Peds Gastroenterology DGBIs - Pediatric Grand Rounds-8-7-26-Meeting Recording

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Calderon, Delia started transcription

Calderon, Delia 0:05

We are good to go.

Sutter, Deena E 0:08

All right. Hi, everyone. Welcome to our second Grand Rounds of the year. Just a few things, reminders to please mute your device. Also, the CME link will be in the chat, so please claim your CME today.

I'm going to introduce our speaker right now. So this is Dr. Patrick Reeves. He is a quadruple board certified general pediatrician, obesity medicine specialist, clinical informatics and pediatric gastroenterologist with advanced care in the management of children with medical complexity.

tube feeding needs, and rare gastrointestinal disorders. He is an associate professor of pediatrics at the Long School of Medicine. He is also an associate professor of pediatrics at the Uniformed Services University of the Health Sciences in Bethesda, Maryland, and an associate professor of military medicine at Texas A&M University Health Science Center.

His specific niche research focus over the last 10 years has been the intersection of patient complexity or patient education and the management of children and young adults with medical complexity. He's also the CEO of his consulting firm, Wild Child Medicine, and he has pioneered new mobile health technology called Clinical Action Plans, which

provides automated clinical decision support to medical teams and serves as for low health literacy care plans for the home management of chronic needs. Most importantly, he is my former resident. And so when I asked him to do the second grand rounds of the year, he said, yes, ma'am.

So we have a speaker and he is awesome. So please everybody welcome Dr. Reeves for our talk.

Patrick Reeves 2:02

Thanks so much, Dr. Sutter, for the invitation. It's a pleasure to be back. And I hope we're going to tackle a topic today that can provide you with some keys to be successful, both in the outpatient arena and in the inpatient setting for patients who are coming in with functional abdominal pain, visceral hyperalgesia, and other disorders of gut-brain interaction.

So no big conflicts of interest. All these opinions are my own. They don't reflect the United States government, so please don't think that they do. Big topics for today. We're going to talk majorly about disorders of upbringing interaction, especially for my colleagues in the room who have been around the block.

This is going to be our new term of what you previously known as functional gastrointestinal disorders. And it was really just an attempt by pediatric and adult GI communities to be a little bit more specific in our pathophysiologic description, because when we did survey data of patients,

and told them they had functional GI disorders and they had bad symptoms that was perceived if we were telling patients they were broken. So this is our attempt to be as medically accurate and humanistic in our approach as possible.

This is left over from the pandemic. So General Grievous even covers his mouth when he's coughing. So during the coronavirus pandemic, it would be great if you could, you know, mask and cover your mouth and all that great stuff. But our main objectives for today, we're going to review the Rome 4 criteria. Now, the interesting thing is in the last month,

Actually have had release of the 5th iteration of the Rome criteria, but we don't have all the fancy pancy tables that I'll show you today yet. So we'll keep with the Rome 4. It's going to be apples to apples. We'll do a little bit of epidemiology and pathophys, but really the biggest thing is I want to give you the keys on how to diagnose these things.

how to work them up and really how to avoid doing massive, unnecessary workups and really the initial approaches to therapy. And I understand, especially in clinic, when you might have 15 or 20 minute appointments or on the inpatient setting on the hospitalist team when you've got a census of 20 or 30 kids, you really need to do this quickly.

We'll give you some keys to be successful doing this in a rapid, safe fashion. And so what is disorder of gut-brain interaction? Well, what we've been able to prove over

the last several years, decade really, is that there is some central sensitization that goes on. There's various stress triggers that lead to a hormonal alteration cascade. that leads in the HPA for sensitivity and an altered threshold of pain. The is that while patients may come into the inpatient side, their parents or they themselves claim, oh, they have such a high pain tolerance, the studies show otherwise. And so even Small triggers may lead to great deals of real pain for some of these patients.
There's a couple of references that are out here. The one in the middle, I think, is probably the most helpful if I was going to be managing one of these complex patients on the inpatient setting, because it's an actual functional abdominal pain disorder treatment protocol for pediatric patients, and it has specific focus on both inpatient and outpatient needs.
And it'll give you some more detailed insight to what I'll show today.
But first things first, how big of a problem is this? Well, it appears that for all comers of age four years and above, when we are dealing with these conditions, if we have some sort of room for criteria diagnosis, that irritable bowel syndrome and functional abdominal pain
are going to form around 8, maybe up to 10% in this cross-sectional study from about 8 years ago. So it's definitely a big footprint. I will say that overall, my experience on the inpatient side at University Health is that the patients admitted for chronic pain, nearly all of them will fit the criteria for irritable bowel syndrome
or functional abdominal pain.
Leading us through a case, we've got a 15-year-old female with a known history of anxiety, and she comes to you for six months of generalized abdominal pain, occasional loose stool with some nausea, but no vomiting. And you review her growth chart. She's got no weight loss. She's at the 75th percentile for height and weight, and her exam is unremarkable.
This is going to be the prototypical scenario that we deal with in clinic a lot of the time. And this is your opportunity to decide if a workup needs to be performed or not.
From the perspective of our NASPGAN guidelines, this patient does not demonstrate any red flag findings whatsoever. It would be possible to diagnose this based on criteria with functional abdominal pain and then to initiate some symptom specific therapy. And then you use that as both your
diagnostic test and therapeutic test to determine are they getting better on this therapy or not. If they return with follow-up and either they're not getting better or

they have emergence of red flag findings, that's when a workup can be initiated. And that's sort of the theme that should hopefully permeate throughout this talk today. Now, functional abdominal pain disorders are just a subset of the disorders of gut-brain interaction. These are going to be the ones that have a pain predominance. And so it is typically the pain in and of itself.
that brings the patient to clinical care.
When we look at all Rome 4 DGBIs, there are different ranges and they're really age based. In younger kids, this is going to be 20% or less from most recent studies. And then for older kids, this might be up to 50% of PGI visits. So it's going to be very, very common.
The big thing you have to take away is that our studies have clearly shown that there is a massive impact on quality of life, functioning of the child, lost school and work abilities for both the child and the parent. And that leads to a significant financial burden for both the family
and the healthcare system. And I'll show you a chart here in a second, but it might surprise you to know that the healthcare related quality of life, how bad do the symptoms make the patient feel on a day-to-day basis for something like irritable bowel syndrome? They actually feel demonstrably worse
than patients with inflammatory bowel disease like Crohn's colitis. The biggest key is that an early appropriate diagnosis with early treatment should start without invasive tests in the absence of red flags. And that comes straight from our guideline.
So this is an important statement from Dr. Kickhoefer that chronic digestive diseases cannot be disentangled from their psychosocial context. If you've ever heard of the biopsychosocial approach, this is the type of diagnosis and patient that you need to lean into the biopsychosocial approach. The reality is that social triggers
Other organic triggers like infections, digestive disorders, family stress, all of these things can lead to this irritable bowel syndrome or other disorder of gut-brain interaction. And the actual disease process can impair the patient quite significantly. And so we do have some proposed pathophysiologic mechanisms, and they're pretty complex. But what I want to dispel is the rumor that we shouldn't call this non-organic. We shouldn't call it just psychiatric, and we certainly shouldn't call it malingering makeup or faking. This is the impairment of normal activities.
But we have to, I think, do this in a more humanistic approach. When I have patients in clinic, the metaphor that I use with them is one of a bicycle. Most people know how to ride a bicycle. And if the tires on that bicycle are flat, even if they try to ride it,

they're probably not going anywhere. The bicycle itself is impaired.
But we don't have to change out the tires. We don't have to buy a new bicycle. Just a simple air pump should inflate those tires again. We're no longer impaired. Click in and ride on about your merry way. Over time, the tires on that bicycle will probably lose
air again and will probably need to be aired back up with your pump. And that is going to follow the pattern of functional GI disorder, disorders of gut brain interaction where we have symptoms and we manage them and that symptom severity decreases. And then we might be able to wean off therapy, but it's very possible the symptoms come back.
What's the simple answer in GI? Symptoms come back. You use the plan that previously was successful with this patient. And then the second thing, again, we do not often identify significant abnormalities on diagnostic blood, stool, or endoscopic evaluations. And that's something that you need to
preface with the parents. And in fact, I use this in clinic to say, I am highly hopeful that all of these things are normal. Again, if they're coming back for follow up and we decide a work up might be beneficial. It can be used to demonstrate to family that there is nothing scary
Going on, nothing like that happening.
And a part of that is also setting the stage for the family to understand that this is a problem that was probably months or maybe even years in the making and a manifestation of that is going to be, it takes a long time to feel better. This is not like using amoxicillin for an ear infection and it's going to go away rapidly. It will take just as long, if not longer,
for these symptoms to resolve.
And so again, this is just a sort of a complex breakdown of where the sensitization, psychosocial events and medical events might play into. What's also important to know, and I think is that the psychosocial side in my experience is the most significant to lead to these
functional abdominal pain disorders and other GI symptoms. And so the interesting thing is that one of our Air Force pediatric gastroenterologists that I did fellowship with, Patrick Short, did a study looking back on children who presented for a new diagnosis of irritable bowel syndrome.
And what he found was that in the older children, ages 3 to 16, they had 5% more visits than other children, and they had a significantly greater likelihood of diagnosis

for functional abdominal pain and irritable bowel syndrome. If their parent had been injured
or had a significant illness while deployed for the United States military. And so you can understand how we have these extrapolations and correlations, which can show us that significant effect on the children can be these different psychosocial events. Part of the hypothesis for how these events lead to hypersensitivity in the GI tract is that the opiate and cannabinoid systems play a role in the immune response, which affects visceral sensitization in the neuronal pathways. This is a little bit older from our American Neurogastrocnology and Motility Society,
but it simply shows that these trigger events change the permeability at the brush border of the small intestine, and then these different receptors become highly attuned so that instead of an overwhelming trigger needing to cause pain, just a little bit of dab, just a sprinkle of a trigger,
on these opiate cannabinoid receptors may lead to pain.
Morphologically, that leaky tight junction in the jejunum of the small intestine has also been demonstrated to be correlated with irritable bowel syndrome, particularly irritable bowel syndrome diarrhea type. Part of that is that these dilated junctions are much greater in their diameter
they have greater spacing of the intracellular space and the cytoskeleton becomes significantly condensed. And we know that especially in IBS-D, there can be quite a great bile acid diarrhea that can occur. And some of that is going to be normal efflux from the biliary system and
Part of that will also be the.
inappropriate transport of those biliary salts back through the leaky junctions.
So part of what we still haven't fully figured out for disorders of gut-brain interaction is, is this something where it starts in the brain and leads to symptoms or do different triggers inside the gastrointestinal tract lead back with an afferent pathway to the central nervous system
system enhancing that sensory perception? Probably both, in my opinion, and that's why this can be such a difficult type of diagnosis to manage. But the take-home message should be that there is going to be great overlap of the autonomic nervous system with these patients, which is why we see such a great
preponderance of young patients with both irritable bowel syndrome and other autonomic nervous system dysfunctions like POTS, postural orthostatic tachycardia syndrome, among others.

I already did that one.
Part of the other thing to know about for disorders of gut-brain interaction is we actually do have some insightful reviews which have looked at the microbiome of the gut-brain axis and how some of the quote good and bad players that you need to have a normal microbiome become altered in their variety and in their population strength.
for patients with irritable bowel syndrome. We're not really at the point yet where we know how to modulate that microbiome, but it's simply put, it's important that when your patients might ask, hey, is there anything we can do with probiotics or is there a way to modulate the microbiome? Probably.
Really my only reason to avoid probiotics is a patient with a central venous catheter and significant immune deficiency or immune suppression. But otherwise, there's a few indications for probiotics. The hard part is for different diagnoses, we don't actually know how many colony-forming units we need
what genus and species of probiotics, what prebiotics might be helpful for those species, and so forth. So going out for your garden variety over the counter.
probiotic could be helpful, but it's really difficult to know for sure.
So part of that assessment when you get this patient, wherever you are in that setting, is to of course do that thorough history and physical exam. And again, limited purposeful evaluation in the sense of diagnostic testing. I will tell you that a good history and physical exam can get you 95, 97 percent of the way.
because you want to know the specific symptoms like duration, location, character, timing of pain, and especially the aggravating symptoms. Because while it may seem simple to us in the virtual room here, it's not always natural to be able to tell a patient that, oh, you drink whole milk and that causes your symptoms.
You don't need whole milk to live. You could just avoid whole milk or dairy entirely and provide them that safe reassurance so that they can remove the single trigger that is affecting their lives.
Okay, so we'll go through the criteria briefly. Functional dyspepsia is going to be the below criteria, one or more for at least four days per month for two months. And again, this is what the Rome Foundation suggests as the definition. Patients in their bodies don't...
always read the textbook. And so applying these definitions liberally is helpful. If I had a patient who came in and was 1.5 months into these symptoms, four days per month, okay, I would probably still call it functional dyspepsia. These are going to be

kiddos that have significant postprandial fullness, maybe some early satiety, epigastric pain or burning, but really these symptoms should not be changed or associated with defecation. Oftentimes for irritable bowel syndrome, we have patients where they have pain and they poop and the poop makes their pain less. And that's great. That's the
Classic definition for irritable bowel syndrome. Here, for functional dyspepsia, there should be no clear association with constipation or defecation disorders.
By comparison, as mentioned, irritable bowel syndrome is also going to be 4 days per month for two months or more with pain that's related to defecation, change in frequency of the stool. So that can either be a harder caliber stool like constipation or a looser caliber stool like diarrhea or a mixed
mixed type of stooling pattern. And they also have change in appearance of the stool. Now, we certainly don't mean red like hematochezia or black like melana, because that would be red flag findings. But overall change in appearance is another thing that can be a helpful clue
for patients, and so it's one that we use quite often. Anecdotally, I will tell you that post-infectious irritable bowel syndrome is highly common, and it is going to be the period of time in the weeks following that acute illness that leads to the change in appearance of stool that
causes many of these patients to come and seek care.
Abdominal migraines. Now, this is one that is very, very important, I think, for the inpatient setting, especially in the emergency department. And this is going to be an episodic, highly severe episodes of abdominal pain. Different from irritable bowel syndrome. In irritable bowel syndrome, you may have more frequent pain.
You know, we said four times per month, it may be every day, who knows, but it's probably going to be lower severity pain for IBS happening more frequently.
Conversely, the abdominal migraine is going to occur twice in at least six months, and it's going to be this paroxysmal episode of

K **Katherine** 21:09
This is.

PR **Patrick Reeves** 21:19
tense, acute pain where I've had patients describe it to me like they think a monster is clawing its way out of their abdomen. In other things, it can be incapacitating, it

interferes with normal activities, and really follows a similar stereotypical pattern as you see with headache migraines.
It can be associated with decrease in appetite, nausea, vomiting, headache, photophobia, and pallor. And so asking about these symptoms and attempting to correlate whether there is a presence of concomitant headache migraines is highly important because some of the therapies I'll show you, we can kill
Two bad clinical problem birds with one stone by targeting one therapy for both the headache migraine and the abdominal migraine.
And then functional abdominal pain not otherwise specified, FAP. So again, this is a four times per month for two months. And this is going to be more episodic or continuous abdominal pain, not during physiologic events. So that's how we differentiate it from the functional dyspepsia. And they do not typically have an association
with pooping problems on this one. So the way I think about it is pain predominant. Okay, I'm either IBS or functional abdominal pain. If I have pooping issues, it's also going to be IBS. If I don't have the pooping issues with pain, functional abdominal pain is the diagnosis. We'll show you here in some subsequent slides that the treatment
typically ends up being very similar. So knowing the difference is important, but not the key to success.
So an interesting finding is that in a worldwide survey to validate the Rome 4 criteria years ago, the factor analyses to identify clusters of GI symptoms, these different clusters were able to be used across different regions, different sex, different ages. And so it's good to know that
If you are trying to figure this out for your patient, whether they're small in age 4 or if they're age 40, you should be able to apply this criteria liberally. And certainly in the next six months, we'll have more information on the Rome 5 criteria that's become just a teeny bit more sophisticated in teasing out these diagnoses.
So when we look at actual risk factors, the presence of female sex, the presence of multiple gastroenteritis events, trauma, abuse, lifetime stress, and poor sleep are some of the most influential factors leading to
the irritable bowel syndrome diagnosis. Now, if we look at those things, it is the psychological disorder, behavioral health disorder, and stress.
that is the most likely thing to lead to persistence of symptoms. And so I always think it's interesting when I look at this table because it's not the infections, it's not the

quote organic things that really cause persistence of these diagnoses. It is still that mind, body, spirit, the biopsychosocial side that is leading to persistence. So that is why you'll see shortly that in so many of our patients, it is key to get them plugged in with the appropriate mental health resources, both from a cognitive behavioral therapy perspective, but also a pharmacological one.

Okay. And I think one of the biggest things that I get question wise is how is my diet affecting these symptoms? How can I use diet to treat these symptoms? There is absolutely positively a direct correlation between the consumption of ultra processed foods

and disorders of gut-brain interaction. Now, this is a 2018 study, but the truth still holds dear today in the sense that if you have to open up a bag of chips or take something out of a package and consume it, that is my loose definition for ultra-processed food, it has a significant correlation

with development of these IBS symptoms. And so one of the ways that we try to do this is similar to our patients who are obese, our patients who have metabolic associated steatohepatitis. We try and remove those ultra processed pre-packaged foods from the home, and that can oftentimes have some significant symptom improvement.

for atrial bowel syndrome.

I mentioned those red flags, and these are the ones that the guideline article specifically references. That's going to be first and foremost, again, good history, family history of inflammatory bowel disease, celiac disease, or peptic ulcer disease. Those are going to be reasons to consider performing workup on these patients. For me, if a family, or sorry, if a patient has a family history of inflammatory bowel disease, I would call that first degree relative or second degree relative. I will perform a screening at least of their stool for a fecal cow protectant and potentially a serum workup as well. Same goes for celiac disease, doing celiac titer testing.

for the antibodies. It is so key, of course, that if we're going to screen for celiac disease before poking them, you need to ensure that they're having enough gluten intake for the glandin in their diet. And that amounts to about 10 grams per day for at least six weeks in a row.

Persistent right upper quadrant pain or right lower quadrant pain is going to be concerning potentially for gallstones. And so again, that would appropriate A workup. Dysphasia is our GI question that sometimes gets missed in clinic, but this is a don't pass go, don't collect $200. There is no

Other tests beyond upper endoscopy to evaluate this dysphasia as a first line gold standard test. And so these are going to be kids who are having to take to the endoscopy suite. Odynaphasia is similar. And then certainly the persistent vomiting, GI blood loss, and some of the other red flags that you see need to be incorporated into your history taking process for these patients just to essentially check the box and make sure we're not missing something that would require further workup, referrals, and things like that.

So as I told you, we're talking about children and parents and their quality of life. So quality of life, we want high quality of life, right? We would be loving it if we had 100% quality of life. And if you look at this, we have healthy controls here, and that's where you should be if you love life and you're healthy. And then we have patients and their parents with inflammatory bowel disease. Look, I mean, they're almost 85, 86. They're doing really well. And then if we look at just functional abdominal pain, they are significantly lower and so are their parents. So this is a universal problem in the home.

when we are dealing, especially with these psychosocial stressors, that this is more debilitating than my kids with Crohn's disease and ulcerative colitis. So just let that sink in for a second.

And as I mentioned, health care costs, the average cost per patient is going to be around $6,000 more. And this is in 2010 dollars, $6,000 more per year than other patients. And that doesn't account for the inflation that we've had 16 years later. It doesn't

account for the changes in insurance compensation for bounce backs and things like that. So the take home message here should be that these kids have a significant use of medical resources and the sooner we identify and treat them and hopefully manage them from home,

the better our healthcare system can function as a result.

And so when we get into the actual evaluation of these kids, there's been some great studies. This one by Zeevan Hooven is a few years old, but is still very, very important to know. And it helps to distinguish between what they quote as functional and organic causes of chronic abdominal pain and really trying to determine

What can we use? And when we use different tests like a CBC or a hemoglobin and a CRP, so forth, how often do we find something?

And so they use these warning signs similar to the list I showed you before. And if we're comparing organic to functional, you can see that the number of patients who

actually had a clinically significant symptom and what that yielded
on blood tests. They screamed everyone. And there was very, very few red flags on the people who ended up being classified as functional. But the actual P-value comparing when we had a lab finding that was significant is quite low and staggering actually.
So I use this as my strength with patients and their parents to say, we don't really need to have a significant workup in the absence of red flags for these disorders of gut-brain interaction.
And so when we actually look at the things we use most in gastroenterology, including that fecal calprotectin, we can also see that fecal calprotectin was significantly associated with organic disease and so useful as a non-invasive biomarker to tell us when
We can avoid endoscopy, we can avoid colonoscopy, really for the fecal calprotectin. The blood parameters were also helpful, but really calprotectin is our gold standard, non-invasive analysis for whether someone needs an invasive test like a colonoscopy.
So again, reassurance and education is so important because we have to eliminate the fear of unknown, hearkening back to that idea of if you think that dairy is causing your problem, you don't need dairy to survive. And if you think that you're getting great calories from the dairy, there's plenty of plant-based
options, oat milk, almond milk, and so forth, that can give you those nutrients. And so sometimes it's as easy as that. Second, you have to validate these symptoms. They're real, but they're not dangerous. And that's the exact phrase that I use in clinic. And we do it for the sake of the patient and parent because we want them to return to their regular activities. We've got to lead with that biopsychosocial approach, and then we've got to give them options.
and go over the different medical therapies, knowing what the strength and weakness is, some of the pros and cons of that is, and really drawing that out for them sometimes can be beneficial.
So when we look at this, this is from Niha Santucci from 2020. It breaks down some of the drugs that will go over, ciproheptadine, which is periactin, amitriptyline, which is a tricyclic antidepressant, brand name Elavil, rifaximin, which sometimes is used for chronic abdominal pain, especially if we think that small intestine bacterial overgrowth is involved.
Lubiprostone, which is a secreted dog laxative, can be helpful for constipation, peppermint oil, low FODMAP diet, hypnosis, all these things. So the important thing

is that we do have studies on them, but they are rather small in their sample sizes. The important thing is that
Ciproheptadine has been significantly associated with decreasing severity and frequency of pain versus placebo. Amitriptyline also significantly helps improve these different symptoms. There's no placebo comparisons for rifaximin, but we extrapolate from adult data. It can be helpful.
And really, peppermint oil is the biggest thing that I use in clinic, to be quite honest. There is some evidence to suggest that patients with these functional abdominal pain disorders respond to placebo, and it further supports the connection between the mind and the gut. And so if you look at all of these studies that have tried to do placebo control and blinding and so forth, there is about a 40% improvement rate on placebo alone.
which is pretty awesome. And so what I believe that this really should take away for you is that the mind is a powerful organ and it does have the ability to control how the rest of the body feels. And this is why interacting with mental health teammates can be the most key thing
to lead to a successful outcome for these patients.
There is some postulation that gravity can affect these symptoms, and that especially is part of the postulated mechanism behind postural orthostatic tachycardia syndrome. But there's other non-GI symptoms of IBS that you should be aware of because it should trigger some consideration for more questions to be asked.
and potentially more diagnostics to be performed. So of course, the presence of headaches, but back pain, you know, back pain should not be present for our patients. And so evaluating that, determining if there's any sort of scoliosis is present.
Fatigue, believe it or not, while fatigue is fairly global amongst patients with disorder of gut-brain interaction, that is
actually a significant finding that some references would call a red flag. And if there is chronic fatigue for me, that is a reason to perform that workup. Heart palpitations similarly should be evaluated. Menstrual pain, believe it or not, in GI clinic, we asked about their menstrual cycles.
Some of the dysmenorrhea that young women can have is that immature HPA access, but it can provoke the visceral hyperalgesia and pain episodes of IBS. And so coordinating with our primary care manager, endocrinology, adolescent medicine, to consider doing contraceptive therapy for these patients.
Treating their dysmenorrhea can improve their IBS symptoms.

And really, that means that we have to have an integrated care. The perfect balance between diet, behavioral management, and medical management is what the American Gastrointestinal Association recommends for the management of IBS.
So as mentioned, there's some non-pharmacologic options, behavioral medicine, neuromodulation, which I'll show you, different integrated medicine, physical therapy, and osteopathic manipulation for you DOs out there. You're amazing. I wish I could do it myself. But this can be very, very key. Part of the integrative medicine can also be auricular acupuncture of the ears.
So if you've ever seen me do that on the inpatient side at UH, it can be quite helpful, especially if we have a patient who's on polypharmacy and we're afraid of the potential interactions of some of these other drugs. It's a great cheap option that we can do over and over if we need to.
And so the psychological intervention pathway, really cognitive behavioral therapy is the way to go. And believe it or not, it is significantly more effective than any of the medicines, especially doing multiple medicines combined. The most helpful thing that has emerged in the last 10 years is gut directed hypnotherapy.
and it has a staggering improvement rate to the point where there are now companies that are teaming with insurance to provide virtual gut-directed hypnotherapy to patients around the country because it is just that darn effective.
And so this is something that we use quite frequently.
I will tell you that there's a little bit of concern, I think, with patients and really their parents sometimes when you recommend hypnotherapy. And so having the knowledge of what the research says, what the guidelines recommend about hypnotherapy in your back pocket is super important because otherwise they may think that this is snake oil.
There's different apps that are out there. Nerva is probably the best one in my opinion, but there is some effectiveness to these DGBI related apps that can help you with mindfulness. And so I have a patient handout that shows these things. Some of them are free, some of them are for purchase, but it's something that anyone with a smartphone can use. And I've never
been concerned that the apps are not helping. So that's something that I universally recommend to the right patient.
Parent support is very key and a lot of the time it's important in that mental health provider game plan that we request family directed therapy. And there's other comfortability programs that can help treat that. And so being aware of the

resources in your community and recognizing that
We don't want to have tunnel vision for just the patient in front of us. There is probably a component where the parent could benefit from some of that group directed therapy as well.
So if you actually look at the therapies that are out there from the CBT side, we can see that the
Across the board, these are highly effective therapies and that being present face to face does not change really the effect of a virtual audio only or sort of FaceTime Zoom meeting style of this.
And while there's different varieties out there, I would tell you that so long as your patient is comfortable with the modality that they're going through for mental health care, it's probably going to be a good thing.
From A dietary treatment perspective, fiber supplementation is key, and that usually goes hand in hand with that bad ultra-processed food that we have going on. There is current evidence that there's a possible benefit for fiber supplements. Most of these studies have been able to demonstrate at least a slight
but significant decrease in pain severity and pain frequency if we start fiber. And so that's something really, really important to consider. We usually use that rule of age plus 5 in grams per day for their total dietary fiber intake. So if you're, you know, 10, you
are going to shoot for about 15 grams of fiber per day. Low FODMAP diet, which I'll show you, is my favorite. There is some evidence for fructose restriction, especially if you have a high fructose intake of a toddler leading to functional diarrhea and pain. But really the avoidance of specific food triggers is most key.
So in adult data, is there something to be gained by gluten elimination? And it looks like yes, that gluten can cause gastrointestinal symptoms even in the absence of celiac disease. So this is gluten related sensitivity causing irritable bowel syndrome. So I would
recommend that before you eliminate gluten, you do that celiac screen, prove that they're low risk for celiac, and then you can still eliminate gluten if that's what you and the patient decide. Gluten is not a mandatory macronutrient for longevity. And so there's definitely a great access to gluten-free foods.
and it may improve their pain. The NASPGAN clinical report on this says that the non-celiac gluten sensitivity is multisystemic, just like our pathophys for DGBIs, and it can also affect other extra intestinal symptoms like joint pain, back pain, and so forth.

And so this is a chart that comes from the Nutrients Journal in 2015 and is something you can use in clinic over a six-week period to help patients track their symptoms and hopefully symptom resolution on a gluten-free diet for non-celiac gluten sensitivity. And at least this study showed a 30%
decrease in symptoms from baseline 6 weeks into gluten elimination.
Let's weigh in on the lactose, and I hope you love the pun that was there. All kids can try a lactose-free diet for two weeks. Two weeks is about the period of time that you need for full lactose elimination to determine if it's going to help or not. For the next two weeks, if you give them either lactose or placebo, it can be helpful to see if the symptoms
re-emerge, but at least in this study, really old, there were no differences in pain symptoms or relief. Again, I'll leave you with the fact that while there may not be evidence, we do try this very often. It's something easy to try in Jen Pete's clinic or even on the floor. And so I would keep that in the back of your mind.
Low FODMAP diet as a dietary elimination approach to help identify food triggers has probably got the most evidence out there for success. What we have been able to show is that FODMAP induced symptoms really lead to changes in both small bowel motility as well as colonic gas production and gas volume.
And that gas pain is really what drives a lot of these symptoms. This is just the dot phrase that I use in clinic for FODMAP. It stands for fermentable oligosaccharides, disaccharides, monosaccharides, and polyols. But it shows a multi-step process wherein you eliminate the triggers,
that you think are affecting you. And then over the next month or so, you start to slowly reintroduce triggers one at a time. If you develop symptoms after reintroducing a trigger, you have found your trigger. And it is no more sophisticated than that. Here at the bottom under useful links, these web links all still work, I promise.
The diet list at www..cmeoutfitters is a weird URL, but it actually has the Ohio State list on that. It shows you what to avoid and then foods to replace it with, and I highly recommend using it. It's the best one that I've ever found.
And we already did probiotics. So this is the neuromodulation. So percutaneous electrical nerve field stimulation, PENFIS. It is FDA approved for kids with functional abdominal pain and irritable bowel syndrome. And you can see the device here on the bottom right of the screen.
It is essentially acupuncture with an electrical current introduced so that we can

modulate cranial nerves 5, 7, 9, and 10, which are going to attribute most of the discomfort to the GI system. There's A 65% decrease in spontaneous firing of rat neurons.
of the amygdala when we're doing similar animal-based studies of these. And the studies for PINFIS have shown that it's a great non-pharmacologic means of achieving this result. The hard part is that it can be very difficult for insurance to approve this.
So what I personally do is I will offer a single round of auricular acupuncture to patients. And if they have benefit, but that benefit is not sustained, then we'll talk about doing the Penfis neuromodulator after that.
All right, so this is probably what most people have been waiting for. It's like getting the Megazord ready for Power Rangers here and the shield chest plate comes in. Oh my gosh, takes me back to the 90s. It was amazing. But first and foremost on pharmacologic agents, it's important to know about the abortive medicines. So Anti-nausea here, top left. You're probably going to use that most in cyclic vomiting syndrome, which is not what we've talked about today. But the group underneath it, the triptans, can be really helpful for both anti-headache migraine, severe abdominal pain, and even abdominal pain abortion that has been present for a patient for several days.
Sumatriptan, either intranasal or subcutaneous. Last time I checked, the only thing that we've had available on the inpatient is subcutaneous sumatriptan. The evidence shows that the earlier you use this therapy, like when we give the intranasal spray for outpatient management, the earlier you use it, the more effective it can be.
But we have had plenty of great results using this even in a delayed fashion for patients. And so keep that in mind because subcutaneous sumatriptan is certainly more efficacious and better than ever trying narcotics for these patients. If we need to provide sedation, again, just to get them to sleep so that they can have a little bit better sleep hygiene, Benadryl is definitely the way to go.
go Tylenol, Motrin, Toradol, but certainly avoiding opiates if we can.
When we actually look at all of these agents, again, this is taken from a review of cyclic vomiting syndrome, but as a DGBI, you can apply that here. You can see that total responders for subcutaneous sumatriptan are 69, almost 70%. And so if I was going to be on the wards and knowing that I was going to get a huge influx of these patients,
This is a favorite medicine that I would probably say. Zofran similarly can be very

helpful. I just want to show you that for kids with a DGBI, it actually appears that oral Zofran is more efficacious than the IV form. So bearing that in mind. Promethazine, I never use it. I don't recommend you to use it, but such.
is live. Pride actually super duper works, but we can't get that here. It's not FDA approved any longer. We do use Prucala Pride, which is basically a stepsister to Sister Pride. It works super well.
IV Guard, which is like the only brand of anything that I'll mention in this talk, is enterically coated peppermint oil. And this is the one that I use very frequently with patients because it doesn't have any KIP 450 interaction or really a very minimal interaction. Thusly, it shouldn't affect any of their other meds.
And there is just such a great reduction in pain symptoms for this. This is something parents can buy on Amazon. And especially if we're already dealing with a patient who's on duloxetine or name your SSRI, who knows, this can be a helpful thing to add to their concoction
without changing those meds.
Another option that you may have never heard of is Ibarra Gast, and this is a liquid medicine that comes as a dropper, a tincture, which shows significant improvement of pain and gas pain scores for patients that have different DGBIs. It is a combination of these six.
different natural blends and herbs. And so it works really, really well. Just the hepatologist side of me would tell you that two years ago, there was a review that came out for, I think, 6 patients who had a drug-induced liver injury when they started Iberogast. So
I guess anything is possible, but that is part of what I discuss with patients beforehand, before starting this. I do not get a hepatic function panel before starting it. I just make them aware of the risk and if they want to start it, but they want a blood draw before, that's fine by me.
Antispasmodics are also something that can be in your toolkit. Hyocyamine, which is lepsin, dicyclamine, which is bental, are antispasmodic because of their anticholinergic effects on the smooth muscle. There is a healthy balance to these things. Too much cyclamine can actually
lead to significant slowing of the small intestine and decrease those high amplitude propagating contractions and inevitably worsen their symptoms. And so you have to be careful with that. And really the best way to do it is ensure that they're having a normal defecation pattern. There hasn't been any benefit shown in adult meta-

analysis, but I'll say we still
use this from time to time. And again, the sooner they take it when they have the premonition or the onset of symptoms, the more likely it is to help.
From A pharmacologic side, my most favorite medicine is ciproheptadine. It tends to work better in children under the age of 12. But as you can see there, the actual studies that we've shown demonstrated significant improvement. 86% of patients after just two weeks on the therapy.
Again, this is not like antibiotics. You're not going to really have relief until after taking it once a day for two weeks. There is that risk of drowsiness because it is an antihistamine. So I usually recommend once a daily dose, do it an hour before bed so that they're not falling asleep in class or at work or anything like that.
But Periactin is pretty awesome. Comes as a suspension and a tablet. The tablets are easy to crush if for some reason that's what your patient prefers and you can have it with food.
This is probably the last slide I would take a picture of if I was looking for something. This is straight from the Rome Foundation and really tries to be helpful for both gastroenterologists and primary care managers to tell you what we should be doing for treatment. And so you can see,
When pain is the dominant symptom in TTBI, it looks like the TCAs are going to be the right way to go. So amitriptyline, when we're talking about anxiety and depression, it is the biggest symptom in their life, followed by pain or pooping problems. That's when SSRI, sertraline is usually what we use most.
is going to be indicated. And then when pain is dominant or they've had failure or side effects from TCAs, that's really when we start to look for either duloxetine or venlafaxine. And then finally, if early satiety, nausea, vomiting, really upper GI tract symptoms,
are the predominant. Mirtazapine is really the way to go. Mirtazapine is really helpful in older patients who strictly have debilitating functional nausea, even in the absence of pain, or they have that early satiety with nausea. Think about mirtazapine.
So big take home points is that for IBS, we're looking at tricyclic antidepressants, maybe rifaximin if we need it on board. This can be affected, but there's some less data about it. Brain gut behavioral therapy is highly effective and first line dietary therapy, really the gold standard.
is low FODMAP diet.
And with that, I'm happy to end it and answer any questions you might have.

Sutter, Deena E 53:18

Thanks so much, Dr. Reeves. If anyone out there has a question, feel free to raise your hand in the chat or you can actually just start talking. And I'll wait a second. I have a question I can ask if there's not one hand raised.

So.

I have a question in terms of if for you as a specialist, and I sometimes run into this too, for the kids with these chronic abdominal pain syndromes, how much does it set you back and how much of A challenge is it when some of the workup that you don't recommend that you gave examples of is done

let's say by a primary care physician or urgent care. Parents are like requesting a test, they're demanding a test. People don't have a lot of time and they send testing that may be sort of red herring, false positive. For me, it tends to be GIPCR panels that identify things that are not really

an issue, especially C. diff. So I was just wondering how you deal with this and how much longer it takes to counsel the family, convince the family, and solve this issue, get them on board when that's done.

Patrick Reeves 54:22

Mhm.

Absolutely. I had a very good mentor about C. diff testing. I don't mess that up anymore. But my bigger thing is that we have the BioFire GI PCR similar to UH, and when we run that at BAMC, if I'm in that scenario, I also run Cal Protectin to go with it. I never do one without the other.

because what I anecdotally have done is if we're positive for astrovirus on the GI PCR, but our calprotectin is negative, it's zero, well, then that's probably just post-infectious IBS. You might still be shedding the pathogen, but there's no inflammation in the absolute.

of inflammation, I don't really care. And that's how I 0 in the family for DGBI. I think the hard part, like you said, Dr. Sutter, is the fact that I'm getting a great deal more time with these patients in clinic than our primary care managers do. And so I have the ability to say, I suspect that if something on this infection study

ends up being positive, I'm going to see if there's inflammation. And if there's no inflammation, it doesn't matter that the infection study was positive. It means it was a

past infection. They're no longer able to communicate that disease to anyone else, and it should be fine.

Sutter, Deena E 55:50

Thanks. Dr. Williams has a question mentioning if prebiotics or probiotics have disadvantages. I think you mentioned potential advantages, but

PR

Patrick Reeves 56:01

I think honestly, the biggest disadvantage is cost to the family. And that's a conversation that I have with those families of, it's your money. I can't prescribe it. I can't get it for you on hospital formulary. And very few insurance companies will cover that for a patient. And so if they're willing to try it,
I'm absolutely fine trying it. And I'll document it in my note and we follow up, hey, that's the one thing we changed. You added, you know, cultural, who knows? And, oh, you feel better? Cool. Do you want to keep paying for it? Great. I really don't have any better evidence than that. We do have a very specific.
probiotic, which used to be called VizBiome, VSL number three, that we use in patients that are at risk for recurrent C. diff infection. And so really that's the only guideline-based probiotic therapy that we do.
In GI.

Sutter, Deena E 57:03

Okay, thanks. Any other questions out there? You can either respond on the chat, raise your hand, speak up. Otherwise, we're going to go ahead and wrap up. I'd like to thank Dr. Reeves again for your excellent presentation, which is extremely useful for all of us out there, and especially the primary care physicians.
and a great topic. So appreciate it. Anybody who wants to claim CME, go ahead and find the link in the chat and we'll wrap up now.
See you guys next week.

PR

Patrick Reeves 57:39

I know, thanks again.

Calderon, Delia stopped transcription