

Screening interval for colonoscopy screening for colorectal cancer: A systematic review of interval cancer rates of colonoscopic screening for colorectal cancer

Hamashima C, Terasawa T, Abe K, Hosono S, Sasaki S, Katayama T, Hoshi K, Tadano T

Objective

- Colonoscopy screening has been highly anticipated as a potential primary screening method. The 10-year interval has been recommended in some academic societies, but its scientific evidence needs to be more comprehensive. Interval cancer is defined as a cancer after a negative result of index colonoscopy, and screening interval is dependent on interval cancer rate.
- We performed a systematic review of interval cancer rates of colonoscopy screening, which was strictly focused on the asymptomatic population.

Methods

- We conducted a literature search using PubMed and Ichushi-Web databases from inception to September 2022.
- As search terms, “colorectal cancer screening”, “interval cancer”, and “total colonoscopy” were included. The inclusion criteria for the target population were an asymptomatic average-risk population with no polyps or adenomas at index colonoscopy.
- Advanced neoplasia (AN) was defined as colorectal cancer (CRC) or adenoma of ≥ 10 mm, with a villous component or high-grade dysplasia.
- The incidence rates of interval CRC and AN per 100,000 person-years (p-y) were estimated.

Discussion

- Selected studies were heterogeneous in the target population, follow-up years, and background characteristics.
- Although interval AN was observed in all studies, the interval cancer rate was low after negative results at index colonoscopy.

Conclusion

The screening interval might be defined as long-term, but the actual screening interval could not be recommended because of limited studies with heterogeneous backgrounds.

Results (1)

From the pool of 699 article candidates, 15 studies within 13 articles were identified. These reported interval incidence rates of CRC. Eleven studies also examined interval incidence rates of AN. 287,602 subjects were included for metaanalysis, whose average follow-up was 7.98 years.

Results (2)

- Negative colonoscopy results were defined as featuring no adenomas, the incidence rate of interval CRC was 9.57 (95%CI: 2.06-29.94) per 100,000 p-y, and that of AN was 311.5 (95%CI: 153.4-550.7) per 100,000 p-y.
- Similar results were obtained even if negative colonoscopy results were defined for subjects without polyps.

Figure 1. Flow diagram of literature search

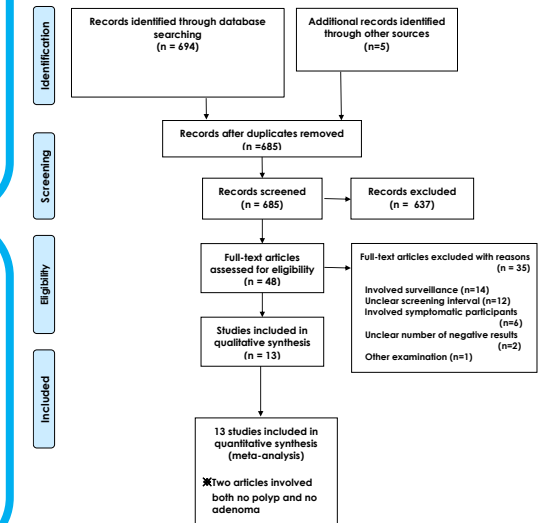


Figure 2. Meta-analysis of interval incidence rate for CRC

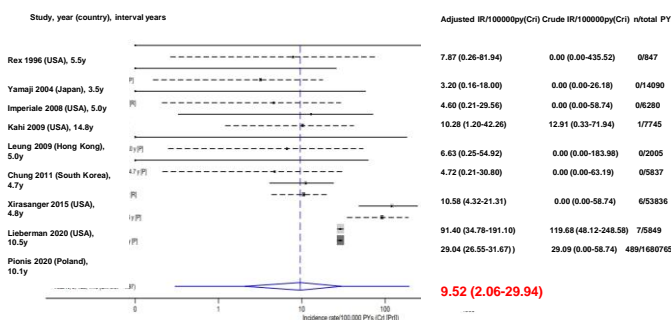


Figure 3. Meta-analysis of interval incidence rate for AN

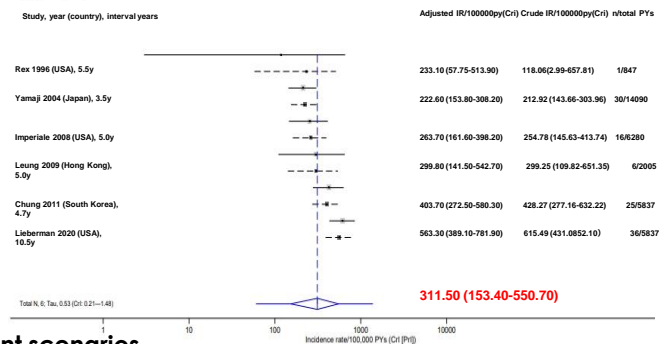


Table 1. Comparison of interval incidence under the different scenarios

Interval incidence rates	Definition of negative results at index colonoscopy	
(/100,000 p-y)	No adenoma	No polyp
Colorectal cancer (CRC)	9.57	4.03
Advanced neoplasia (AN)	311.50	357.1