

Computed Tomography / Tomodensitométrie

Bowel Preparation Suitable for Same-day Computed Tomography Colonography and Colonoscopy

Maggie Eddy, BSc^a, Giles Stevenson, BM, BCh, FRCP, FRCPC^{b,*},
John Mathieson, MD, FRCPC^c, Carola Behrens, MA Sc^d, Richard Eddy, MD, FRCPC^e

^aUBCm, Vancouver, British Columbia, Canada

^bMcMaster University, Hamilton, Ontario, Canada

^cVancouver Island Health Authority, Victoria, British Columbia, Canada

^dUBC, Victoria, British Columbia, Canada

^eRadiologist, Victoria, British Columbia, Canada

Abstract

Purpose: This study was designed to evaluate whether a bowel preparation used for computed tomography (CT) colonography could also be suitable for same-day colonoscopy regardless of which test was done first.

Method: Six different endoscopists working at 3 separate hospitals evaluated 75 patients who underwent colonoscopy after receiving a bowel preparation that contained contrast material used to tag fecal and fluid material to facilitate CT colonography. This bowel preparation has been used in more than 1500 CT colonography studies. Evaluation included assessment of whether the colon was clean and dry, and whether the contrast material caused any impairment of visualization or clogging of the endoscopes. Some of the patients had first undergone CT colonography followed by same-day colonoscopy, whereas other patients had colonoscopy as their initial test.

Results: Although the contrast material was sometimes perceptible, the volumes were very small, and caused no impairment of mucosal visualization and no clogging of the endoscopes. The bowel preparation was well tolerated. Same-day CT colonography and colonoscopy with fecal tagging was technically possible.

Conclusion: A simple, fairly low cost 1-day bowel preparation with fluid and fecal tagging is suitable for CT colonography and colonoscopy done the same day in either order. However, the preferences of individual endoscopists and difficulties with making oral contrast agents readily available are challenges to widespread adoption of a common bowel preparation regimen.

Résumé

Objectif: Cette étude visait à évaluer si le protocole de préparation intestinale utilisé dans le cas d'une colonographie par tomographie par ordinateur pouvait également convenir à une colonoscopie subie le même jour, peu importe l'ordre dans lequel on effectue les examens.

Méthode: Six endoscopistes travaillant dans trois hôpitaux distincts ont évalué 75 patients ayant subi une colonoscopie après avoir suivi un processus de préparation intestinale comportant l'utilisation d'un agent de contraste servant au marquage des selles et des liquides afin de faciliter la colonographie par tomographie par ordinateur. Ce type de préparation intestinale a été utilisé dans plus de 1 500 examens de colonographie par tomographie par ordinateur. On a évalué si le côlon était propre et sec, et si l'agent de contraste entraînait une éventuelle réduction de la visibilité ou une éventuelle obstruction de l'endoscope. Certains patients ont d'abord subi une colonographie par tomographie par ordinateur puis une colonoscopie le même jour, tandis que d'autres ont commencé par la colonoscopie.

Résultats: Même si l'agent de contraste était parfois perceptible, il n'était présent qu'en très faible volume, et n'a entraîné aucune réduction de la visibilité des muqueuses ni aucune obstruction de l'endoscope. Les patients ont bien toléré la préparation intestinale. Il est donc techniquement possible de procéder à une colonographie par tomographie par ordinateur et à une colonoscopie avec marquage des selles le même jour.

Conclusion: Une préparation intestinale simple et relativement peu coûteuse durant une journée avec marquage des selles convient pour subir une colonographie par tomographie par ordinateur et une colonoscopie le même jour, peu importe l'ordre. Cependant, les préférences de chaque

* Address for correspondence: Giles Stevenson, BM, BCh, FRCP, FRCPC, Department of Medical Imaging, Royal Jubilee Hospital, 1952 Bay Street, Victoria, British Columbia V8R 1J8, Canada.

E-mail address: gilse@shaw.ca (G. Stevenson).

endoscopiste et la difficulté à obtenir facilement des agents de contraste oraux freinent l'adoption généralisée d'un protocole commun de préparation intestinale.

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Introduction

Both CT colonography (CTC) and colonoscopy require a bowel preparation to remove feces and excess fluid so as to improve visualization of polyps and colon cancer. In addition to bowel purgatives, the preparations for CTC also include oral contrast agents to tag residual fluid and feces, which allows the fluid and feces to be distinguished from polyps or cancer [1,2].

An ideal bowel preparation should permit same-day CTC and colonoscopy without concern about which test was done first. On one hand, when patients have colonoscopy as their initial examination, the study is incomplete in 2%–40% of patients, with 5% being a common figure [3]. Ideally, patients with incomplete colonoscopy should be referred for same-day CTC but, if no oral contrast was used, then the patient will either have to undergo another preparation or risk having a substandard CTC study. On the other hand, when CTC is done first, more than 10% of normal-risk adults may have a suspicious lesion larger than 6 mm identified on screening [4,5] and would benefit from immediate colonoscopy. Among older symptomatic patients 13% (53/400) will have polyps larger than 10 mm or adenocarcinoma [6]. Once again, the goal is to avoid another bowel preparation as well as speeding diagnosis, staging, and treatment.

The only way to guarantee same-day CTC and colonoscopy, regardless of which test was done first, is to use a common bowel preparation. The major issue is to determine if the oral contrast agents presently used only in CTC studies cause any technical problems with endoscopy, such as clogging of the endoscopes or impairment of visualization.

Methods

In this study, we asked 6 endoscopists working at 3 different community hospitals in British Columbia to evaluate a group of 50 patients who had taken our usual bowel preparation with oral-tagging agents. This first group had CTC studies as their initial test and then underwent same-day colonoscopy. Subsequently, the same endoscopists evaluated a second group of 25 patients who again followed our bowel preparation with oral contrast agents and then had colonoscopy as their first test.

After experimenting with multiple bowel preparations, we had settled on a safe, convenient 1-day regimen that worked well for more than 3000 CTC studies. However, we recently modified the preparation by reducing the volume of contrast agents and altering the timing of purgatives to improve visualization of polyps [7]. This modified low-dose oral contrast regimen, outlined in Table 1, was the one we asked

our endoscopists to evaluate. It has now been used in more than 1500 consecutive patients who had CTC. In this present regime, the final dose of barium is given before the second dose of Pico-Salax (Ferring Pharmaceuticals, Saint-Prex, Switzerland). With the first group of patients, we relied on an informal commentary from the endoscopists, but, with subsequent patients, the clinicians completed a brief checklist questionnaire, as outlined in Table 2.

Results

In general, the bowel preparation was satisfactory. In most patients, the colon was clean and dry, with a few patients having small amounts of residual fluid and feces, more commonly in the right colon. These small amounts were not considered problematic at CTC or colonoscopy in any patient. In these 75 patients, there were no cases in which a repeated examination was required for a failed preparation.

The oral contrast agents, always apparent on CT scanning, were visible in slightly more than half of the patients at colonoscopy, but, in no case did they interfere with mucosal visualization or cause clogging of the colonoscope channel.

The bowel preparation was well tolerated, with only a few minor complaints. As an example, 1 patient commented that he was not willing to take the last bowel suppository 2 hours before his colonoscopy because the test was booked at 8 AM and he did not like to awaken early. In this patient, there were small amounts of residual fluid in both the right and left colon. Another patient commented that it was inconvenient to be restricted to only a few pharmacies that had supplies of the oral contrast agents. The endoscopist's evaluation of the bowel preparations were equally positive whether the patients had first had CTC or underwent endoscopy as their initial test.

Discussion

Our main goal was to establish whether the oral contrast agents used in CTC caused any problems with mucosal

Table 1
Bowel preparation regimen for computed tomography colonography or colonoscopy

Day before test	Early morning	1 package Pico-Salax, 100 mL 4.6% barium sulfate
	Noon	125 mL 4.6% barium sulfate
	Early evening (17:00–18:00)	1 package Pico-Salax, 30 mL Telebrix
	20:00	10-mg bisacodyl suppository
Day of test	2 h before test	10-mg bisacodyl suppository

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