

Trans-Upper GI Endoscope PEG Infusion for Bowel Preparation prior to Colonoscopy: A Comparative Study of Isotonic versus Hypertonic PEG

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Background

The use of polyethylene glycol (PEG) in large volumes is required for bowel preparation prior to colonoscopy and is therefore associated with considerable gastrointestinal (GI) distress. Therefore, we proposed a PEG infusion method using an isotonic PEG (Niflec®) at DDW 2013.

Objective

- 1) To evaluate the comparative effectiveness of the infusion method using isotonic PEG (Niflec®) versus hypertonic PEG (Moviprep®)
- 2) To improve GI distress in patients undergoing bowel preparation for colonoscopy.

Patients and Methods

After completion of routine upper GI endoscopic procedures, bowel cleansing with PEG infusion into the duodenal second portion and the gastric corpus was attempted in this study as a modality for bowel cleansing prior to colonoscopy to alleviate GI distress. Of the 152 patients given Niflec between June 2011 and March 2013, and of the 261 patients given Moviprep between June 2013 and October 2014 at TF clinic, the study included, as successful cases for analysis, 147 patients given Niflec (96.7%) and 253 patients given Moviprep (96.9%) in whom PEG 0.8 L or greater was infused using the GI endoscope. Each group was evaluated for efficacy of bowel cleansing with PEG infusion as assessed by endoscopy and patient satisfaction to evaluate the usefulness of the modality. To reduce the abdominal fullness during endoscopic examinations including PEG infusion, we used CO₂, instead of room air, for endoscopic insufflation. PEG infusion via the GI endoscope was performed manually by using 50 mL syringes for Niflec or by using a trans-endoscope water conveyance system for Moviprep (Water Please, Forte Grow Medical Co., Japan), with the infusion time set at 5 minutes in either case.

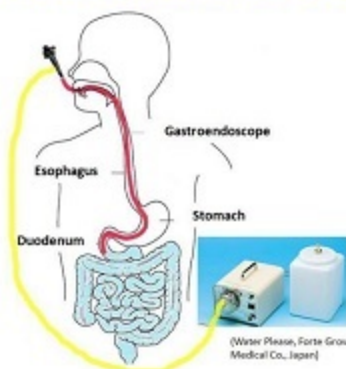
Bowel Preparation with PEG Infusion in Patients Undergoing Both Upper and Lower GI Endoscopic Procedures in One Day

Start an upper GI endoscopic procedure

↓
Infusion proper dose of PEG directly into the duodenum first and then proper dose of PEG into the stomach

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Give 3 "itopride hydrochloride 50 mg" tablets, 30 minutes after the upper GI endoscopic procedure

↓
3 hours after PEG infusion, start a lower GI endoscopic procedure (colonoscopy)



PEG Infusion Using a Tans-Endoscope Water Conveyance System



PEG Infusion Using a GI Endoscope



Results

Greater bowel cleansing as well as higher patient satisfaction was achieved with Moviprep at a lower dose within a shorter time than with Niflec (Table). Reasons for discontinuation due to PEG infusion less than 0.8 L included vagovagal reflux in 4 patients given Niflec and vomiting in 1 patient given Niflec, versus vagovagal reflux in 5 patients, sore throat, vomiting, abdominal fullness, in 1 patient each given Moviprep. No associated complication, such as aspiration pneumonia, was seen with either PEG.

Summary of Results Described in Table

- Compared to Niflec, Moviprep offers:
- ✓ Superior bowel cleansing at a lower dose
 - ✓ Bowel cleansing in a shorter time
 - ✓ GI endoscopic procedures in a shorter time
 - ✓ Greater patient satisfaction

Analysis of Patients Completing PEG Infusion > 0.8 L (Successful Cases)

	Niflec (PEG-ELS)*	Moviprep (PEG-ELS+Asc)**
PEG infusion success rate*	96.7% (147/152)	96.9% (253/261)
No. of successful cases	147	253
Mean age (years)	63.2 (34-86)	61.7 (32-85)
Sex (M/F)	66/81	111/142
GI endoscopy		
Mean procedural time	13.7 min (6-20)	11.0 min (6-21)
Grade of associated GI distress	"Comfortable" 81.0% (119) "Neither comfortable nor uncomfortable" 17.0% (25) "Uncomfortable" 2.0% (3)	85.0% (215) 12.3% (31) 2.8% (7)
Status of bowel cleansing	"Good" 77.6% (114) "Acceptable" 15.6% (23) "Poor" 6.8% (10)	86.2% (218) 9.1% (23) 4.7% (12)

	Niflec (PEG-ELS)*	Moviprep (PEG-ELS+Asc)**
Mean cleansing time (range)	126.7 min (45-270)	112.5 min (47-260)
Cecal intubation rate	99.3% (146/147)	99.6% (252/253)
Mean cecal intubation time	6.4 min (2-40)	5.9 min (2-16)
Patient satisfaction	"Excellent" 87.1% (128) "Moderate" 8.8% (13) "Poor" 4.1% (6)	93.7% (237) 4.3% (11) 2.0% (5)
Mean infusion volume	1.33 L (0.8-1.5)	0.95 L (0.8-1.45)
PEG volume associated with:	"Good" cleansing 1.33 L (0.8-1.5) "Acceptable" cleansing 1.36 L (1.2-1.5) "Poor" cleansing 1.36 L (1.2-1.5)	0.95 L (0.8-1.45) 0.97 L (0.8-1.0) 0.92 L (0.9-1.0)

*GOLYTELY: June 2011 and March 2013, **: June 2013 and October 2014

Conclusions

Trans-upper GI endoscope PEG infusion is a useful method for bowel preparation prior to colonoscopy as not calling for large amounts of PEG. Hypertonic PEG offers superior bowel cleansing than isotonic PEG and is therefore thought to be suitable for use in the proposed PEG infusion method.

There are no potential conflicts of interests related to this presentation.

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Takahiro Fujii, MD, PhD
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Summary described in Table

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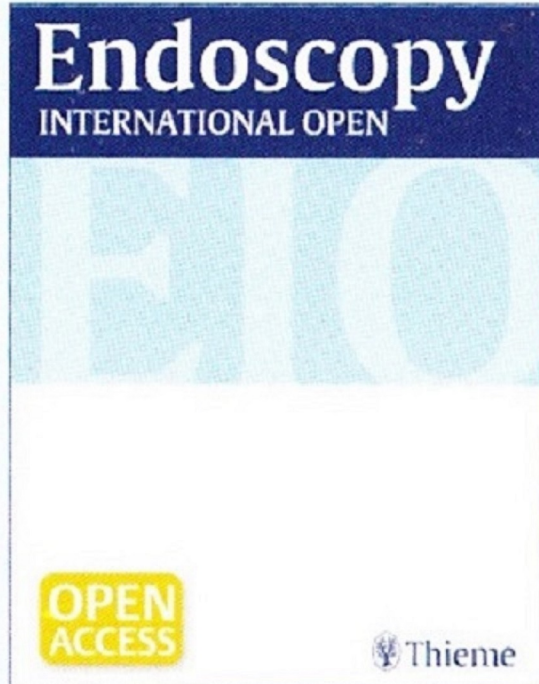
Completing PEG

Moviprep



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Trans-Upper GI Endoscope PEG Infusion for Bowel Preparation prior to Colonoscopy: A Comparative Study of Isotonic versus Hypertonic PEG

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Tokyo, Japan

Background

The use of polyethylene glycol (PEG) in large volumes is required for bowel preparation for colonoscopy. However, large volume PEG is therefore associated with a high risk of hypotension and dehydration (*) at DDW 2013.

Objective

To evaluate the comparative effectiveness of the infusion method using trans-Upper GI Endoscope PEG (Moviprep) versus Hypertonic PEG (MoviPrep) in patients undergoing bowel preparation.

Patients and Methods

The comparison of patient satisfaction and the amount of PEG infusion was attempted in this study between June 2012 and March 2013 in 261 patients for colonoscopy using the GI endoscope. Each patient was randomly assigned to either of Moviprep or MoviPrep. The primary endpoint was the amount of PEG infusion. Secondary endpoints were patient satisfaction and the amount of PEG infusion.

As well as higher patient satisfaction was achieved with Moviprep at a lower dose. The amount of PEG infusion less than 0.8 L included vagovagal reflex in 4 patients, vagovagal reflex in 5 patients, sore throat, vomiting, abdominal fullness, in 1 patient. No respiratory pneumonia, was seen with either PEG.

Results Described in Table

- ✓ Superior bowel cleansing at a lower dose
- ✓ GI endoscopic procedures in a shorter time

Table 1: Patients Completing PEG Infusion > 0.8 L (Successful)

Moviprep (PEG-ELS+Asc)**	MoviPrep (PEG-ELS+Asc)**
6.9% (253/261)	10.0% (261/261)
253	261
7 (32-85)	142
1/142	
6-21	
(215)	
(31)	
(7)	
(8)	
(8)	
(8)	
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Mean cleansing time (range)	
Cecal intubation rate	
Mean cecal intubation time	
Patient satisfaction	"Excellent" "Moderate" "Poor"
Mean infusion volume	
PEG volume associated with:	"Good" cle "Acceptabl "Poor" cle

*GOLYTE



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AMSTERDAM, NETHERLANDS
DDW



DDW 2013
TAKAHIRO FUJII
TOKYO, JAPAN



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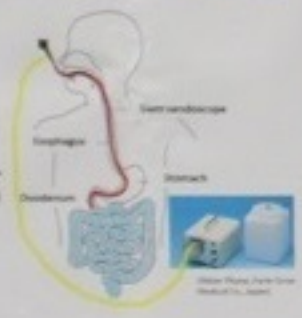
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Bowel Preparation with PEG Infusion in Patients Undergoing Both Upper and Lower GI Endoscopic Procedures in One Day

- Start an upper GI endoscopic procedure
- Infuse proper dose of PEG directly into the duodenum first and then proper dose of PEG into the stomach
- Give 3 "laxative hydrochloride 50 mg" tablets, 30 minutes after the upper GI endoscopic procedure
- 3 hours after PEG infusion, start a lower GI endoscopic procedure (colonoscopy)



PEG Infusion Using a Trans-Endoscope Water Conveyance System



Trans-Endoscope Water Conveyance System

Results Described in Table

- Niflec, Moviprep offers:
 - ✓ Superior bowel cleansing
 - ✓ GI endoscopy
 - ✓ Bowel cleansing in a shorter time
 - ✓ Greater patient satisfaction

	Niflec (PEG-ELS)*	Moviprep (PEG-ELS+Ac)**
Time (min)	57 min (270)	112.5 min (47-260)
Colonoscopy rate (%)	100% (147/147)	99.6% (252/253)
Abdominal fullness (2-40)	5.9 min (2-16)	5.9 min (2-16)
Aspiration pneumonia (%)	0.0% (0)	93.7% (237)
Vomiting (%)	0.0% (0)	4.3% (11)
Regurgitation (%)	0.0% (0)	2.0% (5)
Diarrhea (%)	0.0% (0)	0.95% (0.8-1.45)
Stomach pain (%)	0.0% (0)	0.95% (0.8-1.45)
Rectal pain (%)	0.0% (0)	0.97% (0.8-1.0)
Rectal bleeding (%)	0.0% (0)	0.92% (0.9-1.0)

** June 2013 and October 2014

Colonoscopy as not isotonic PEG and is

to this presentation.

