

# GI disorders in children on autism spectrum- is management different?

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# Disclosures

- No financial or other relevant disclosures to be made

# Objectives

- Identifying gastrointestinal (GI) conditions in children on autism spectrum
- Constipation management
- Gastroesophageal Reflux Disease (GERD) management

# Varied Presentation of GI disorders in children on autism spectrum

- Holding tummy in discomfort
- Crying without any reason or aggression
- Fecal soiling, big belly, infrequent passage of stool or hard stool
- Vomiting or regurgitation
- Diarrhea
- Arching neck backwards and/ or refusal to eat
- Picky eating behavior
- Losing weight

# Abbreviated GID screen

1. 17 symptom inventory squeezed down from 40+ questions from ATN questionnaire
2. Targeting functional constipation, GERD and functional diarrhea
3. Impediment to correct diagnosis-
  - Social communication deficit
  - Sensory processing impairment
  - High parental “Unsure” responses

*J Autism Dev Disord.* 2019 January ; 49(1): 349–362. doi:10.1007/s10803-018-3767-7.

## Development of a Brief Parent-Report Screen for Common Gastrointestinal Disorders in Autism Spectrum Disorder

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### Abstract

Gastrointestinal dysfunction in children with autism spectrum disorder (ASD) is common and associated with problem behaviors. This study describes the development of a brief, parent-report screen that relies minimally upon the child’s ability to report or localize pain for identifying children with ASD at risk for one of three common gastrointestinal disorders (functional constipation, functional diarrhea, and gastroesophageal reflux disease). In a clinical sample of children with ASD, this 17-item screen identified children having one or more of these disorders with a sensitivity of 84%, specificity of 43%, and a positive predictive value of 67%. If found to be valid in an independent sample of children with ASD, the screen will be useful in both clinical practice and research.

# CONSTIPATION



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## Patient case

- 12 years old male on autism spectrum is dealing with chronic constipation and stool leaking
- Has received bowel clean out 3 times in the past and as needed laxatives (PEG 3350- Miralax) but constipation is still not **fixed**
- Parents and teachers are concerned- as despite extensive treatment- stool leaking is not resolving
- There is also concern that something must be wrong with the child- intestine blockage, dysmotility, nerve or spine issues or something else?- which has not been diagnosed still
- In the meanwhile, child is resisting to go to school because of this issue

# Functional Constipation etiology/ cause

- In the absence of red flag signs/ symptoms (abnormal neurological or rectal examination, unexplained weight loss etc. Majority of patients with chronic constipation have functional issues. Minimal role of investigations.

## Stool withholding behavior:

- Past unpleasant/ painful experience with passing stool
- Recto-sphincteric dyssynergia due to never have learned dynamics of abdominal muscle contraction and anal sphincter relaxation

## Delayed transit of stool through colon:

- Lack of fiber, enough water in intestine
- Medications (Antihistaminic etc.)
- Slow moving colon



# Can we fix constipation?

- Chronic constipation affects 1 out of 6 humans including children
- There's a reason that laxatives take a large space in OTC drug shelves
- In the large majority of patients- there is no treatable cause of constipation, which can be fixed or cured
- Just like chronic headache, depression, dysmenorrhea and other ailments- constipation also needs long term management
- If simple steps- like optimizing fiber, water intake, physical activity and good bowel habits don't resolve the issue- will need laxatives

# Constipation treatment- Barriers to management

## Failure to respond to laxatives-

- Not having consensual approach between patient/ parent and medical provider in terms of laxatives use
- Identifying limitations in laxative intake (taste, texture, side effects, acceptance and social setting)
- Inadequate doses of laxatives
- Fear of laxative side effects or of dependency
- Short term use of laxatives only
- Not having close follow up with PCP/ specialist

# Do children on autism spectrum need different treatment?

## Children on autism spectrum Vs neurotypical peers:

- Have higher prevalence of constipation- due to dietary, stool withholding or other unknown reasons
- No difference in the cause of constipation- no additional studies needed
- Don't need different treatment protocols
- Need a better understanding of medication tolerance, judicious use of combination laxatives, pain medication use during bowel clean outs and frequent follow up at least in the beginning phase of treatment

For questions or problems, call:

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

# Constipation Action Plan

To be completed by your child's doctor or nurse so that you know how best to manage your child's constipation

**Doing Well:**  
**Stools every 1-2 days**  
 No straining or pain  
 Stool is soft

Daily Medicine Name:  
 Dose:  
 How Often:

**\*\*Continue stool softeners, high fiber diet, increased fluid intake, exercise and scheduled toilet breaks everyday.**

Notes:

**Constipation worsening:**  
**No stool in 2-3 days**  
 some pain, or hard stools

**In addition to your Green Zone medicine, you can:**

- Increase your:
- If your symptoms do not return to the GREEN zone after 3 days of treatment then add:

Notes:

**Pay attention:**  
**More than 3 stools each day**

Does child seem to have GI illness (fever, vomiting, watery stools, diarrhea)?  
 Stop constipation medicines for 3 days or until diarrhea resolves  
 •Call doctor for: Refusing liquids, dark urine, loose stools for \_\_\_ days

Notes:

No fever, vomiting or signs of illness?  
 Change daily medicine:  
 Dose  
 How often:

**Alert!**  
**no stool in 5 or more days**  
 Stomach pain, vomiting, .

- First, Take:
- Second, call your doctor now for help

Notes:

Adapted from Stafford B, Wills H, Punati J, Deavenport A, Yin L. Constipation Action Plan. (C) 2012 Children's Hospital Los Angeles. All Rights Reserved

# LAXATIVES- SAFETY STUDIES



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# Laxatives use in children- its our choice

- There is no FDA approved laxatives in children except recently approved Linaclotide (Linzess) above 6 years of age
- The lack of FDA approval- testifies to the fact that there are no large scale good quality studies- due to lack of funding
- Based on large scale clinical observation by practicing medical providers- chronic laxative use seems to be safe in children
- Beyond that- if we as parents/ providers are not comfortable in using these medications- its our choice not to use these medications

# Safety of stimulant laxative (Dulcolax, Senna etc) in the long run?

Review > J Clin Gastroenterol. 2003 May-Jun;36(5):386-9.

doi: 10.1097/00004836-200305000-00004.

## Is chronic use of stimulant laxatives harmful to the colon?

1. No convincing evidence that stimulant laxative chronic use causes structural or functional impairment of enteric nerves or intestinal smooth muscle
2. Stimulant laxatives can be used chronically when patients fail to respond to bulk or osmotic laxatives

## Bisacodyl: A review of pharmacology and clinical evidence to guide use in clinical practice in patients with constipation

1. The active metabolite from the stimulant laxatives bisacodyl is not absorbed and does not pass through the blood-brain barrier and so there is no pharmacological basis for dependency
2. The misconception that long-term use of these laxatives could damage the enteric nervous system is based on studies from 1960 to 1970, which have not been confirmed by subsequent studies



## **Are Senna based laxatives safe when used as long term treatment for constipation in children?**

- 640 children were prescribed senna over 3 years period in Nationwide Children's, Ohio
- Only 2% children developed short lasting perianal rash on high doses of senna and no tolerance to senna dose seen and it still worked
- Also literature review in this field- did not identify any concerning long term side effects or dependency on daily senna use

# PEG 3350 (Miralax) Safety study

- FDA approved funding for safety study of PEG-3350 to Children hospital of Philadelphia (CHOP) in 2014
- Objective- to assess PEG-3350 presence in blood and urine and any behavioral or neuropsychological symptoms in patients taking it
- Study is still active- and needs much more funding and time to complete

**“Polyethylene Glycol 4000 for Treatment of Functional Constipation in Children”**

*Journal of Pediatric Gastroenterology and Nutrition*, 2015

- Gave 90 children, ages 1 to 13 years, either “high-dose” or “low-dose” laxative for 6 weeks
- Treatment seemed safe, no major differences were seen when using high or low doses

**“A Randomised, Double-Blind Study of Polyethylene Glycol 4000 and Lactulose in the Treatment of Constipation in Children”**

*BMC Pediatrics*, 2014

- Studied 88 children, ages 12 to 36 months, for 4 weeks of treatment
- No behavioral problems were reported. Researchers felt the PEG 4000 worked better than lactulose

**“PEG 3350 in the Treatment of Childhood Constipation: A Multicenter, Double-Blinded, Placebo-Controlled Trial”**

*Journal of Pediatrics*, 2008

- Studied 103 children, ages 4 to 16 years, for two weeks of treatment
- Treatment seemed safe; no behavioral problems were reported among children getting laxative
- Important note: 1 child had worsening of his psychiatric illness, but he was NOT getting laxative (only placebo)

**“Double-Blind Randomized Evaluation of Clinical and Biological Tolerance of Polyethylene Glycol 4000 Versus Lactulose in Constipated Children”**

*Journal of Pediatric Gastroenterology and Nutrition*, 2005

- Followed 96 children, ages 6 months to 3 years, for 3 months of treatment
- Treatment seemed safe, no behavioral problems were reported, and the PEG 4000 seemed better than lactulose

**“Polyethylene Glycol for Constipation in Children Younger than Eighteen Months Old”**

*Journal of Pediatric Gastroenterology and Nutrition*, 2004

- Looked at 28 children, ages 0 to 18 months, treated for an average of 6 months
- Treatment seemed safe; no behavioral problems were reported

**“PEG 3350 versus Lactulose in the Treatment of Childhood Functional Constipation: A Double-Blind, Randomised, Controlled, Multicentre Trial”**

*Gut*, 2004

- studied 91 children, ages 6 months to 15 years, for 8 weeks
- Unfortunately, nine children entered the study, but did not finish, for unreported reasons
- No behavioral problems were reported; researchers felt the PEG 3350 worked better than lactulose

**“Long-term Efficacy of Polyethylene Glycol 3350 for the Treatment of Chronic Constipation in Children with and Without Encopresis”**

*Clinical Pediatrics*, 2003

- Looked at 74 children, ages 2 to 17 years, for up to 30 months of treatment
- No behavioral problems were reported

**“Safety of Polyethylene Glycol 3350 for the Treatment of Chronic Constipation in Children”**

*Archives of Pediatric and Adolescent Medicine*, 2003

- Followed 83 children, ages 2 to 17 years, for an average 9 months of treatment
- Treatment seemed safe, no behavioral problems were reported

# Gastroesophageal Reflux Disease (GERD)



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# What is GERD?

- Acid coming back from stomach to esophagus causing heartburn

## Can manifest as:

- Refusal to eat/ Picky eating behavior
- Crying, being aggressive
- Having upper belly pain
- **Eating frequently**
- **Regurgitation of food, putting hand in mouth**
- Possibly enamel decay, bad breath (weak evidence)
- Poorly controlled asthma (some evidence)
- Sleep disturbance (some evidence)

# Diagnosis

- Upper endoscopy and biopsy- helps in establishing GERD and ruling out other conditions presenting as GERD like EoE
- pH/ impedance probe?- not easy as needs symptom correlation in real time and probe needs to stay in place for 24 hours. Also not good correlation between length of acid exposure in esophagus and symptom severity
- Contrast study (Upper GI series) does not help much as stomach content including refluxing back in esophagus is normal phenomenon

# MANAGEMENT OF GERD

- Important to establish correct diagnosis
- GERD Vs Eosinophilic esophagitis Vs Rumination syndrome Vs irritable bowel syndrome Vs other pathologies- as treatment differs
- Short term trial of acid reducing medications under medical supervision is OK
- Long term use of acid reducing medications (eg Omeprazole, Famotidine etc) should be done only under strict medical supervision and only after careful consideration of risk/ benefit ratio
- Medications like Omeprazole (PPIs) have been linked to osteoporosis, kidney issues, malabsorption, bacterial overgrowth in intestine and recently to dementia also

# GERD management in children on autism spectrum

- Clinical presentation might be different (frequent eating to calm down the acid sensation; excessive irritability, rubbing chest/ upper belly, refusal to eat, sleep disturbances etc.)
- Important to establish correct diagnosis under medical supervision- as long term treatment is not side effect free
- Strict and multiple diet eliminations not recommended- due to nutritional and quality of life considerations & consult with nutritionist/ GI might help
- Even after on correct treatment path- important to have regular monitoring for nutritional monitoring, finding ways to reduce medication or taper off and looking for signs for aggravation of the disease
- GI diseases in children are not static and not necessarily life long- so important for close follow up for possible weaning treatment

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# Diagnosing GERD mimickers

- These are common conditions (besides many others) which need to be ruled out before labeling any child as having GERD and putting on long term treatment.
- Eosinophilic esophagitis
- Rumination syndrome
- Hiatal hernia
- Helicobacter pylori (H. pylori) gastritis
- Laryngopharyngeal Reflux
- Pain medication (NSAID) induced gastritis

# Questions/ Comments are welcome

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