



GERD & Constipation

Terry Broda, RN, BScN, NP-PHC, CDDN

Increased risk of GI motility issues:

- Cerebral palsy
- Rett syndrome
- 22q- (velocardiofacial syndrome)
- Cornelia de Lange syndrome,
- Degenerative neuromuscular disorders (muscular dystrophies, mitochondrial cytopathies)
- Trisomy 18
- Chromosomal translocations



Gastro-esophageal Reflux



- Reflux of acid from the stomach into the esophagus
- Due to defective or stretched sphincter (LES) between the stomach & esophagus, a hiatal hernia or ↓ motility



GERD

- Reflux esophagitis: 5-7% in general population
- In persons w/ DD
 - Overall prevalence is 10-15%
 - But w/ known risk factors: 30-50%
 - 70% in those w/ severe/profound DD!



Risk factors

<p>In persons w/ DD</p> <ul style="list-style-type: none"> • Scoliosis • Cerebral palsy • Severe & profound DD • Non-ambulatory • Certain Rx 	<p>Additional factors</p> <ul style="list-style-type: none"> • Hiatal hernia (90%!) • Obesity • Diabetes • Pregnancy • Scleroderma • Older age
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Symptoms

- Burning pain in throat & esophagus
- Abdominal pain
- Thoracic (chest) pain

But ...
what if the person is non-verbal?




GERD or CB?

- Refuses to eat or food avoidance
- Refusal to sleep, lay down (on their back)
- Depressive behaviors (isolates oneself)
- Irritability after meals & during the night
- Screaming, aggression & SIB
(head-banging, hand-mouthing/biting)
- Stripping (pants, belt, bra): too tight?
- Excessive water drinking (pica?)



Signs & Symptoms

- Wt loss, poor growth, FTT in children
- Arched back with difficulty sitting
- Recurrent vomiting/aspiration
- Recurrent episodes of pneumonia, asthma exacerbations
- Hoarseness
- Dental caries
- Aphthous ulcers



Signs & Symptoms

- Regurgitation and rumination 1-2 hours after meals (p.c.) or overnight
- N & V, burping, coughing, wheezing, throat clearing, yawning, hiccups
- Sinusitis, pharyngitis, otitis
- Abdominal distension
- Constipation (as a contributing factor)



When is it GERD?

Predisposing risk factors along with occurrence of any of those behaviors, a minimum of 4 times per month:

**SHOULD RAISE SUSPICION
TO
HIGHEST LEVEL
for GERD!**

MEDINA (2010)



Monitoring

- Scatter plot
- Calendar
- A-B-C sheets
- Food diary
- Breau pain scale



Red Flags (Alarm symptoms)

(**notify MD ASAP!)

- Chest pain (cardiac type)
- Choking (coughing, hoarseness & SOB)
- Dysphagia (?strictures)
- Vomiting (hematemesis)
- Pain on swallowing (odynophagia)
- Anemia d/t GI bleeding (melena stool)
 - Bloody vomit or coffee grains**
- Weight loss >5%



Risk factors: Meds

- ASA
- Alpha-blockers
- Anti-cholinergics
- Anticonvulsants
- Benzodiazepines
- Beta-blockers
- Bisphosphonates
- Calcium channel blockers
- Narcotics
- Nicotine
- Nitrates
- NSAIDs & COX-2 inhibitors
- Theophylline



Complications

- Esophageal strictures
- Recurrent inflammation
=>erosion
=> Barrett's esophagitis (↑ if s/s > 5yrs)
- Increased risk of esophageal cancer with Barrett's (↑ if s/s > 5yrs)



Diagnosis

<p>Mild</p> <ul style="list-style-type: none"> • S/S less often (<3/wk) • Low intensity • Not at night • No interference w/ life • Heartburn pain rated 1-3/10 • No major complications 	<p>Severe</p> <ul style="list-style-type: none"> • S/S more frequent • Present for > 6 months • More intense • Wakes at night, or restless nights • Interferes w/ life • Pain rated 7/10 + • Complications
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Gray, p.721



Dx Tests

- Blood/urine testing (r/o anemia)
- X-ray (fluoroscopy: barium swallow) to check for hiatal hernia.
- Ambulatory 24-hour pH monitoring*
- Upper endoscopy (not conclusive?)*
- Esophageal motility studies*

**for refractory esophagitis*

**Diagnosis can be made without endoscopy based on history.



Other possibilities?

<ul style="list-style-type: none"> • Dyspepsia • Pyloric stenosis • Peptic ulcer disease • Hirschsprung's • Esophagitis secondary to esophageal motility or structural issue 	<ul style="list-style-type: none"> • Cardiac pain • Lactose intolerance • Esophageal cancer • Biliary tract disease
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Dyspepsia or GERD

<p>Dyspepsia</p> <p>For at least 3 months</p> <ul style="list-style-type: none"> • chronic/recurrent epigastric pain • postprandial fullness • Or early satiety <p>Other s/s:</p> <ul style="list-style-type: none"> • Bloating • Nausea 	<p>GERD</p> <ul style="list-style-type: none"> • Frequent regurgitation or heartburn • Epigastric pain • Nausea • Dysphagia • Odynophagia
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Planning

- Review & modify risk factors (if possible)
- Have MD assess for comorbid dx
- Have MD assess if problematic Rx can be adjusted or D/C'ed
- Adopt an individualized plan



Therapeutic Goals

- Relieve S/S
- Improve QoL
- Promote healing of esophagus
- Prevent complications (strictures, bleeds & Barrett's)
- Prevent recurrences



Lifestyle modifications

- Avoid exercising/bending on a full stomach
- Stop smoking
- Limit ETOH
- Attain healthy weight
- Avoid lying down for 3 hours p.c. or eating before hs
- Avoid large meals
- Fill in food diary
- Avoid trigger foods: chocolate, tomato-based foods, alcohol, peppermint, onions, caffeinated products, citrus fruits and drinks, high fat meals
- Avoid tight clothing around waist/chest
- Elevate head of bed (10 cm, 6-8 inches, or use 2-3 pillows)



Treatment: Rx

<p>Mild</p> <ul style="list-style-type: none"> ● Antacids (Aluminum hydroxide, Magnesium salts, Calcium carbonate or combos: Rolaids, Tums, Maalox) ● Alginates (Gaviscon) ● H2-RA (histamine receptor antagonist) <small>(see next slide)</small> <ul style="list-style-type: none"> ● (BID dosing of H2RAs relieves s/s in 60%, heals tissue in 40%) 	<p>Moderate/severe</p> <ul style="list-style-type: none"> ● PPI (proton pump inhibitor) <small>(see next slide for examples)</small> <small>(heal up to 90% by 12wks)</small> ● Step-down Tx (PPI first, then H2RA after healed) ● May even require Sx: funduplication
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Table 2 Acid Suppression Medications Used in the Treatment and Maintenance of GERD	
Drug	Doses
Histamine receptor antagonists (H₂RA)	
cimetidine (Tagamet®)	800mg q.h.s. to 600mg b.i.d.
famotidine (Pepcid®)	20mg b.i.d.
ranitidine (Zantac®)	150mg b.i.d.
nizatidine (Axid®)	150mg b.i.d.
Proton pump inhibitors (PPIs)	
esomeprazole (Nexium®)	20mg o.d. to 40mg o.d.
lansoprazole (Prevacid®)	30mg o.d.
omeprazole (Losec®)	20mg o.d. to 20mg b.i.d.
pantoprazole (Pantoloc®)	40mg o.d.
rabeprazole (Pariet®)	20mg o.d.



Constipation:

a symptom
NOT
a disease!



How serious a problem?

- 50-85% of older people w/ DD suffer from constipation (2005, Australia, Management Guidelines: Developmental Disability)
- Up to 70% of persons with dx of moderate to profound MR have it (2001, Netherlands, JIDR)

*Especially for non-ambulatory residents



What exactly is Normal?

Frequency:

- 3 X per week to 3X per day!

Average passage time:

- 50 (men) to 57 hrs (women), but can vary from 20-100hrs!

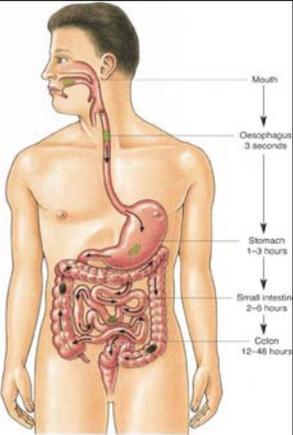
Average weight:

- 100g = 3.5 oz.



Transit times

- Mouth: 1 min
- Esophagus: 4-8 secs
- Stomach: 2-4 hrs
- Small intestine: 3 to 5hrs
- Colon: 10 hrs to several days




What exactly is Normal?

Usual color:

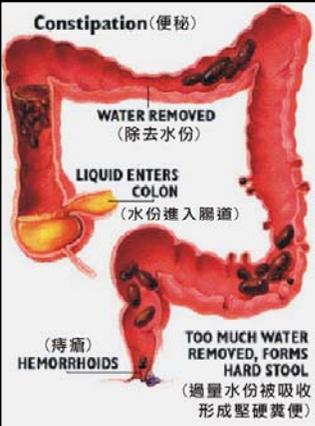
- Brown but can vary from reddish or greenish dark brown to lighter mustard brown

Consistency:

- 70-75% actually H2O! (in bacteria & undigested plant cells)
- 50-66% bacteria
- 33-50% undigested plant foods (fiber)



Constipation (便秘)



WATER REMOVED (除去水份)

LIQUID ENTERS COLON (水份進入腸道)

TOO MUCH WATER REMOVED, FORMS HARD STOOL (過量水份被吸收 形成堅硬糞便)

HEMORRHOIDS (痔瘡)

Constipation: how it can happen

Cause & Effect: Risk factors

- Female > Male (2-3X); Age over 65
- IQ < 50 (moderate/severe/profound MR)
- Diagnoses: CP, hypothyroidism (DS), WS, DM, comorbid GERD
- Inadequate food/caloric & fluid intake
- Inadequate dietary fiber
- Immobility/non-ambulatory
- Medications



Meds

- Anticholinergics; or meds w/ antiCH SE
 - Anti-psychotics, antidepressants, Anticonvulsants, benzodiazepines, Antiparkinsonians, antispasmodics
- Ca⁺ channel blockers
- Diuretics
- Antacids (Al hydroxide, Tums, Maalox)
- Fe⁺, Ca carbonate
- Opioids (narcotic analgesics) & NSAIDs



Table 3
Drugs Associated with Constipation¹²

Amantadine	Anticonvulsants
Antidiarrheal agents	Antihistamines
Antipsychotics (e.g., phenothiazines)	Barbiturates
Benzodiazepines	Beta-blockers
Cholestyramine	Clonidine
Calcium channel blockers (verapamil>diltiazem>dihydropyridines)	Diuretics
Lithium	5HT ₃ antagonists (e.g., ondansetron)
Non-steroidal anti-inflammatory drugs	Opioids
Polystyrene sodium sulfonate	Pseudoephedrine
Vinca alkaloids	Tricyclic antidepressants (e.g., amitriptyline)
Cation-containing agents (aluminum, calcium, iron, bismuth, barium)	

Rome II criteria:

2 or > for at least 12 weeks in last year:

For >25 % of defecations:

- Straining
- Lumpy or hard stools
- Sensation of incomplete evacuation
- Sensation of anorectal obstruction
- Use of manual maneuvers to facilitate evacuation of stool

Less than 3 defecations per week
Loose stools are not present
Insufficient criteria for IBS Dx



Behavioral Signs:

- SIB/aggression
- Irritability
- Positioning : legs bent at the knee, with thighs elevated to ↑ pressure on the abdomen (crouching) (rocking on the toilet seat)



Red Flags (Alarm Symptoms)

(**notify MD ASAP!)

- Abdominal pain
- N & V
- Melena, rectal bleeding, rectal pain
- Fever
- Weight loss



Monitoring

- Scatter plot
- Calendar
- A-B-C sheets
- Food diary
- Bristol Stool form



Planning

- Review & modify risk factors (if possible)
- Have MD assess for comorbid dx
- Have MD assess if problematic Rx can be adjusted or D/C'ed
- Adopt an individualized plan



Therapeutic Goals

- Regular BM within 48-72 hours
- Appropriate laxative use
- Avoid complications:
 - From straining: hemorrhoids, hernia, GERD, coronary & cerebrovascular dysfunction in elderly
 - Long Term: hemorrhoids, incontinence, impaction, obstruction, rectal prolapse, anal fissures, megacolon



Hemorrhoids (symptoms)

- Intermittent pain in rectum, during bowel movements
- Blood stains in underwear, shorts
- Various complaints such as burning, itching, swelling
- Protrusion of internal hemorrhoid noted



Hemorrhoids

Causes: unknown, but several aggravating factors(heredity):

- Diarrhea
- Spicy foods
- Alcohol
- Dehydration
- Pregnancy
- Chronic constipation



Hemorrhoids

Interventions:

- Try to eliminate constipation
Cream to ↓ pain & inflammation
- Observe for any bleeding**



Tx Options: laxatives

- Bulk-forming
- Hyper-osmotic agents
- Lubricants
- Osmotic saline agents
- Stool softeners
- Stimulants

Please see chart...



Health Education

- Normal BM: frequency, type
- Dietary modifications:
 - Increase calories
 - Increase fiber, fruits & vegetables
 - Increase fluids
- Lifestyle modifications
 - Increase exercise



Continued monitoring

- Frequency: scatter plot
- Bristol Stool form
- Improvements in behavior
- Breau pain scale
- Food diary



Questions?



Thank you!