Optimizing Bowel Preparation in an Inpatient Population Undergoing Colonoscopy

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Purpose of Presentation

• Describe the challenges faced when preparing an inpatient population for colonoscopy
• Identify techniques used to communicate with collaborating providers
• Identify different types of bowel preparations used
• Explain strategies used for patient education in the inpatient setting
• Identify future trends for ensuring adequacy of bowel preparation
Background

- Ineffective inpatient colonoscopy preparation may lead to:
  - Missed or delayed diagnosis
  - Repeated or additional procedures
  - Increased complications
  - Increased length of stay

- Inpatients typically have a worse quality of bowel preparation and lower procedure completion rates as compared to outpatients

(Steward & Norton, 2009)
Challenges faced when preparing an inpatient population for colonoscopy

(Reilly & Walker, 2004)
Medications

Diuretics
- Loop diuretics
- Thiazides

Laxative
- Chronic use
- Osmotic
- PEG
- Stimulants

Narcotics
- Long term
- Short term
- Illegal substances
Cardiac Disease
- Diuretics
- Oxygen therapy
- Antihypertensives
- Anticoagulation

End Stage Renal Disease
- Hemodialysis
- Diuretics

Diabetes
- Decreased gastric motility
Case Study #1

- 80 year old Portuguese speaking female
- 8th grade education
- Poor historian
- Long term resident at nursing home
- Ambulatory with walker at baseline
- Recent weight gain since moving to nursing home
Admitting Diagnosis: Anemia, guiac + stool

Past medical history

• Gastric ulcer
• CVA
• Hx PE
• Chronic low back pain
• Rectovaginal fistula
• Depression
• Sacral decubitus, stage 2

Relevant medications

• Omeprazole 40 mg daily
• Aspirin 325 mg daily
• Coumadin 3 mg daily
• Oxycodone 5 mg TID
• MiraLax 17 gm daily
• Metamucil daily
GI Fellow Consult

Plan
• EGD/Colo with possible VCE
• support with blood transfusions as necessary
• 1 day split NuLytely prep
• Coumadin on hold, initiate Heparin infusion if indicated

Prior Procedures
• Colonoscopy in 2013 with good quality of prep
• Also inpatient
• Took 3 days to clear
• NGT placed to facilitate prep
• Total prep = 10 L NuLytely and 10 mg PO Bisacodyl
The Events

<table>
<thead>
<tr>
<th>Day 1</th>
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<tbody>
<tr>
<td>• Medical team ordered prep correctly however patient refused.</td>
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<tr>
<td>• Team ordered 300 ml Mag Citrate</td>
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<tr>
<td>• Patient needed much encouragement to complete bottle.</td>
</tr>
<tr>
<td>• Not interested in drinking clear liquid diet.</td>
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<tr>
<td>• Incontinent of urine and stool.</td>
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<table>
<thead>
<tr>
<th>Day 2</th>
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<tbody>
<tr>
<td>• Refused further prep (NuLytely and Mag Citrate)</td>
</tr>
<tr>
<td>• Refused to speak to interpreter</td>
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<td>• No family at bedside</td>
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<tr>
<td>• Anticipated date of procedure, however patient unable to go due to poor prep</td>
</tr>
<tr>
<td>Days 3 and 4</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>• Agreed to take 300 ml Mag Citrate overnight but then refused further prep.</td>
</tr>
<tr>
<td>• Becoming verbally abusive to nursing staff and interpreter when need for prep explained.</td>
</tr>
<tr>
<td>• Family contacted for need to assist with encouraging patient to complete prep.</td>
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<td></td>
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</tbody>
</table>
### Days 7 and 8

- MiraLax prep continues and patient completes initial dose ordered on day 7.
- Output documented as clear yellow on day 7.
- Wound care c/s for sacral decubitus.
- Overnight RN notes output is brown again.
- Procedure completed on day 8.
- Total length of stay in hospital was 11 days.

### Procedure Results

- Indication for colonoscopy: heme positive stool.
- Quality of prep: Adequate to identify polyps 6 mm or larger in size.
- Two sessile, non-bleeding polyps were found in the ascending colon. The polyps were 8mm and 6 mm in size.
- Moderate diverticulosis in the recto-sigmoid colon, in the sigmoid colon and in the distal descending colon. There was no evidence of diverticular bleeding.
Communication with non-GI providers

Ordering Providers
- Creation of order sets, guidelines and templates that provide expectations and standards for bowel preparation

Nursing Staff
- Outreach to nursing units
- Discussions regarding specific patient populations

All
- May be unfamiliar with bowel preparation regimen, procedure, and flow of endoscopy unit
- Be available to address questions and concerns
Description of Output

- Murky
- Transparent
- Yellow
- Cloudy
- Brown
- Green
- “Looks like urine”
- Able to visualize through
- Clear
- Sediment
Tips for Ensuring Adequate Prep

• Use a collection hat to evaluate output
• Look for consistency in output
• Ask for a second opinion if unsure
• Clearly document characteristics of output (color, clarity, amount of sediment)
• Engage patient in the process but be aware that patient’s description is not reliable predictor of bowel prep quality (Fatima, Johnson, & Rex, 2010)
Patient’s output is not clear for colonoscopy.
Endo unit is calling to see if patient is prepped.

Patient completed 4L NuLytely over past 12 hours.
Has history of fair prep with 4L NuLytely completed for prior exam

Patient has no complaint of nausea, vomiting, abdominal pain, or bloating.
Last output was brown, cloudy, no sediment noted.
More prep is needed.

Update endo unit on patient’s status and when patient is clear.

Page ordering provider to request order for another 2L NuLytely.
Administer to patient in timely manner.

SBAR: What to do if not clear?
Bowel Preparations

Whoever named 'GoLytely' should have tested it before naming it.
### Different Types of Bowel Prep

(American Society for Gastrointestinal Endoscopy, 2009)

<table>
<thead>
<tr>
<th>Isosmotic Preparations</th>
<th>Active agent</th>
<th>Approved by FDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colyte</td>
<td>PEG</td>
<td>Yes</td>
</tr>
<tr>
<td>GoLytely</td>
<td>PEG</td>
<td>Yes</td>
</tr>
<tr>
<td>NuLytely</td>
<td>PEG (sulfate free)</td>
<td>Yes</td>
</tr>
<tr>
<td>Halflytely (Low Volume)</td>
<td>PEG and bisacodyl</td>
<td>Yes</td>
</tr>
<tr>
<td>Moviprep (Low Volume)</td>
<td>PEG and ascorbic acid</td>
<td>Yes</td>
</tr>
<tr>
<td>MiraLax</td>
<td>PEG-3350 (no electrolytes)</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hyperosmotic Preparations</th>
<th>Active agent</th>
<th>Approved by FDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fleet Phospho-Soda</td>
<td>NaP</td>
<td>FDA recommends against use</td>
</tr>
<tr>
<td>Visicol Tablets</td>
<td>NaP</td>
<td>Black box warning</td>
</tr>
<tr>
<td>Osmoprep Tablets</td>
<td>NaP</td>
<td>Black box warning</td>
</tr>
<tr>
<td>Magnesium Citrate</td>
<td>Magnesium Citrate</td>
<td>Yes</td>
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Benefits of a Split-Dose Prep

- Improved bowel cleansing
- Increased patient tolerance
- Increased patient satisfaction
- Shorter interval between preparation and procedure

(Braintree Laboratories, 2015)

(Riegert & Nandwani, 2014)

(Bryant, Schoeman, & Schoeman, 2013)
**Additional Preparations**

- **Enemas**
  - Examples: Fleets, tap water
  - Dosing: Evening before and/or morning of procedure
  - Inadequate evidence to use as primary means of prep or use as salvage prep

- **Stimulants**
  - Examples: Bisacodyl, Senna
  - Dosing: Varies according to prescriber preference
  - Not recommended for consistent use but may be helpful in certain patient populations
  - Can cause additional side effects such as cramping and pain

- **Other Adjunctive Agents**
  - Examples: Simethicone, prokinetics, probiotics
  - Not recommended for routine use

*(Johnson et al., 2014)*
Administration and Safety Precautions

• Common adverse events (American Society for Gastrointestinal Endoscopy, 2009)
  • Electrolyte and fluid imbalance
  • Abdominal pain and bloating
  • Nausea and vomiting
  • Adverse effects on colonic mucosa
• Rate of administration
• Use of nasogastric tubes
• Use of rectal tubes and collection bags
• Dysphagia diets
Patient Education

Handouts
  - Organization Specific
  - General

Media
  - ASGE Colonoscopy Videos
  - Images from personal prior exams

Personal Stories
  - CDC Personal Screening Stories
  - Patient’s Own Experience
Health Literacy

• Ability to obtain and understand health care information in order to make health care decisions and follow directions

• Impacted by education, intelligence, age, culture, language, income, and ability to utilize technology

• Education and treatment plans need to be created according to patient’s ability and preferences

(Weinstock, 2015)
Patient Engagement and Support

• Getting families involved can improve compliance with treatment (Weinstock, 2015)
• Motivational interviewing
• Obtaining additional supplies for patient during preparation process
• Building a relationship of trust
• Honest communication
Case Study #2

- 59 year old English speaking male
- High school education
- Lives in single family home with wife
- Independent with ADLs
Admitting Diagnosis: BRBPR

Past medical history
- Hypertension
- Hyperlipidemia
- Peripheral vascular disease
- Peptic ulcer disease
- ETOH use
- hx GI bleed with unknown etiology

Relevant medications
- Omeprazole 20 mg daily
- Antihypertensives
- Statin

Prior procedures
- Prior colo with fair quality of prep due to amount of retained stool
- Patient reports he had full prep (4L GoLytely) at home
GI Fellow and Prep Nurse Consult

- Ordered for clear liquid diet at 2:30 pm
- Prep started by 4 pm
- Educational Material given to patient and reviewed by prep nurse
- Instructions reviewed with RN caring for patient on unit by prep nurse
- Modified 1 day split prep to recommend taking 4L NuLytely now and 2L NuLytely am of colonoscopy
- Plan discussed with GI fellow and primary team
- Note written in electronic medical record by prep nurse
Day of Procedure

- Patient completed full prep and was ready for procedure by 10 am
- Procedure completed in afternoon due to available anesthesia time
- Excellent quality of prep
- Normal Colon
- No delay in date of procedure
- Discharged following day as colo was followed by VCE
Future Trends

Patient navigator

Digital applications

Advances in bowel preparations

Continued focus on quality of care
Conclusion

• Inpatients undergoing colonoscopy are a particularly vulnerable population with a unique set of challenges in ensuring adequate preparation as compared to an outpatient population

• Increased facilitation, patient education, and communication have the potential to improve outcomes in the inpatient setting
References