بنام خدا

نحوه برخورد با یک خانم ۲۳ ساله مبتلا به دیابت نوع ۱ و احساس نفخ از دیدگاه پزشکی خانواده

استاد راهنما : خانم دکتر فنی فوق تخصص گوارش و کبد عضو هیات علمی

ارایه دهنده : کورش فرزین دستیار پزشکی خانواده

۱ مهر ۱۴۰۲

- خانمی ۲۳ ساله با سابقه دیابت نوع ۱ ازدوران کودکی با شکایت ۶ ماه دفع مدفوع ۳ بار در روز و احساس گاز شدید در شکم خود مراجعه کرده است در کودکی تشخیص دیابت با یکبار حمله کتواسیدوزیس در سن ۵ سالگی داده شده و از آن زمان تحت درمان با انسولین بوده که ابتدا NPH و Regular استفاده میکرده و در ۵ سال اخبر تحت درمان با انسولین های قلمی لانتوس و نوورپید است نفخ شکمی و احساس سرو صدا در شکم را ازسه ماه پیش داشته که احساس بزرگ شدن شکم را نیز ذکر میکند درد خاصی همراه آن ندارد ولی احساس سنگینی و بعضی اوقات نفس تنگی در حالت دراز کشیده را ذکر میکند دفع مدفوع شل را روزی سه بار را از شش ماه قبل هم دارد که همراه با علایم دیگری نیست تهوع استفراغ ودفع گاز قابل ملاحظه ای را ذکر نمیکند کاهش وزن قابل توجهی را ذکر نمیکند برای این موضوع چند بار به پزشک مراجعه کرده که داروهایی مثل دایمتیکن و کولپرمین استفاده کرده ولی تاثیر قابل توجهی نداشته در سن ۱۵ سالگی دوره های mens بیمار شروع شده که سیکل ها ماهیانه دارد با چند روز متغییر در زمان شروع
- Family H – دارای یک برادر بزرگتر از خود است که سالم است پدر و مادر در قید حیات هستند مادر مبتلا به فشار خون است از ده سال قبل و تحت درمان است پدر مشکل خاصی ندارد ازدواج نکرده و دانشجو است.

- Drug H – انسولین لانتوس صبح و شب ۲۵ واحد صبح ۳۰ واحد شب انسولین نورپید قبل از صبحانه و شام ۱۰ واحد و قبل از ناهار ۱۲ واحد از ماه گذشته به دایمتیکون و کولپرمین را استفاده میکند سابقه مصرف داروی دیگری ندارد
- PMH- بیمار حاصل زایمان ترم بوده سابقه بستری در نوزادی نداشته است تنها یکبار بستری شده در سن ۵ سالگی که با دل درد و حالت تهوع شدید به بیمارستان مراجعه میکند که طی بررسی متوجه کتو اسیدوز دیابتی وی میگردند که از آن زمان تحت درمان است.از نظر تکاملی دچار مشکلی نبوده و تا سن ۵ سالگی هم مراحل رشد وی طبیعی بوده است
- BP= ۱۱۰/۸۰ PR= ۸۵ RR=۲۲ Weight= ۴۵ kg Height= ۱۵۰ BMI= ۲۰ – Physical Exam
  - General apperance – مقداری رنگ پریده به نظر میرسد ill و توکسیک نیست دیسترس خاص ندارد
  - سر و گردن – موها کم پشت ملتحمه مقداری pale مخاط دهان هم رنگ پریده زبان مشکل خاصی مشهود نیست زخمی در دهامن و مخاط ها روین نشد دندانها سه دندان پر شده دارد بقیه ظاهرا سالم در سمع ناحیه گردن سوفل و برویی قابل سمع نیست ورید های ژگولار نرمال معاینه تیروییید نرمال است توده و ندولاریتی قابل لمس نبود لنفادنوپاتی خاصی قابل تجسس نبود
  - قلب و ریه – در قفسه سینه دفورمیتی قابل رویت نبود سمع قلب و ریه نرمال است لنفادنوپاتی در آگزیلا نبود
  - شکم – در ظاهر مقداری دیستنس به نظر میرسید در سمع splash و عبور گاز به گوش میرسید وصدا ها به صورت ممتد و بدون وقفه بود تندرنس و ارگانو مگالی قابل لمس نبود

- اندامها – بدون دفورمیتی نبض ها قرینه و پر بدون اختلال در حس انتها ها
- Lab test :
- CBC

  Wbc= ۶۷۰۰ HB=۱۰/۵ HCT=۳۵ MCV= ۸۰PLat= ۱۵۰۰۰۰
- FBS=۱۳۰ HBA۱C= ۷
- TG= ۱۵۰ Chol= ۱۲۰ HDL= ۳۵ LDL=۵۵
- SGOT=۳۵ SGPT=۴۵ ALKp=۱۵۰
- VIT D۳=۱۰
- TSH=۸/۵
- BUN= ۲۵ CREA= ۰/۸

FLATULENCE

ABDOMINAL BLOATING AND DISTENSION

- **ABDOMINAL BLOATING AND DISTENSION**
- Bloating refers to a sensation of abdominal fullness, pressure, or a sensation of trapped gas
- Distension is a measurable increase in abdominal girth
- ٢٠ to ٣٠ percent of the general population and in up to ٩٦ percent of patients with irritable bowel syndrome (IBS)

Differential diagnosis of abdominal bloating and/or distension

Dietary
Lactose intolerance
Fructose intolerance
FODMAPS (high FODMAP diet)
Gas-producing foods
Malabsorption
Celiac disease
Pancreatic insufficiency
Functional
Irritable bowel syndrome
Functional dyspepsia
Functional bloating
Constipation
Dysmotility
Diabetes
Scleroderma
Pseudo-obstruction: acute or chronic
Gastroparesis
Acute adynamic ileus
Medications
Intestinal obstruction
Gastric outlet obstruction
Small bowel obstruction
SMA syndrome
Colonic obstruction
Volvulus
Malignancy
Gastrointestinal
Ovarian
Ascites
Surgical
Fundoplication: gas-bloat
Gastric-banding surgery
Infections
Small intestinal bacterial overgrowth
Parasite (giardia)
Physiologic
Pregnancy
Obesity/adiposity

Management of Chronic Abdominal Distension and Bloating

By Chuma Obineme, MD

Epidemiology

- Distension, bloating, and/or gassiness is a universal sensation, but typically spontaneously resolves
- Prevalence of bloating & distension in IBS patients is 66%-90% (more common with IBS-C)
- More common in women >>>men

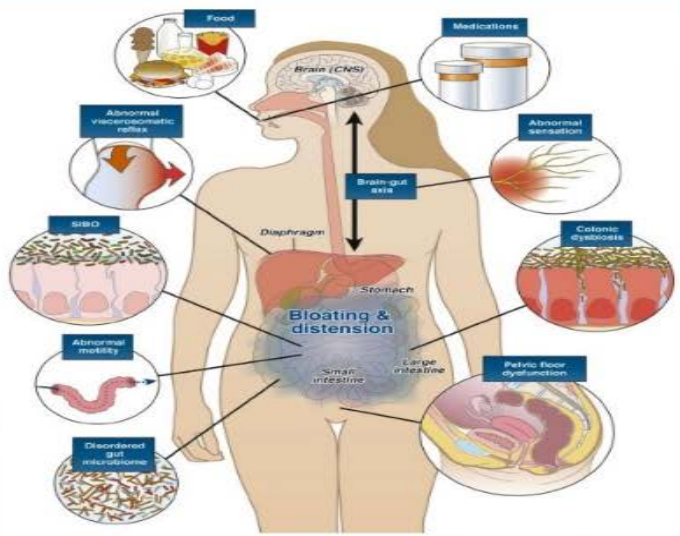
Definitions

Abdominal Bloating = sensation of trapped gas or feeling of pressure w/o visible distension
Distension = objective physical manifestation of an increase in abdominal girth
Rome Criteria for Chronic Functional Abdomanal Bloating & Distension (*all criteria req for diagnosis*)

- Recurrent bloating and/or distension at least 1d/wk on avg
- Bloating and distension should be the predominant symptoms
- Patients should not meet criteria for IBS, functional constipation/diarrhea or post-prandial distress syndrome
- Symptom onset should have occurred in at least 6 months prior to dx
- Symptoms should be active within the preceding 3 months

Pathophysiology

- Mechanisms for chronic abdominal bloating and distension are complex and multifactorial
- CT imaging has shown increases in luminal gas in only ~25% of those w/ functional GI disorder during a bloating episode
- Alterations in normal gas (CO_2, N_2, H_2, O_2 and CH_4) production, absorption and excretion are key mechanisms of disease



Common Causes of Chronic Bloating & Distension

Organic/Pathologic Etiologies

- Small Intestinal Bowel Overgrowth (SIBO)
- Lactulose/Fructose/Carbohydrate Intolerance
- Celiac Disease
- Prior GEJ surgery (Fundoplication, Bariatric surgery)
- Gastroparesis
- Chronic Gastric Outlet Obstruction
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- GI or GYN Malignancy
- Hypothyroidism
- Adiposity
- Small Intestinal Diverticulosis

Chronic Intestinal Pseudo obstruction (CIPO)

Disorders of Gut-Brain Interaction

- Irritable Bowel Syndrome
- Chronic Idiopathic Constipation
- Pelvic Floor Dysfunction
- Functional Dyspepsia
- Functional Bloating
- Abdomino-phrenic Dyssynergia

Diagnostics and Testing

H&P: Careful H&P; detailed surgical and medication hx. Emphasis on timing of symptoms and dietary habits.
Breath Tests (BT)
Lactose Intolerance: Absorptive capacity based upon brush border enzyme activity

- **BT** → 25gm of lactose. ↑ of ≥20 ppm of H_2 or 10ppm CH_4 w/ symptoms. Specificity (98%) and Sensitivity (78%)

Fructose Intolerance: absorptive capacity in small intestine is limited

- **BT**→ 25gm (variable) of fructose given. ↑ of ≥20 ppm of H_2 or 10ppm CH_4 w/ symptoms.

SIBO: Gold standard for testing is jejunal fluid culture (invasive and costly)

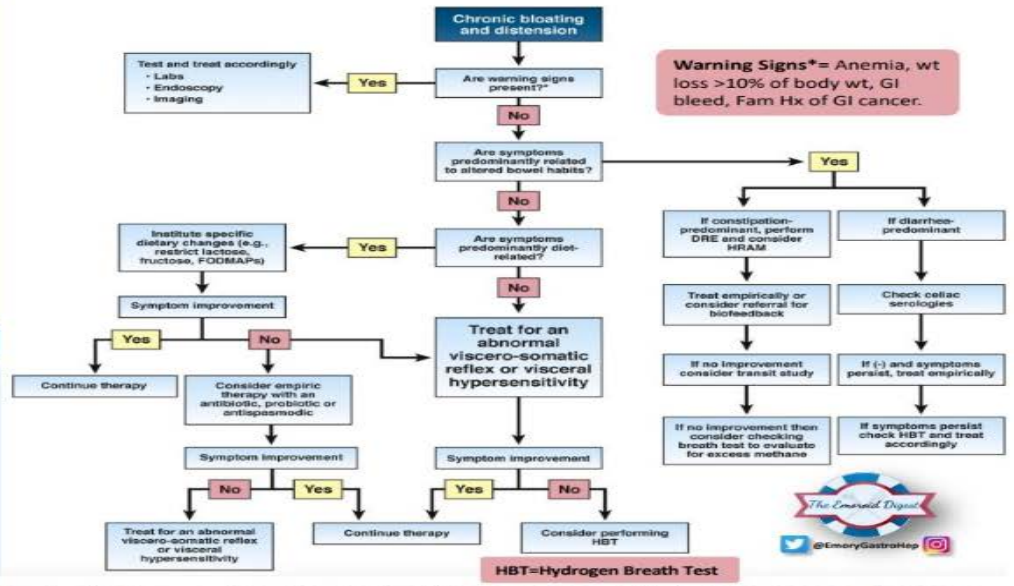
- **BT**→ 25gm lactulose given. ↑ of ≥20 ppm of H_2 or 10ppm CH_4 w/ in 90mins or sustained ↑ of 10ppm. Glucose test positive if ↑ of 12ppm of H_2 or baseline ↑ of >20ppm or H_2 or CH_4.

EGD: In those w/ alarm features and/or to r/o GOO, FD, gastroparesis
4hr Scintigraphy Gastric Emptying Study: R/o gastroparesis
Single-Photon-Emission CT (SPECT): Assess for aberrant gastric accommodation
Anorectal Function Testing: HRAM (high-resolution anal rectal manometry) and defecography in patients with constipation bloating and abnormal DRE

Treatment

Diet: ↓ artificial sweeteners, Low FODMAP diet in IBS pts ↓ bloating/distension. Referral to dietician.
Probiotics: Some strains ↓ symptoms, but studies are small & inconsistent
Antibiotics: Rifaximin in IBS pts is best studied. ↓symptoms and ↓H_2 in BT's
Antispasmodics: Smooth muscle relaxants ↓ symptoms of abdominal distension; Simethicone + Pinaverium bromide ↓ bloating
Secretagogues: IBS-C treatments in appropriate patients ↓ bloating/distension
Prokinetics: Tegaserod/Prucalopride shown ↓ bloating symptoms in studies
Neuromodulators: SSRI's, Buspirone, amitriptyline led to ↓ bloating
Biofeedback: Beneficial in those w/ pelvic dyssynergia & pelvic outlet obstruction
Complementary & Alternative Medicine: Limited data; Iberogast, hypnotherapy, and peppermint oil (180mg TID) are options

Treatment Algorithm for Bloating and Distension



Lacy BE, Cangemi D, Vazquez-Roque M. Management of Chronic Abdominal Distension and Bloating. Clin Gastroenterol Hepatol. 2021 Feb;19(2):219-231.e1. doi: 10.1016/j.cgh.2020.03.056. Epub 2020 Apr 1.

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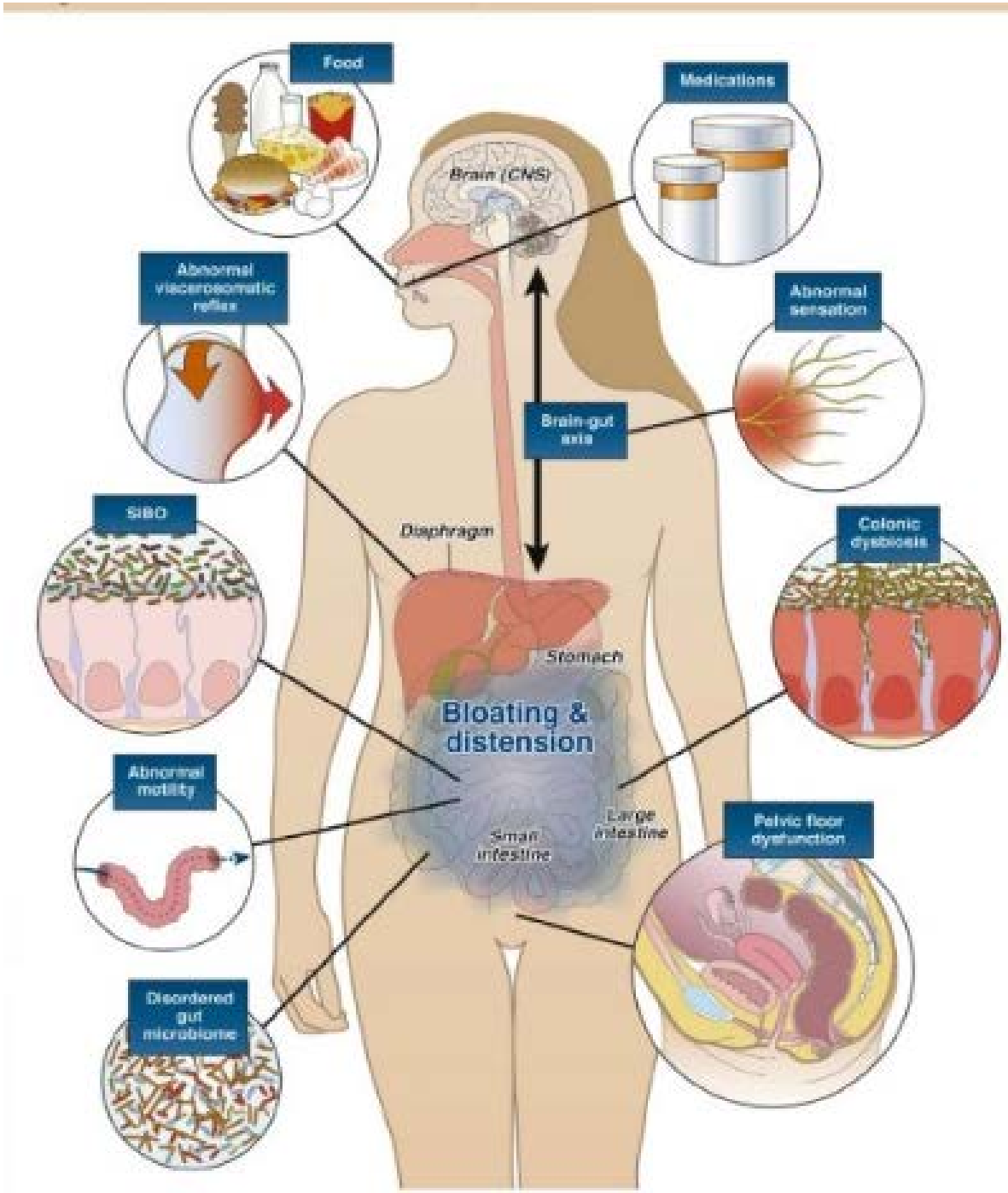

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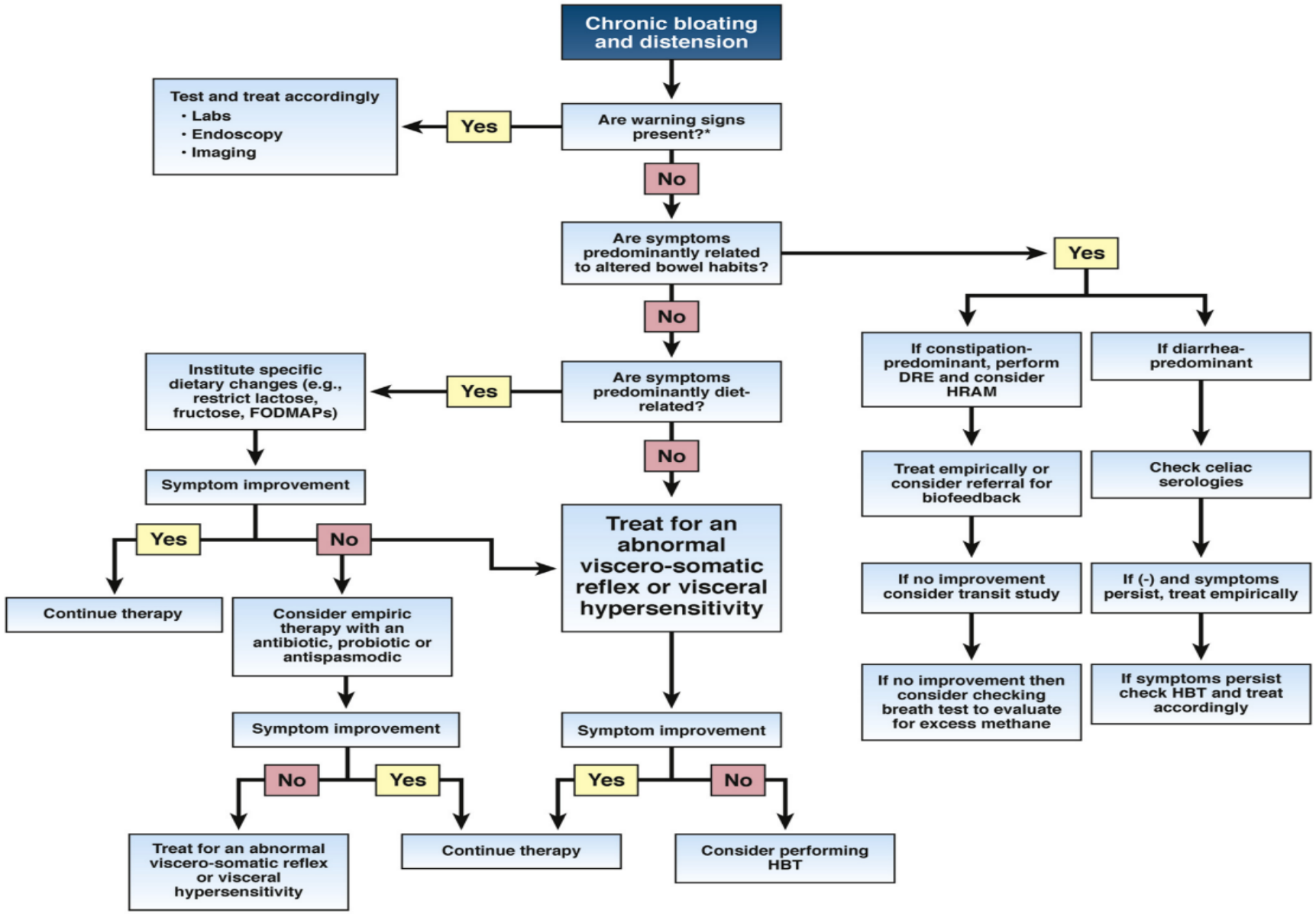


Figure 4. Treatment algorithm for bloating and distension. The asterisk (*) refers to anemia, gastrointestinal bleeding, weight loss >10% of body weight, and family history of GI malignancy. DRE, digital rectal examination; HBT, hydrogen breath test; HRAM, high-resolution anorectal manometry.

- **Evaluation**
- Bloating and distension may be caused by organic disease or other functional gastrointestinal disorders.
- History and physical examination:
  - onset of symptoms, the relationship to diet, diurnal variation, other functional gastrointestinal disorders, including constipation, diarrhea, and abdominal pain or post-prandial fullness
- Initial testing
  - limited evaluation, CBC for anemia and serologies for celiac sprue
  - In addition, breath test for small intestinal bacterial overgrowth and testing for lactose intolerance
- Diagnostic criteria for functional bloating/distension
  - both of the following (for at least three months with symptom onset at least six months prior to diagnosis)
  - Recurrent bloating or distension, on average, at least one day per week
  - Insufficient criteria for a diagnosis of IBS, functional constipation, functional diarrhea, or postprandial distress syndrome

Celiac disease

- **Risk factors:**
  - The risk of having CD is much greater in first-degree relatives (٥–١٠%) but lesser in second-degree relatives
  - Type ١ diabetes mellitus (T١DM)
  - Autoimmune diseases
  - Down syndrome
  - A number of other associated diseases
- **Clinical manifestations**
  - Although classically a disease of infants, celiac disease now often presents later, between the ages of ١٠ and ٤٠ years.
  - The severity of symptoms appears to correlate with both:
    - Histologic severity
    - Tissue transglutaminase titers

- **Severity of histologic changes** in the small bowel does not necessarily correlate with the **severity of clinical manifestations** due to sampling error.

- **Different types of CD**
  - Symptomatic disease, diarrhea , malabsorption, Villous atrophy
  - Atypical celiac disease, extraintestinal manifestations
  - Subclinical or asymptomatic disease, incidentally during endoscopy
  - Potential celiac disease, positive celiac-specific serum antibodies but normal or Marsh ١ lesion
  - Latent celiac disease, recovered completely with a gluten-free diet and remained "silent"
  - Refractory disease, persistence of symptoms and villous atrophy despite adherence to a gluten-free diet for ١٢ months.

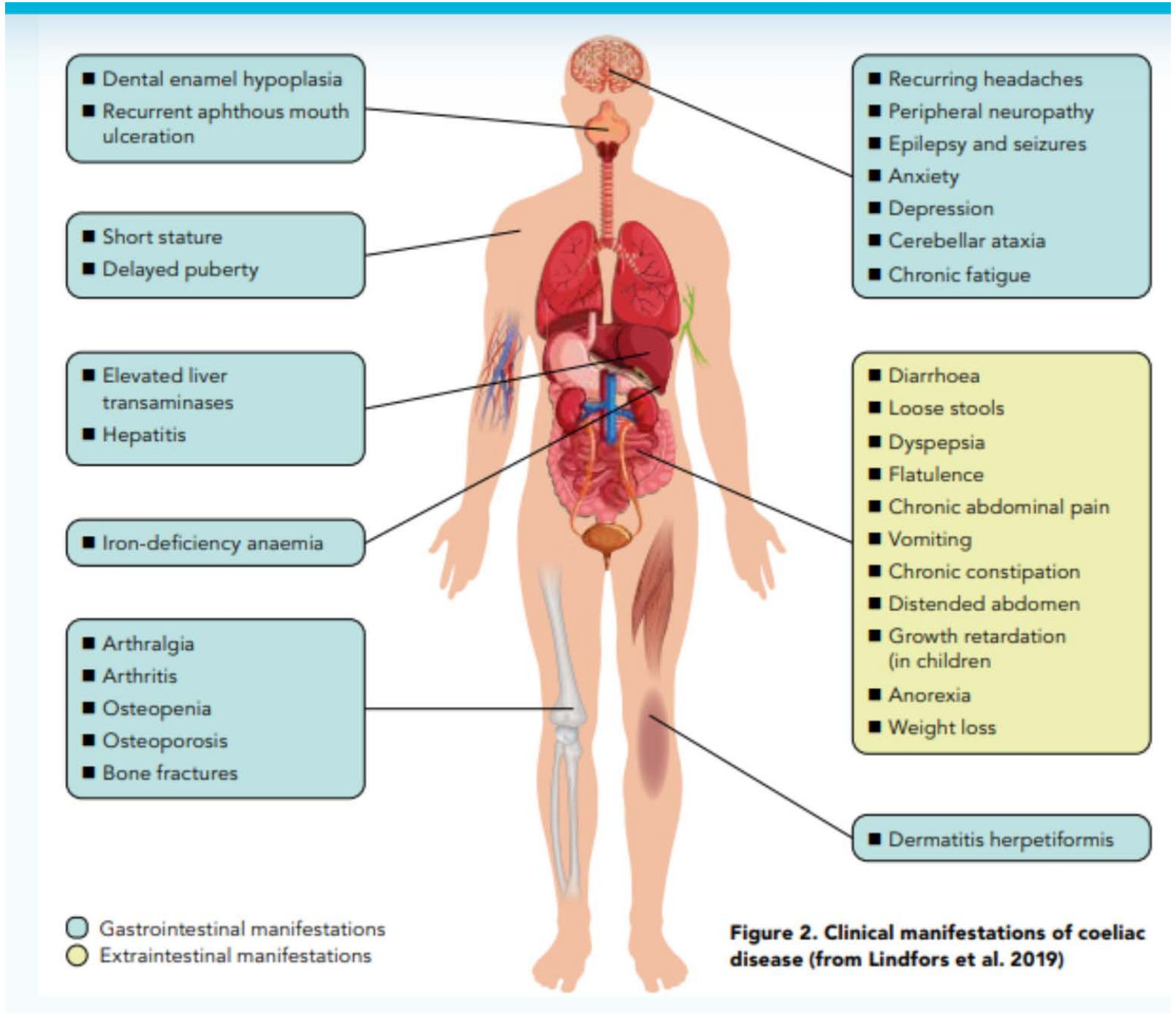


Figure 2. Clinical manifestations of coeliac disease (from Lindfors et al. 2019)

Dr. Axe
FOOD ⊕ MEDICINE

CELIAC DISEASE SYMPTOMS

According to the Celiac Disease Foundation, this disease can be difficult to diagnose because it affects people on all different levels in various ways. In fact, it's believed that there are hundreds of symptoms within the body that are related to the effects of celiac disease on the digestive and immune systems.

The Most Common Symptoms

- diarrhea or constipation
- bloating
- cramping and abdominal pain
- chronic fatigue or lethargy
- nutrient deficiencies
- chronic headaches
- joint or bone pains
- changes in mood, such an anxiety
- trouble concentrating or "brain fog"
- changes in weight
- sleep disturbances including insomnia
- tingling numbness in the hands and feet
- seizures
- missed menstrual periods, infertility or recurrent miscarriage
- canker sores inside the mouth
- thinning hair and dull skin

Less Common but More Serious Symptoms

Celiac patients are at a higher risk for numerous diseases, including:

- Type 1 diabetes
- Osteoporosis
- Heart complications
- Multiple sclerosis
- Skin disorders (like dermatitis or eczema)
- Autoimmune thyroid disease
- Anxiety or depression
- ADHD
- Arthritis
- Other food allergies
- Asthma

- **Serum antibody assays**
- Serologic studies for celiac disease can be divided into two groups based upon their target antigens:
  - **Autoantibodies:**
    - Anti-endomysial antibody (EMA-IgA)
    - Anti-tissue transglutaminase antibodies (tTG) (tTG-IgA, tTG-IgG)
  - **Antibodies targeting gliadin:**
    - Antibody to native gliadin: Antigliadin antibody (AGA-IgA, AGA-IgG)
    - Antibodies against synthetic deamidated gliadin peptides: Deamidated gliadin peptide (DGP)-IgA, DGP-IgG

- **Diagnostic approach**
  - Individual with low celiac disease probability ; First serology ,if positive : endoscopy
  - Individual with high celiac disease probability ; Serology + Upper endoscopy & biopsy
- **Serologic evaluation**
  - tTG- IgA: single preferred test
  - Total IgA level
  - EMA-IgA(highly specific) , (tTG)-IgA (highly specific and sensitive) ,IgG
  - Antibodies targeting gliadin: Anti gliadin (low diagnostic accuracy), DGP-IgA, IgG

- **Is enteroscopy needed for the diagnosis of the CD?**
- We can answer “yes” to this question, with reserve.
  - Enteroscopy cannot be recommended at the initial work-up of CD patients.
  - Enteroscopy examination for CD should be reserved for:
    - ١. Patients with positive serology and negative histopathology at initial EGD
    - ٢. In the search for complications during follow-up

Who should be tested ?

- The benefit of **population screening** for asymptomatic celiac disease has **not** been demonstrated.
  - Screening with serologic tests are recommended in:
    - **Asymptomatic first-degree relatives** of patients with a confirmed diagnosis of celiac disease.
    - **Suggestive gastrointestinal symptoms** (symptoms suggestive of irritable bowel syndrome or refractory lactose intolerance)
      - chronic or recurrent diarrhea or constipation
      - malabsorption
      - unexpected weight loss
      - abdominal pain
      - Distension
      - Bloating
    - **Extraintestinal signs/symptoms suggestive of celiac disease** (without other explanations and treatable with GFD)
      - iron deficiency anemia
      - folate or vitamin B12 deficiency
      - persistent elevation in serum aminotransferases
      - dermatitis herpetiformis
      - fatigue
      - recurrent headaches
      - recurrent fetal loss
      - low birthweight offspring
      - reduced fertility
      - persistent aphthous stomatitis
      - dental enamel hypoplasia
      - metabolic bone disease and premature osteoporosis
      - idiopathic peripheral neuropathy
      - nonhereditary cerebellar ataxia

Diagnostic approach

High risk group

- **Endoscopy** and **duodenal biopsy** even if **CD serology is negative**

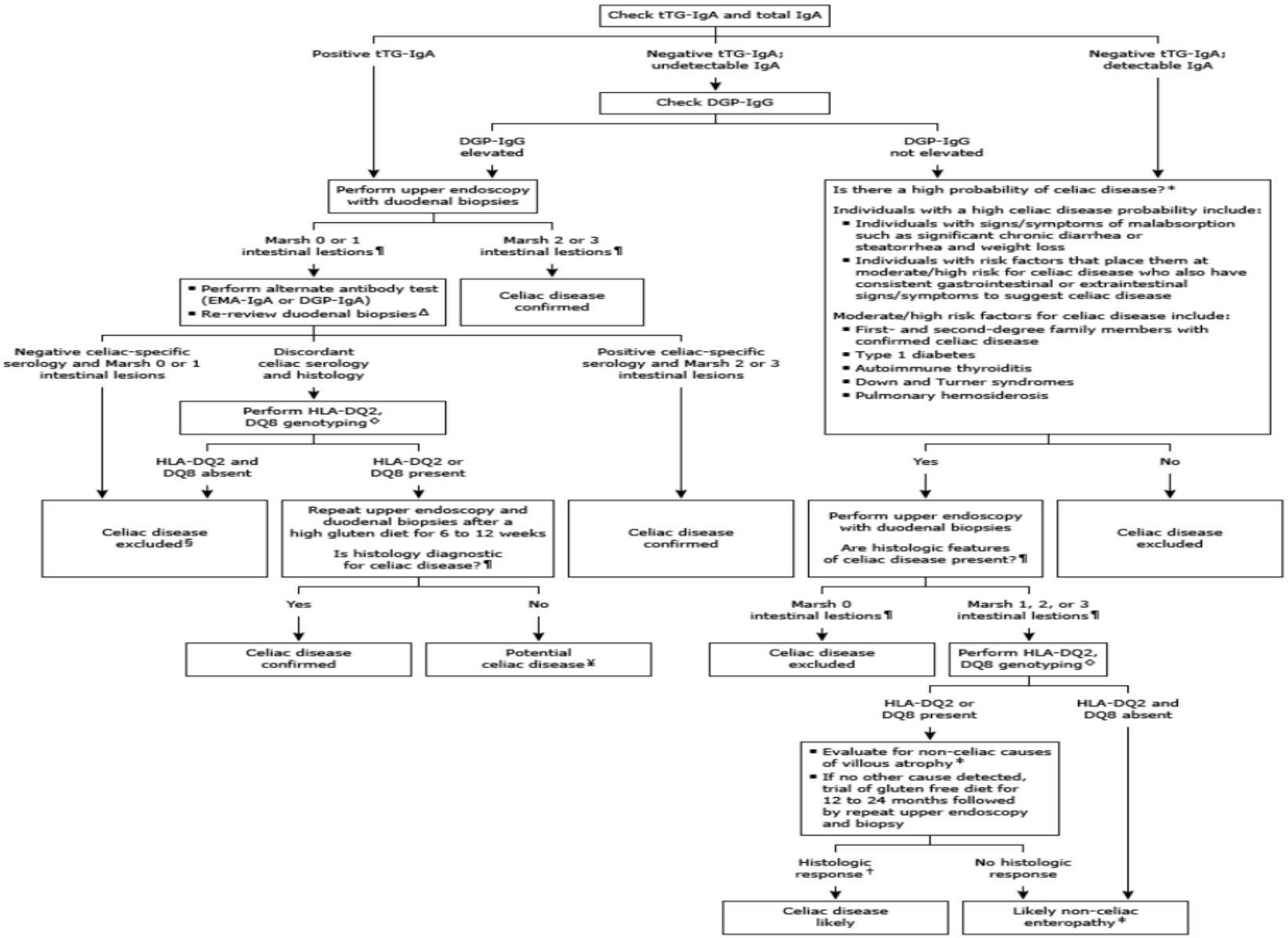
1. Chronic (non-bloody) diarrhea
2. Diarrhea with features of malabsorption, especially weight loss
3. Iron deficiency anemia in absence of other causes
4. GI symptoms with a family history of CD
5. Gl symptoms in patient with autoimmune disease or IgA deficiency
6. Failure to thrive in children
7. Skin biopsy-proven DH
8. Patient with video capsule findings suggestive for villous atrophy
9. Unexplained high output ileocolostomy

Low risk group

- **CD serology is indicated Biopsy** is needed **only when serology is positive**

1. IBS
2. Elevated otherwise unexplained liver transaminases
3. Chronic GI symptoms without a family history of CD or a personal history of autoimmune disease
4. Microscopic colitis
5. Hashimoto's thyroiditis and Graves' disease
6. Osteopenia/osteoporosis
7. Unexplained ataxia or peripheral neuropathy
8. Recurrent aphthous ulcerations/dental enamel defects
9. Infertility, recurrent miscarriage, late menarche, early menopause
10. Chronic fatigue syndrome
11. Acute or chronic pancreatitis after excluding other known causes
12. Epilepsy; headaches including migraines; mood disorders; or attention-deficit disorder/cognitive impairment
13. Hyposplenism or functional asplenia
14. Psoriasis or other skin lesions than DH
15. Down's or Turner's syndrome
16. Pulmonary haemosiderosis
17. IgA nephropathy

Diagnostic approach for suspected celiac disease in an adult patient on gluten containing diet*



- **Management**
- As a general rule, there are six key elements in the management of patients with celiac disease:
  ١. Consultation with a skilled dietitian
  ٢. Education about the disease
  ٣. Lifelong adherence to a gluten-free diet
  ٤. Identification and treatment of nutritional deficiencies
  ٥. Access to an advocacy group
  ٦. Continuous long-term follow-up by a multidisciplinary team

What micronutrient should be checked in patients with CD?

- Newly diagnosed patients:
  - ferritin, folate, vitamin B12, and 25-OH vitamin D.

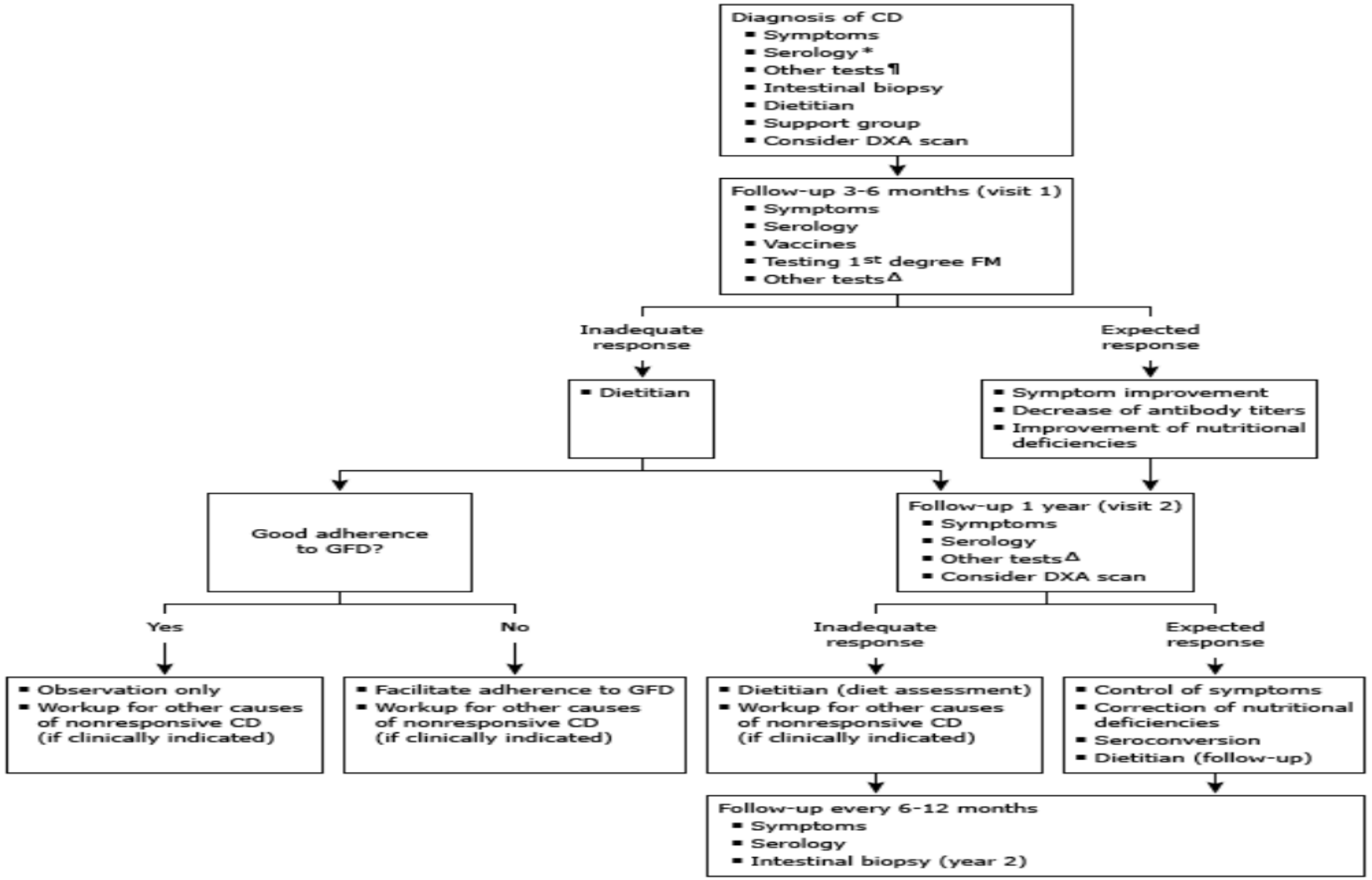
- Severe symptoms (diarrhea, weight loss, malabsorption) or signs of nutrient deficiencies (night-blindness, neuropathy, or prolonged prothrombin time):
  - fat-soluble vitamins (A, E, K), and minerals (zinc).

- **Iron**
  - With a strict GFD, iron stores typically improve.
  - Eating foods rich in iron is necessary.
  - Intravenous iron therapy may be needed especially in severe cases of deficiency and in those who are intolerant or unresponsive for oral therapy.
- **Folate**
  - A GFD is typically low in folate.
  - Supplementation of folate and vitamin B١٢ helped improve anxiety and depression and might be needed for years, especially in slow-responders
- **Vitamin B١٢**
  - B١٢ deficiency is typically corrected with a GFD but should be treated with B١٢ supplementation in the short term
- **Vitamin D**

- **Calcium and vitamin D**
  - should be supplemented in CD patients with :
  ١. documented low serum levels
  ٢. those with loss of BMD
  ٣. those who cannot achieve adequate intake via diet
- **Zinc**
  - lead to growth arrest and diminished protein synthesis.
  - With a strict GFD, zinc deficiencies resolve, and long-term supplementation is not needed.
- **Copper**
  - With copper repletion, the hematological manifestations typically resolve, but the neurological deficits can be irreversible.
  - Screening for copper deficiency needs to be considered at diagnosis of CD, especially when any associated deficiency symptoms are identified.

- **Follow up**
- There are four steps to assess dietary adherence:
  - Clinical assessment of symptoms
  - Dietetic review
  - Serum antibodies IgA-TG٢ EMA
  - Follow-up biopsy

Approach to monitoring celiac disease



Suggested follow-up scheme for adult CD patients

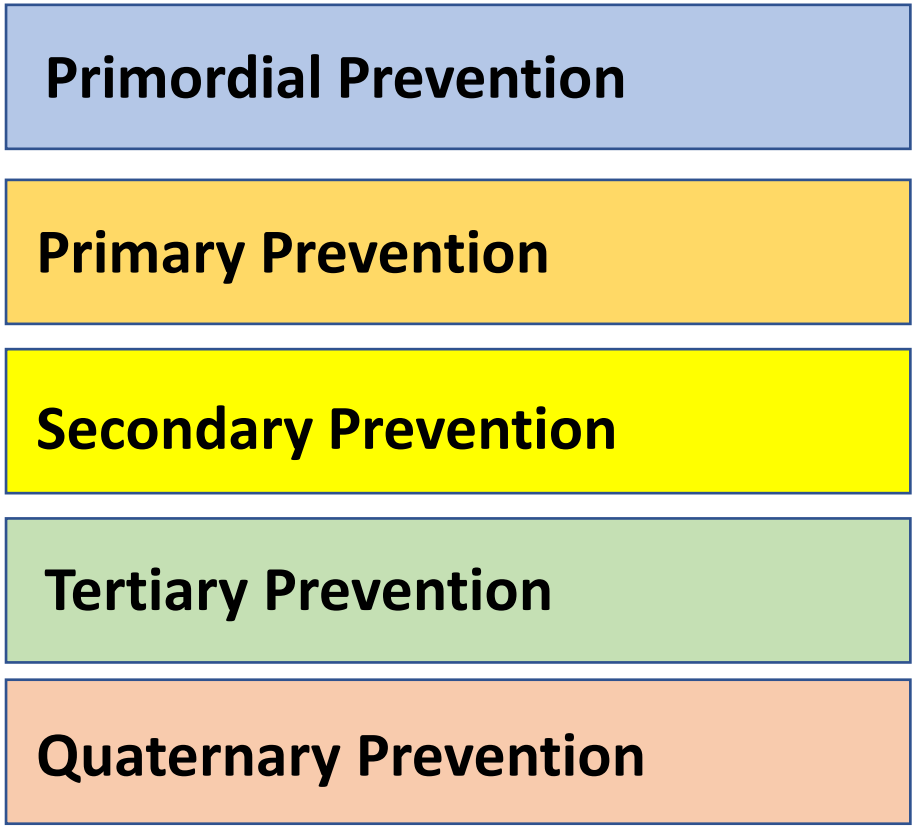
At diagnosis (physician and dietitian)	Physical examination including BMI Education on CD Dietary counselling by a skilled dietician Recommend family screening (DQ2/D8 and coeliac serology) Recommend membership of coeliac national society or support group Coeliac serology (if not previously obtained) Routine tests (complete blood count, iron status, folate, vitamin B12, thyroid function tests, liver enzymes, calcium, phosphate, vitamin D)/bone densitometry at diagnosis but not later than 30–35 years of age
At 2nd visit 3–4 months (physician and dietitian)	Assess symptoms and coping skills Dietary review Coeliac serology (IgA-TG2)
At 6 months (physician) (by telephone)	Assess symptoms Dietary review Coeliac serology Repeat routine tests (*if previously abnormal*)
At 12 months (physician and dietitian)	Assess symptoms Physical examination (on indication) Dietary review Coeliac serology Repeat routine tests Small-bowel biopsy (*not routinely recommended, see text*)
At 24 months (physician)	Assess symptoms Consider dietary review Coeliac serology Thyroid function tests Other tests as clinically indicated
At 36 months (physician); thereafter every 1–2 years	Bone densitometry (*if previously abnormal*) Assess symptoms Consider dietary review Coeliac serology Thyroid function tests Other tests as clinically indicated

Who needs to be vaccinated?

- Hyposplenism or functional asplenia in association with CD may result in impaired immunity to encapsulated bacteria, and an increase in such infections has been demonstrated in CD.
- Hyposplenism is considered to be present if:
  - small size spleen at imaging
  - presence of circulating Howell– Jolly bodies
  - mild degrees of thrombocytosis and leucocytosis.

- Those patients who are known to be hyposplenic should receive the pneumococcal vaccine.

- However, it is unclear whether vaccination with the conjugated vaccine is preferable in this setting and whether additional vaccination against Haemophilus, meningococcus and influenza should be considered if not previously given


Primordial Prevention
Primary Prevention
Secondary Prevention
Tertiary Prevention
Quaternary Prevention

Primordial Prevention

- ۱- آموزش در خصوص تشکیل پرونده الکترونیک سلامت جهت تمامی آحاد جمعیت کشور و ارزش و اهمیت انجام مراقبتهای لازم در هر گروه سنی
- ۲- آموزش های لازم در سطح ملی برای آشنایی با علایم بیماری ریسک فاکتورها اهمیت انجام ازمایشات تشخیصی در سایر افراد خانواده و توجه به سایر بیماریهای همراه

Primary Prevention

۱- انجام مراقبتهای دورهای در هرگروه سنی حسب مورد
۲- شناسایی افراد پر خطر و در معرض ریسک

Secondary Prevention

۱- بیماریابی بموقع در جمعیت در معرض ریسک و انجام اقدامات تشخیصی اولیه
۲- غربالگری کوموربیدتی های زمینه ای
۳ – انجام ازمایشات بیماریابی در افراد درجه یک خانواده بیماران

Tertiary Prevention

- ۱- انجام اقدامات تشخیصی بموقع و بر اساس آخرین راهنماهای بالینی
- ۲- دادن اطلاعات لازم به بیمار جهت اطلاع از بیماری و شرکت فعال در انجام اقدامات تشخیصی و درمانی
- ۳-پیگیری مستمر بیماران و انجام آزمایشات و مراقبت های دوره ای

Quaternary Prevention

- ۱- مونیتورینگ دقیق و درمان بموقع جهت جلوگیری از عوارض احتمالی
- ۲- عدم انجام اقدامات پاراکلینیکی و دارویی که تاثیر خاصی بر پیش آگهی و عوارض بیماری ندارد