Effect of Healthcare Disparities and Socioeconomic factors on Adenoma Detection Rates During COVID-19 Pandemic

Vidhi Patel[1], Rajat Garg[1], Dushyant S. Dahiya[2], Priya Sasankan [1], John McMichael[1], Prashanthi N. Thota[1], Madhusudhan R. Sanaka[1]

1. Gastroenterology and Hepatology, Cleveland Clinic Foundation, Cleveland, OH, United States, 2. Central Michigan University

Background

Health care disparities, which existed prior to the pandemic appear to have worsened with the onset of the pandemic.

We aimed to evaluate the impact of COVID-19 on healthcare disparities and the demographic and socio-economic factors associated with adenoma detection rates (ADR).

Methods

All screening colonoscopies at all Ohio facilities of Cleveland Clinic health system in 2019, 2020 and 2021 from July 1st to December 31st in each year.

The patients were divided into two groups: patients with an adenoma or other precancerous polyps (cases) and patients without an adenoma (controls) detected on colonoscopy.

We collected and compared various demographic and socioeconomic factors between both groups.

Results

Table 1: Demographic, socioeconomic factors associated with adenoma detection on screening colonoscopy

	No Adenoma (N=18,057)	Adenoma (N=5,259)	p-value	Adjusted OR (95% CI)	p-value
Age (mean ± sd)	59.1 ± 8.9	60.6 ± 9.0	<0.001	NA	
Age>=65	4877 (27%)	1741 (33.1%)	<0.001	1.7 (1.6 - 1.7)	<0.001
Sex					
Male =1	7873 (43.6%)	2896 (55.1%)	<0.001	REF	
Female	10184 (56.4%)	2363 (44.9%)		0.65 (0.62 - 0.67)	<0.001
Race			0.003		
Caucasians	13621 (75.4%)	4054 (77.1%)		REF	
African Americans	3145 (17.4%)	810 (15.4%)		0.9 (0.85 - 0.96)	0.001
Others	1291 (7.1%)	395 (7.5%)		0.97 (0.89 - 1.05)	0.54
Insurance type			<0.001		
Medicare	4033 (22.3%)	1419 (27%)		1.04 (0.98 - 1.09)	0.15
Medicaid and other public	1111 (6.2%)	356 (6.8%)		0.87 (0.8 - 0.94)	0.001
Private	11297 (62.6%)	3067 (58.3%)		REF	
No insurance	1616 (8.9%)	417 (7.9%)		0.76 (0.71 - 0.82)	<0.001
Education level (% high school grads in zip code)			0.008		
Q1<88	3887 (22.6%)	1143 (22.7%)		REF	
Q2 >=88 to <92.5	3973 (23.1%)	1268 (25.1%)		1.01.(0.94 - 1.08)	0.79
Q3 >= 92.5 to <94	3962 (23%)	1153 (22.9%)		0.99 (0.91 - 1.08)	0.82
Q4 >= 94	5380 (31.3%)	1478 (29.3%)		0.99 (0.9 - 1.09)	0.87
Median household income (Quartiles based on Zip code)			0.005		
Q1 <43449	3759 (21.9%)	1147 (22.7%)		REF	
Q2 >=43449 to <55969	4113 (23.9%)	1220 (24.2%)		0.96 (0.0.90-1.03)	0.37
Q3 >= 55969 to <67917	4288 (24.9%)	1324 (26.3%)		1.08 (0.98 - 1.18)	0.09
Q4 >= 67917	5042 (29.3%)	1351 (26.8%)		1.0 (0.9 - 1.1)	0.99
Tobacco Use	1549 (8.6%)	613 (11.7%)	<0.001	1.41 (1.32 - 1.51)	<0.001
Alcohol use	11686 (64.7%)	3404 (64.7%)	0.99	NA	
Illicit drug use	622 (3.4%)	208 (4%)	0.079	NA	
Preferred language			0.3	NA	
English	17690 (98%)	5144 (97.8%)			
Spanish	176 (1%)	48 (0.9%)			
Others	191 (1.1%)	67 (1.3%)			
BMI	29.5 ± 6.5	30.3 ± 6.5	<0.001		
Obesity	7200 (40.3%)	2333 (44.8%)	<0.001	1.28 (1.23-1.33)	<0.001

Among these 23,316 procedures, adenomas were detected on 5,259 (22.6%) procedures. The ADR significantly increased from 2019 (21.5%) to 2021 (23.7%) (p<0.001) (Figure 1).

There were significantly higher proportion of patients in lower quartile of education and median household income among cases than in controls (p<0.05 for both).

On multivariate analysis, age >65, male gender, Caucasian race, tobacco use, private insurance and obesity was positive predictors of adenomas (p<0.05 for all) (Table 1).

Figures

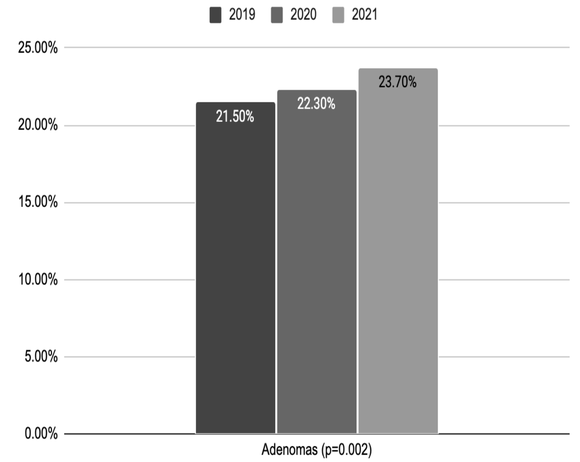

Figure 1 showing increasing trends of adenoma detection on screening colonoscopy from 2019 to 2021.

Conclusion

There has been significant increase in ADR immediately after Covid lockdown which continue to persist in 2021.

Male patients, Caucasians, obese patients, smokers, and elderly have higher ADR.

These results will help design targeted CRC screening in this high-risk population.