	2.24	1.36–3.66	.001	1.64	0.79–2.66	.229
Lobular inflammation						
0	1		^a .054			
1	1.41	0.85–2.34	.187			
2	1.53	0.78–3.00	.211			
3	6.00	0.52–68.9	.150			
Ballooning						
0	1		^a .780			
1	0.90	0.60–1.36	.626			
2	0.92	0.36–2.36	.870			
Steatosis grade						
0	1			1		
1–3	8.20	3.04–22.1	<.0001	3.89	1.41–10.7	.009
Advanced fibrosis						
F0–F2	1					
F3–F4	1.50	0.79–2.83	.209			
OR, odds ratio; 95% CI, 95% confidential interval; BMI, body mass index; hsCRP, high sensitivity C-reactive protein; HOMA-IR, homeostasis model assessment of insulin resistance; NAFLD, nonalcoholic fatty liver disease; NAFL, nonalcoholic fatty liver; NASH, nonalcoholic steatohepatitis. ^a P-value for the test of trend of odds.						

Table 2. Univariate and multivariate analyses for development of adenomatous colorectal polyp

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