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Colonoscopy and risk of infective endocarditis in the elderly

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The risk of infective endocarditis (IE) after colonoscopy is unknown. A causal effect of colonoscopy on IE could alter the benefit-risk ratio of colorectal cancer (CRC) screening, necessitate antibiotic prophylaxis before colonoscopy as recommended for high-risk patients before dental procedures,(1) or influence the choice of CRC screening tests. Because of the scarce evidence, the American Heart Association (AHA) and the American Society for Gastrointestinal Endoscopy (ASGE) do not consider colonoscopy as a procedure conferring a higher IE risk.(1, 2)

We estimated the risk of IE after colonoscopy in individuals aged 70–79 without a history of CRC, endocarditis or colectomy from a random 20% sample of Medicare beneficiaries (1999–2012) with complete claims history in the 5 years before baseline. We classified individuals into a “symptomatic population” if they had recent gastrointestinal symptoms, a “surveillance population” if asymptomatic and with previous polypectomies or inflammatory bowel disease, and a “prevention population” if they were candidates to receive a colonoscopy for screening purposes. In each of these three populations, we compared the 3-month IE risk between individuals that received a colonoscopy vs. those who did not, standardized by age, sex, race, use of prevention services, comorbidity score, (3) risk factors for IE, history of acute myocardial infarction, atrial fibrillation, chronic heart failure, chronic kidney disease, chronic pulmonary obstructive disease, diabetes, hyperlipidemia, hypertension, ischemic heart disease and calendar month of exposure.(4) We

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classified individuals at baseline into “high IE risk” if they had valve disorders, structural heart disorders, intravascular devices, or end-stage renal disease.

Within the symptomatic population (N=994,971), those assigned to the colonoscopy arm (N=183,777) were more likely to be regular users of preventive services, had lower comorbidity scores and lower frequencies of cardiovascular comorbidities and risk factors for endocarditis. These differences were smaller in the surveillance (N=721,881, of whom 158,123 received a colonoscopy) and prevention (N=1,462,360, of whom 187,428 received a colonoscopy) populations. There were 1,013 IE cases in the symptomatic population, 179 in the surveillance population and 279 in the prevention population. In the symptomatic population, the standardized 3-month risk of IE per 10,000 (95% CI) was 7.1 (5.6, 8.3) in the colonoscopy arm and 3.7 (3.6, 3.9) in the no colonoscopy arm; risk difference of 3.3 (1.9, 4.5). In the surveillance population, the risk was 0.5 (0.1, 0.8) in the colonoscopy arm and 0.5 (0.5, 0.6) in the no colonoscopy arm; risk difference of 0 (−0.4,0.4). In the prevention population, the risk was 0.6 (0.2, 0.9) in the colonoscopy arm and 0.5 (0.4, 0.5) in the no colonoscopy arm; risk difference of 0.1 (−0.3,0.4). Results were similar before and after 2007, when a change in prophylaxis guidelines occurred.(1)

In the symptomatic population, the risk difference was greater than zero only in individuals with preexisting risk factors for IE (52%), and greatest among those in whom a polyp was removed or a biopsy was performed (Table).

Our findings suggest that individuals without risk factors for IE and those without gastrointestinal symptoms did not have an elevated IE risk after colonoscopy, which is reassuring given that millions of persons receive a colonoscopy each year for these purposes. On the other hand, we estimated a modestly increased risk among individuals with risk factors for IE who undergo a polypectomy or a biopsy during a colonoscopy following recent symptoms. Our analyses cannot disentangle whether the colonoscopy, the preexisting lesion, or a combination of both is the cause of the increased risk of IE. Instead, we identified a clinical profile of individuals at higher risk of IE following a colonoscopy.

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Abbreviations

IE	infective endocarditis
CRC	colorectal cancer

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Table

Adjusted three-month risk of infective endocarditis (95% CI) by type of colonoscopy and by the presence of risk for infective endocarditis in the symptomatic population, cases per 10,000.

	Risk	Excess Risk
All		
Colonoscopy with polypectomy or biopsy	7.9 (6.1, 9.9)	4.2 (2.3, 6.1)
Colonoscopy without polypectomy or biopsy	5.6 (3.5, 7.5)	1.8 (−2.2, 3.8)
No colonoscopy	3.7 (3.6, 3.9)	Ref.
High risk		
Colonoscopy with polypectomy or biopsy	13.5 (10.2, 17.0)	7.3 (4.0, 10.8)
Colonoscopy without polypectomy or biopsy	8.6 (5.7, 12.2)	2.3 (−0.7, 5.9)
No colonoscopy	6.3 (6.0, 6.5)	Ref.
Low risk		
Colonoscopy with polypectomy or biopsy	1.7 (0.5, 3.0)	0.7 (−0.4, 2.0)
Colonoscopy without polypectomy or biopsy	2.0 (0.4, 4.0)	1.1 (−0.5, 3.1)
No colonoscopy	1.0 (0.9, 1.1)	Ref.