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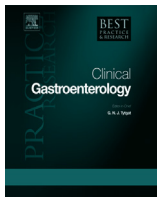

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Surveillance after colorectal polyp removal

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A B S T R A C T

Surveillance colonoscopy is aimed to reduce CRC incidence and mortality by removing adenomas and detecting CRC in early stage. However, colonoscopy is an invasive and expensive procedure and surveillance colonoscopy should be targeted at those who are most likely to benefit at the minimum frequency required to protect for cancer. Surveillance recommendations are based on guidelines, but the recommendations in those guidelines are based on moderate to low quality evidence and adherence to these guidelines is poor. As surveillance colonoscopy is one of the main indications for colonoscopy and surveillance colonoscopies are filling colonoscopy lists, the current surveillance practice results in spending lots of money and capacity in a suboptimal way.

Randomized controlled trials to compare surveillance intervals are not available. However, current evidence based on several case–control and cohort studies suggests there is no need for surveillance in patients with low-risk adenomas, i.e. 1–2 adenomas smaller than 10 mm. Patients with 3 or more adenomas or any adenoma larger than 10 mm seem to be the ones at real risk for metachronous adenomas or cancer. In those patients, surveillance colonoscopy is indicated at 3 years after baseline until ongoing studies will confirm the safety of enlarging this interval. Randomized controlled trials and experimental research are important in order to provide the necessary scientific evidence for the optimization of follow-up strategies for patients with adenomas and serrated polyps.

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Background

Colorectal cancer (CRC) is the most frequent neoplasm in western countries. This disease can be prevented by timely detecting and removing its precursor lesions, adenomatous and serrated polyps, during colonoscopy. The majority of CRCs arise from colonic adenomas. Adenomas are the result of aberrant proliferation of epithelial cells in the colon, and may progress to varying degrees in size and dysplasia. Adenomas represent the major precursor for CRC in high-risk groups as well as in the general population [1]. However, an estimated 20% of CRCs arise through another molecular pathway than the conventional adenoma-carcinoma sequence. These CIMP (CpG island methylator phenotype) positive cancers are believed to arise from serrated polyps. Growing evidence points to the importance of recognising and managing serrated lesions in preventing CRC [1].

There is evidence that detection and removal of adenomas reduces incidence and mortality of CRC [2,3]. As those patients have an increased risk of metachronous adenomas and cancer, it is common practice to schedule a surveillance colonoscopy after adenoma removal. However, colonoscopy is an expensive and invasive procedure and surveillance colonoscopy should be targeted at those who are most likely to benefit at the minimum frequency required to protect for cancer [4]. As of today, surveillance colonoscopies have not demonstrated benefit in reducing the incidence or mortality of CRC in randomized controlled trials, but several case–control and cohort studies suggest that follow-up colonoscopy seems to be effective in reducing the risk of CRC among patients with adenomas [5,6]. Besides, the time-intervals for surveillance colonoscopy as recommended by guidelines, are arbitrary and not evidence-based, and next to this, adherence to these guidelines is poor. For those reasons, post-polypectomy surveillance colonoscopy is one of the main causes of inadequacy of this technique [7,8]. As surveillance colonoscopy comprises approximately 20% of all colonoscopies in patients over 55 years [9], inappropriate surveillance colonoscopies are filling colonoscopy lists and spending lots of money and capacity in a suboptimal way [10].

In this review we summarize the rationale for surveillance after colonic polyp removal and the existing uncertainties regarding this topic, and perform a critical review of the currently accepted surveillance recommendations.

Rationale for surveillance

Studies supporting surveillance

Persons who had colonic adenomas removed at colonoscopy are at an increased risk for developing metachronous adenomas later in life [11,12]. This has been demonstrated in different observational studies and is the rationale for the general advice to schedule surveillance colonoscopy after adenoma removal. Among individuals who have had one or more adenomas removed at colonoscopy, 20–50% will have a metachronous neoplastic lesion at follow-up colonoscopy within 3–5 years [13–17]. As many as 20% of patients diagnosed with neoplastic lesions at surveillance have an advanced adenoma and a small proportion are diagnosed with invasive CRC [18–21]. Besides supporting the need for surveillance, this also underlines the importance of a high-quality colonoscopy at baseline, which should optimize the protective effect for developing CRC in the next years.

Reasons for metachronous neoplasia after adenoma removal

There are mainly two reasons that could well explain the finding of a metachronous neoplasm after polyp-removal: 1) patients with colonics polyps have a personal increased risk to develop new lesions and 2) the quality of the baseline colonoscopy has not been optimal and the metachronous lesions were actually missed or incompletely resected lesions at baseline.

Personal risk to develop new lesions

Apart from individuals with hereditary CRC syndromes, there is not much knowledge on why individuals that underwent polypectomy have a higher risk to develop metachronous colonic polyps in