



Usefulness of Castor Oil and Elobixibat and Lactulose and ascorbic Aid for Bowel Preparation for Colon Capsule Endoscopy-Initial examination

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ABSTRACT

Colon capsule endoscopy was approved for reimbursement under the national health insurance system of Japan in 2014.

However, the capsule excretion rate after recommended bowel preparation reportedly ranges from 70% to 90%, and administration of boosters is also necessary. The castor oil-based booster had an emission rate of 97%, but required a total water content of 3L. Considering whether it is possible to popularize colon capsule endoscopy by reducing the amount of water, including dialysis patients with water restrictions, we will consider whether the capsule discharge rate can be improved by combining new laxatives.

Keywords: Castor Oil; Elobixibat; Ascorbic Aid; Colon Capsule Endoscopy

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Introduction

The incidence and prevalence of end stage renal disease (ESRD) have been increasing worldwide. A previous study reported that ESRD patients tend to have various gastrointestinal lesions and associated complication [1]. In addition, the incidence of vascular lesions such as angioectasia has also been reported to be increases in these patients [2,3,4]. Colon capsule endoscopy [5,6,7] was approved for reimbursement under the national health insurance system of Japan in 2014. However,

the capsule excretion rate after recommended bowel preparation reportedly ranges from 70% to 90%, and administration of boosters is also necessary. For dialysis patients, liquid loading is a problem. At our hospital, the capsule excretion rate after recommended bowel preparation was 53% in dialysis patients [8]. However, we examined a defecation desire by five cases that was not a patient on dialysis this time while we dialyzed it when the patient on dialysis took a point and the laxative with moisture restrictions on the day before dialysis to hate quitting a thing.

2day before endoscopy		movical2T lactulose 15ml		
Day before endoscopy	Time	Procedure	Regimen	Liquid volume
	Morning, noon, and evening	Low-residue diet	<u>Enimaclin</u> movical2T lactulose 15ml each time	
	21:00	Bowel cleansing	<u>Picosulfate sodium</u> : 1 packet <u>Elobixibate</u> : 2 tablets	-
	After 21:00		Fasting	

Day of endoscopy	Time	Procedure	Regimen	Liquid volume	total
	9:00–11:00	Bowel cleansing	Moviprep (containing Gascon Drop): 0.25L + water (or tea): 0.125L	0.25L	0.375L
	Capsule ingestion		Ingest a capsule endoscope with Gascon: 4 mL + water: 0.1 L	-	0.475L
	Immediately after capsule ingestion		Castor oil: 30 mL, Lactulose 15ml intramuscular injection of metoclopramide	-	-
	After the capsule reaches the small intestine	Confirming the arrival Enhancing peristalsis	No water intake but hard candy and gum is allowed until the capsule endoscope reaches the small intestine. Oral administration of mosapride: 4 tablets. <u>Moviprep</u> : 0.25 L + water (or tea): 0.125 L , Castor oil: 30 mL, Lactulose 15ml	0.25L	.085L
	1 hour later	Booster	<u>Telemisoft</u> suppository, <u>Moviprep</u> : 0.25 L + water (or tea): 0.125 L	0.25 L	1.225L
	2 hours later	Booster	<u>Mosapride</u> : 6 tablets, <u>Magcorol P</u> : 1 package + water: 0.45 L. * Dialysis patients: Oral administration of castor oil: 30 mL. Glycerol enema at 15:30.	0.45 L	1.675L

Methods and Patients

This study 5 patients who underwent colon capsule endoscopy at Masuko Memorial Hospital since March 2020. The 5 patients (3 men

and 2 women. With mean age of 49 years, All enrolled patients were informed of the risks and complications Colon Capsule, such as capsule retention. Written informed consent was obtained

from all patients. Colon capsule endoscopy was performed with PillCam COLON Capsule (Medtronic, Minneapolis, MN, USA). The recommended protocol of bowel preparation was modified (with administration of Elobixibat and Lactulosef), and success rates of completing entire colon observation were compared. The modified regimen is shown in **Table 1**.

This protocol is a few improvements over the one announced in 2020^[9]. One was to take 15 ml of lactulose and 2 packs of Mobicol 2 days before the test to confirm the discharge of stool. In the morning and noon the day before the test, we decided to have them take 15 ml of lactulose and 2 packets of mobicol, 2T of goofis before dinner, 15 ml of lactulose and 2 packets of mobicol after dinner, and 1 packet of laxoberon before bedtime.

Results

The success rate was 100% (5/5).

The average water intake was 1422ml (800-2225 ml), which could be reduced compared to the conventional protocol. Colon transit time averaged 142.4 minutes (54-408 minutes).

Discussion

Only one case examined this time had a history of abdominal surgery, but the capsule discharge rate was as short as 54 minutes. In the case where it took 408 minutes to drain, there was an episode that there was adhesion when colonoscopy was performed before, and it took a long time for colonoscopy at that time. Since the capsule was actually retained in the sigmoid colon for a long time, it was considered that the adhesion took a long time. This protocol was

able to decrease shortening of the discharge time and the fluid intake than our previous report, too. The moisture stops drinking when it egested a capsule. Fewest cases were 580 ml this time. Lactulose was a drug for hepatic encephalopathy, but also indicated additional indications for constipation. By taking this medicine and castor oil at the same time, The bitterness of castor oil could be masked. Elobixibat is a novel ileal bile acid transporter inhibitor that is expressed in the terminal ileum for treatment of chronic constipation^[9]. When the disease or resection, excessive quantities of bile acids many enter colon, thereby resulting in diarrhea^[11]. By these effects, activity of the bowel movement improved, and a capsule discharge rate was thought to improve even few fluid volumes. The examination of our castor oil showed a 100% discharge rate. The capsule transit time after bowel preparation with Elobixibat and lactulose was shortened, and the booster dosage was also reduced. In a change of the protocol, we used movicol and lactulose from a day in examination far in advance. There was not the history of the constipation with neither five people who examined it this time and did not show taking laxative either. We thought that it might become possible to reduce a fluid volume by reducing a stool residue on the day of the examination and changed the protocol. As a result, we succeeded in reducing discharge time and the fluid volume.

This time, Protocol is difficult to use for dialysis patients. This is because laxatives are used from 2 days before treatment, so there is a high possibility that they will feel sick during dialysis.

Dialysis patients are reluctant to go to stool during dialysis. Therefore, this protocol is very useful for non-dialysis patients.

Conclusion

In future studies, it is necessary to consider a booster that can evaluate polyps and inflammation with a high degree of colon cleansing in order to further reduce the amount of water, and for non-dialysis patients, the number of patients by the current method It is considered necessary to increase and consider it.

Refernces

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