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April 9, 2020 at Noon EDT

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Nancy S. Reau, MD, FACG
April 16, 2020 at Noon EDT

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Disclosures:

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Dr. Lacy has no relevant financial relationships to disclose.

Moderator:
Brooks D. Cash, MD, FACG
Consultant: Allergan, Salix, Takeda, QOL Medical
Speakers Bureau: Allergan, Salix, Takeda, QOL Medical

Chronic Abdominal Pain & Bloating

ACG/FCS Annual Spring Symposium
March 13, 2020
Bonita Springs, FL

Brian E. Lacy, PhD, MD, FACG
Senior Associate Consultant
Mayo Clinic, Jacksonville
Objectives

- Define chronic abdominal pain and bloating
- Review the epidemiology of chronic abdominal pain and bloating
- Understand the most common causes of chronic abdominal pain
- Appreciate the complex pathophysiology of these two disorders
- Identify key questions to make the diagnosis
- Recognize available treatment options

Chronic Abdominal Pain

- Abdominal pain present for > 3 months duration
- Intensity, frequency, severity, location are not factored into the definition

Epidemiology, Natural History & Impact

- Incidence, prevalence, natural history – all poorly understood
- Estimates of chronic abdominal pain approach 30% of U.S. adults
- The most common cause of CAP in the United States is IBS
- Functional dyspepsia and functional constipation (CIC) are the next 2 most common causes
- Impact: Associated with co-morbid conditions
  - Depression
  - Fibromyalgia
  - Opioid addiction
- Reduces patients' quality of life
- Increases health care resources
Pathophysiology of CAP

- Inflammatory
- Ischemic
- Autoimmune/CTD related
- Obstructive
- Medication related
- Referred
- Metabolic
- Genetic
- Psychogenic/Factitious
- Neuropathic (diabetes, post-viral, post-surgical, CIP, visceral hypersensitivity)

Visceral Hypersensitivity: Defined

- "An increased sensitivity to different stimuli within the GI tract"
- "Reduced pain thresholds with normal stimuli"
- "Altered sensation in response to physiological stimuli"
- "Abnormal abdominal pain perception to intestinal distension"

Abdominal pain: key concepts

- Allodynia
  - Noxious response to an innocuous process
- Hyperalgesia
  - A decrease in the stimulus intensity required to elicit or maintain nociceptor activation
  - An exaggerated response to a noxious stimulus
- Hypervigilance
  - Inappropriate focus on symptoms
Pathophysiology of Functional Abdominal Pain Syndrome (FAP/CAP)

Genetic Predisposition

INSULT(s) → Symptom generation

- DEPRESSION → STRESS
- POOR COPING SKILLS → ANXIETY
- CATASTROPHIZATION → ABUSE
- POOR SOCIAL SUPPORT → SOMATIZATION

WORSENING OF SYMPTOMS

Predisposing Factors
- Genetics
- Early trauma
- Abuse
- Environmental exposures

Precipitating Factors
- Infections
- Drug abuse
- Somatic illnesses

Perpetuating Factors
- Helplessness
- Anxiety
- Low self-esteem
- Catastrophizing
- Depression

CAP: Diagnostic evaluation
- Start slowly
- Take a great history
  - Dietary, medical, surgical, psychological
- Evaluate for alarm features
- The physical examination is important
Key Questions to aid in Diagnosis

- Age at onset of symptoms
- Duration of each event (onset; offset)
- Location of the pain
- Characterization of the pain
- Relationship to meals, defecation, urination
- Co-existing symptoms
- Co-existing illnesses
- Prior tests
- Prior treatments
- Concerns/goals

CAP: Key Points for the Provider

- Is the pain really gastrointestinal in origin?
- Is the pain proportionate to the individual’s behavior?
- Is the pain part of an occult systemic illness?
- What is the psychological status of the patient?
- Is the pain related to drug therapy?
- Is there something to be gained by having symptoms?

CAP: Differential Diagnosis - Upper

- Esophageal motility disorders (NCCP)
- Functional dyspepsia/Gastroparesis
- Gastritis/duodenitis
- Functional abdominal pain (FAP/CAP)
- Abdominal wall pain
- Pancreatic/Hepatobiliary disorders
  - chronic pancreatitis, NASH, SOD dysfunction
- Vascular disorders
- Bacterial overgrowth
- Narcotic bowel syndrome
**CAP: Differential Diagnosis - Lower**

- Functional abdominal pain
- IBS – irritable bowel syndrome
- IBD – inflammatory bowel disease
- Spastic bowel disorders (NOS)
- Chronic constipation
- Urologic disorders
- Urogynecologic disorders
- Abdominal wall pain
- Narcotic bowel syndrome
- Referred pain

**CAP: Rare causes**

- Heavy metal poisoning
- Acute intermittent porphyria
- Familial Mediterranean Fever
- Abdominal migraine
- Abdominal epilepsy
- Benign tumors
- Malignancies

**Rome IV criteria for CAPS**

Must include all of the following:

1. Continuous or nearly continuous abdominal pain.
2. No or only occasional relationship of pain with physiological events (e.g. eating, defecation or menses)
3. Pain limits some aspect of daily functioning (e.g. impairments in work, intimacy, social/leisure, family life, and care-giving for self and others).
4. The pain is not feigned.
5. Pain is not explained by another structural or functional gastrointestinal disorder or other medical condition.
6. The criteria must be fulfilled for the last 3 months with symptom onset at least 6 months before diagnosis.
Chronic abdominal wall pain (CAWP)

- 10–30% of patients with CAP have CAWP
- First described by Carnett in 1926
- Somatic sensation – T7-T12
- W:M ratio of 4:1; obesity may be a risk factor
- RUQ/epigastric area – most common sites
- Carnett’s test: 85% sensitivity; 97% specificity
- Treatment: trigger point injection

Carnett’s Sign

CAP: The Physical Examination

- Assess general appearance
- Eyes open or eyes closed?*
- Vital signs (is tachycardia present?)
- Location of the pain
- Radiation of the pain?
- Prior surgeries
- Check for enlarged nodes, hepatosplenomegaly, ascites, hernias
- Assess vascular system
- Check for a succussion splash

*Gray et al, BMJ 1988
CAP: Diagnostic Tests

- Patient dependent
- Approach in a logical manner
- What is the hypothesis leading to the test?
- Start simply
- Communicate with the patient in-between tests
- Don't keep repeating normal tests
- Initiate treatment as well – don't wait until EVERY test has been performed

CAP: Treatment Approaches - I

- Educate, reassure
- Be empathetic; be patient; avoid quick fixes
- Understand goals, fears and concerns
- Set limits
- Identify expectations
- Help the patient take responsibility (what have you done to improve your symptoms?)
- Minimize unnecessary testing
- No opioids

CAP: Treatment Approaches - II

- Lifestyle
  - Diet, exercise, sleep, stress reduction
- Alternative therapies
  - Capsaicin, acupuncture, iberogast
- Behavioral therapy (CBT)
- Treat co-existing psychological dysfunction
- No opioids
Which medication is FDA approved for the treatment of CAP?

1. Tramadol
2. Amitriptyline
3. Duloxetine
4. Gabapentin
5. All of the above
6. None of the above

CAP: Medication Options

- TCAs:
  - Desipramine, nortriptyline, amitriptyline, imipramine
- SNRIs (duloxetine, venlafaxine)
- SSRIs
- Antihistamines
  - Antihistamines
  - Antihistamines
- Antinociceptive agents
  - Pregabalin
  - Gabapentin
  - Tramadol
- Others – mirtazapine, buspirone, anti-spasmodics
- No opioids

CAPS: TCAs or SNRI? Action of neuromodulators

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Reciprocal inhibition is seen with TCAs and SNRIs. SSRIs and antihistamines have minimal interaction.
CAP: Key Practice Points

- Abdominal symptoms are not always GI in origin
- Symptoms can be non-specific
- The presence of pain does not require an organic process in order to be taken seriously
- An algorithmic approach to ALL patients with chronic abdominal pain will never work
- Approach tests and medications logically
- Set expectations/limits
- Identify goals
- Consider combination therapy

Bloating and Distension: Epidemiology

- US Household survey – 1991 – prevalence of 33% (Rome I criteria)
- 2500 US subjects – 2000 – prevalence of 66% (Rome II criteria)
- Prevalence in IBS – > 60%
- Pts with IBS-D are more likely to report Sx than Pts with IBS-C
- Women are more likely to report symptoms than men

Intestinal Gas: the basics

5 major gases play a role in bloating and distension:
- Nitrogen (N₂), oxygen (O₂), carbon dioxide (CO₂), hydrogen (H₂), and methane (CH₄)
- N₂ and O₂ are swallowed
- CO₂, H₂, CH₄ are produced within bowel lumen
Chronic Bloating: A visual differential

Bloating & Distension: Common Etiologies
- Functional bloating/distension
- IBS
- Functional dyspepsia
- Chronic constipation
- Gastroparesis
- Delayed SB transit
- Mechanical obstruction
- Pseudo-obstruction
- Ischemia
- Pancreatic insufficiency
- Infectious gastroenteritis
- Medication induced
- Carbohydrate intolerance
- Celiac disease
- SIBO
- Colonic dysbiosis
- IBD
- Psychiatric disorders
- Aerophagia
- Other (malignancy, liver)

Functional Bloating & Distension
- Symptoms of recurrent abdominal fullness, pressure, or a sensation of trapped gas (functional abdominal bloating; FAB)
- And/or a measurable (objective) increase in abdominal girth (functional abdominal distension; FAD)
- FAB/D should not meet criteria for other functional bowel disorders
- Onset > 6 months ago
- Symptoms active in the last 3 months
Abdominal bloating and abdominal distension

Subjective sensation of abdominal inflation and/or gas/flatulence

Objective and measurable increase in abdominal girth

May coexist in the same individual or may occur independently

Pathophysiology of Functional Bloating and Distension

- Increased bowel wall tension
- Augmented conscious perception of wall tension
- Abnormal viscero-somatic reflex

Bloating & Distension: An abnormal viscero-somatic reflex

Lacy, Vazquez, Cangemi 2020; CGH, in press
Bloating and Distension: A Diagnostic & Treatment Algorithm

FODMAPs & the GI Tract

Antibiotic Therapy for SIBO
- Ciprofloxacin (250 mg bid)
- Doxycycline (100 mg bid)
- Metronidazole (250 mg tid)
- Neomycin (500 mg bid)
- Norfloxacin (800 mg/d)
- Rifaximin (150 mg tid)
- Tetracycline (250 mg qid)
- Trimethoprim-sulfamethoxazole (bid)
### Treatment Options Based on Pathophysiology: Attenuating visceral perception

- TCAs
- SNRIs
- SSRIs
- Gabapentin
- Pregabalin
- Other anti-nociceptive agents
- (anti-spasmodics)
- No opioids

### Treatment Options Based on Pathophysiology: Abnormal viscero-somatic reflex

- Diaphragmatic breathing
- Biofeedback

### Summary

- Bloating and distension are common
- Symptoms are non-specific – you need to be a good detective
- Consider your evaluation with 3 separate physiologic processes in mind
- Take a good dietary history – is this food related?
- Look for overlapping functional GI disorders
- Consider the concept of visceral hypersensitivity
- Don’t forget the abnormal viscero-somatic reflex
Questions?

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