

What is the best screening strategy to detect advanced colorectal adenomas? Simulation from ongoing Italian screening experiences

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ABSTRACT

Aims and background. The best screening strategy for colorectal cancer is still debated. We simulated two screening strategies, namely flexible sigmoidoscopy (single episode) and immunological fecal occult blood test (FOBT) (five biennial rounds) and comparing their results as regards advanced adenomas and colorectal cancer detection.

Methods. A Markov model was developed to estimate the number of advanced adenomas and colorectal cancer detected with the two compared screening strategies. Two different scenarios, namely a) where the same compliance (50%) at both flexible sigmoidoscopy and immunological FOBT invitation is applied, and b) where the actual compliance observed at a national level (immunological FOBT, 45%; flexible sigmoidoscopy, 30%) is applied.

Results. In scenario a), immunological FOBT would detect a total of 20,573 adenomas and 3,952 colorectal cancers, performing 74,507 total colonoscopies compared to 20,939 and 2,511, respectively, detected by flexible sigmoidoscopy, with 17,985 total colonoscopies. In scenario b), immunological FOBT would detect 17,845 advanced adenomas with 65,215 colonoscopies performed compared to 12,672 detected by flexible sigmoidoscopy with 10,796 colonoscopies. The probability of having a colonoscopy for a subject attending all the five immunological FOBT rounds was 15.9%.

Conclusions. The simulation suggests that also immunological FOBT screening may achieve a substantial detection of advanced adenomas and therefore may have an impact on colorectal cancer incidence.

Key words: colorectal cancer, Markov model, screening.

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