



# Primary Care Management of **Celiac Disease**

Alliance for Best Practice  
in Health Education

# Objectives

Following this program, participants will –

1. List the clinical situations where celiac disease should be suspected
2. Distinguish between celiac disease and other kinds of gluten intolerance
3. Test and refer appropriate patients for further evaluation
4. Give the principles of diet therapy
5. Monitor patients with celiac disease over time with appropriate investigations

# Faculty/Presenter Disclosure

- **Faculty:**
- **Relationships with commercial interests:**

# Disclosure of Commercial Support

- This program was developed by the Alliance for Best Practice in Health Education – a not-for-profit organization made up of Family Physicians with a passion for creating meaningful, practical and evidence based education for Primary Care. Technical support for the development of the slides was provided by MedPlan Communications.
- Potential for conflict(s) of interest:
  - There are no third parties or ‘for profit’ organizations which will directly benefit from the messages in this program.

# Mitigating Potential Bias

Content is evidence based and guideline supported.

# Planning Committee

Was comprised of Family Physicians,  
Gastroenterologist and people diagnosed with  
celiac disease!

# Pre course needs assessment

1. What is the prevalence of celiac disease?
2. The diagnosis of celiac disease requires a small bowel biopsy?
3. If a patient has no GI symptoms it is unlikely they will have celiac disease?
4. The diagnosis of celiac disease implies lifelong avoidance consuming gluten?
5. There is an association between celiac disease and unfavorable reproductive outcomes?

# Case

- Cindi is a 49 year old patient in your practice who presents for a routine physical. Her past medical history is significant for the following:
  - Eczema since childhood
  - Depression currently in remission
  - Irritable bowel syndrome diagnosed after second pregnancy
  - Infertility requiring clomiphene induction (G4P2SA1)
  - Iron deficient anemia secondary to menorrhagia



- Current Meds
  - FeSO4 300 mg bid
  - Fiber supplement for IBS
  - Amitriptyline for depression and IBS
- Family History
  - Mother with osteoporosis and chronic anemia – recently passed away in Denmark homeland
  - Sister with hypothyroid and Type 1 DM also with IBS

Cindi asks when you think she will go through menopause because she finds the iron is bothering her stomach and would like to 'get off the pills'. Optimistically, she reports that her periods have been getting lighter. Cindi also asks if think she might be lactose or gluten intolerant? She has been modifying her diet and wonders if it has helped her IBS.

# Questions

What aspects of Cindi's case would make you consider a diagnosis of celiac disease?

- a) Age of presentation
- b) Gender
- c) GI symptoms
- d) Iron deficient anemia
- e) Eczema
- f) Depression
- g) Family history
- h) Infertility

# Questions

What aspects of Cindi's case would make you consider a diagnosis of celiac disease?

- a) Age of presentation (X)
- b) Gender (X)
- c) GI symptoms ✓
- d) Iron deficient anemia ✓
- e) Eczema (X)
- f) Depression (X)
- g) Family history ✓
- h) Infertility ✓

# Definition – celiac disease

“Celiac disease can be defined as a small bowel disorder characterized by mucosal inflammation, villous atrophy, and crypt hyperplasia, which occur upon exposure to dietary gluten and which demonstrate improvement after withdrawal of gluten from the diet.”

# Demographics + Prevalence

- Most common in whites of northern European ancestry
- Increased incidence with age
- Reported prevalence is between 1:70 – 1:300
- Rate of diagnosed to undiagnosed may be as high as 1:7

# Other 'sub types' of gluten sensitivity

- Wheat allergy
- Non-celiac gluten sensitivity (NGCS)

# Conditions associated with celiac

1. Dermatitis Herpetiformis,
2. Down syndrome
3. Selective IgA deficiency
4. Family history of celiac disease
5. Other conditions that have autoimmune features such as type 1 diabetes mellitus, thyroid disease, and autoimmune liver disease.



# When to consider testing for celiac in primary care?

- Unexplained GI symptoms
- Unexplained weight loss
- Iron deficiency, B12 deficiency
- Unexplained infertility + Recurrent fetal loss
- Recurrent migraines
- Osteoporosis with associated celiac signs/symptoms
- Aphthous stomatitis
- Idiopathic peripheral neuropathy

# Celiac Disease and unfavorable reproductive outcomes

- Menstrual and reproductive issues — Women with untreated celiac disease may have later menarche, earlier menopause, secondary amenorrhea, recurrent miscarriage, infertility, preterm delivery, and low birth weight

# Celiac disease and reproductive health

Reproductive outcome	Percent positive celiac serology
Recurrent spontaneous abortion	6.7
Stillbirth	5.7
Infertility	5.6
IUGR	9.3
Control	1.3

**At this point in the case, what investigations would you order for Cindi?**

**Open forum  
questions**



# Testing for celiac in primary care

- Test only patients with clinical profile consistent with celiac (mass screening not recommended)
- Patients must be on gluten containing diet
- antiTTG is test of choice
- Consider ferritin, Vit D, B12, TSH
- Tests NOT to order – genetic screen, FIT testing, Barium Enema or UGI imaging

# IgA Deficiency + Celiac Disease

- IgA deficiency common (1:100 to 1:1000)
- Recent Canadian Study - 1:546
- IgA deficient subjects may have false negative IgA
- BUT celiac disease more common in patients with IgA deficiency (6.7 % versus 0.19% of controls)

# Cindy continued

- You review Cindi's blood work and note the following:
  - She continues to be iron deficient with a hemoglobin of 110, despite compliance to iron supplementation
  - You order anti TTG (which is positive)
  - Her TSH, B12 are normal; her Vitamin D levels are low (although she is not taking supplements)
  - You bring Cindi back to review these results with her

# What would you do now?

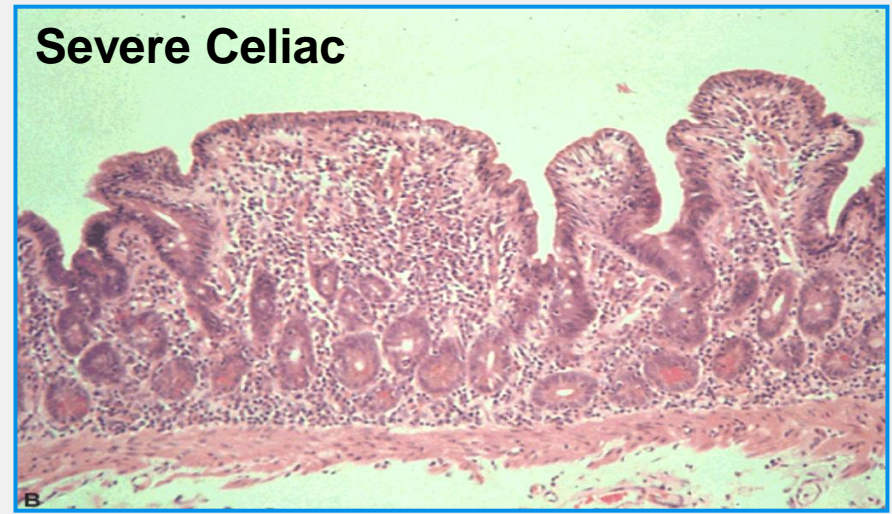
- a) Tell Cindi she has celiac disease, initiate a gluten free diet and assess clinical response?
- b) Instruct Cindi to stop gluten and refer for a small bowel biopsy?
- c) Advise Cindi to continue her current diet and refer for a small bowel biopsy?
- d) Suggest that Cindi eliminates gluten from her diet and repeat the serology test in one month?
- e) Confirm suspected diagnosis of celiac by ordering HLA haplotype screening



# What would you do now?

- a) Tell Cindi she has celiac disease, initiate a gluten free diet and assess clinical response?
- b) Instruct Cindi to stop gluten and refer for a small bowel biopsy?
- c) Advise Cindi to continue her current diet and refer for a small bowel biopsy? ✓
- d) Suggest that Cindi eliminates gluten from her diet and repeat the serology test in one month?
- e) Confirm suspected diagnosis of celiac by ordering HLA haplotype screening

# Pathophysiology slide – what is celiac



Marsh modified (Oberhuber)	Histologic criterion		
	Increased intraepithelial lymphocytes <sup>a</sup>	Crypt hyperplasia	Villous atrophy
Type 0	No	No	No
Type 1	Yes	No	No
Type 2	Yes	Yes	No
Type 3a	Yes	Yes	Yes (partial)
Type 3b	Yes	Yes	Yes (subtotal)
Type 3c	Yes	Yes	Yes (total)

<sup>a</sup>>40 intraepithelial lymphocytes per 100 enterocytes for Marsh modified modified

# Heritability and Genetics

**“one of the most common inherited disorders”**

- CD is present in;
  - Up to 20% siblings
  - 10 % of other 1<sup>st</sup> degree relatives.
- 99% of patient with celiac disease will have HLA DQ2 and/or HLA DQ8 haplotypes (versus 40% of general population)
- Very very rare to have celiac disease and HLA-DQ2/8 -ve

# Diagnosis

- Current standard of practice in Canada: need a small bowel biopsy to confirm diagnosis
- Must be on gluten (>3 g/day) for at least 2 weeks prior to biopsy to ensure true positive (white bread = 1.5 g/slice, whole wheat = 2.5-5g/slice)

# No Biopsy Approach in Peds

- **ESPGHAN** (*European Society for Paediatric Gastroenterology, Hepatology, and Nutrition*) **came up with a no biopsy approach in pediatrics.**  
**This requires all of the following;**
  - 1. signs and symptoms of celiac disease**
  - 2. TTG >10x upper limit of normal**
  - 3. + EMA**
  - 4. presence of at risk alleles HLA-DQ2 or 8**
- Asymptomatic; need biopsy
- +TTG but <10x; need biopsy
- +TTG >10x but -ve EMA; need biopsy
- -ve HLA-DQ2 or DQ8; need biopsy (but very very rare to have celiac disease if these are negative.... remember HLA DQ2 is common in Caucasians and thus all you can say is genetically they have the make up that goes with celiac disease).

The no biopsy approach is new and has not been studied in adults and not all organizations have adopted this approach in peds.

# Cindy Continued

- Cindi temporarily goes off gluten until seen by GI.
- She reluctantly resumes consuming 2 slices of white bread per day 2 weeks prior to the scheduled small bowel biopsy\*
- The biopsy demonstrates flattening of villi consistent with celiac disease.

\* This represents about 3g/day of gluten

# What do you tell patients who are diagnosed with celiac disease?

Open forum  
questions



# Which of the following would you tell Cindy?

1. Her children should be screened for celiac disease?
2. She should consider lifelong elimination of gluten from her diet?
3. She should consult a dietician and the Celiac Association of Canada?
4. She needs regular serology to check for exposure to 'hidden gluten'?



# Which of the following would you tell Cindy?

1. Her children should be screened for celiac disease? (Y)
2. She should consider lifelong elimination of gluten from her diet? (Y)
3. She should consult a dietician and the Celiac Association of Canada? (Y)
4. She needs regular serology to check for exposure to 'hidden gluten'? (N)

# Which of the following are gluten containing foods?

Food	Yes	No
Food containing rye or barley		
Rice		
Dairy products		
Quinoa		
Eggs		
Corn Flakes		
Soya Sauce		
Beer		
Tapioca and Buckwheat Flour		

# Which of the following are gluten containing foods?

Food	Yes	No
Food containing rye or barley	X	
Rice		X
Dairy products		X
Quinoa		X
Eggs		X
Corn Flakes	X	
Soya Sauce	X	
Beer	X	
Tapioca and Buckwheat Flour		X

# Follow up of patients with confirmed celiac disease

- 70% show clinical response within 2 weeks of initiating gluten free diet
- Repeat celiac serology 6 months
- Repeat biopsy not required unless symptoms and/or biochemical abnormalities persist
- Gluten re-challenge not recommended
- Yearly assessment of symptoms, growth, labs and compliance to diet

# Resources

<http://www.celiac.ca>

# Non Celiac Gluten Sensitivity

- Patients with non-celiac gluten sensitivity (NCGS) do not have celiac disease by serology or biopsy but their symptoms improve when they are placed on gluten-free diets

**What do you tell patients with who have negative celiac testing but respond to a gluten free diet?**

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questions**



# NCGS

- No Effects of Gluten in Patients With Self-Reported Non-Celiac Gluten Sensitivity After Dietary Reduction of Fermentable, Poorly Absorbed, Short-Chain Carbohydrates

Gastroenterology [Volume 145, Issue 2, Pages 320–328.e3, August 2013](#)



# Low FODMAP diet

- May be effective for patients with NCGS

# Foods containing FODMAPs

- **Fruit**
  - Apples
  - Apricots
  - Cherries
  - Pears
  - Watermelon
  - Dried fruit
- **Vegetables**
  - Asparagus
  - Broccoli
  - Cabbage
  - Eggplant
  - Garlic
  - Mushrooms
  - Onions
- **Cereals/grains**
  - Wheat, rye in large quantities
  - Pasta
  - Bread
  - Cookies
- **Dairy**
  - Cow's milk
  - Custard
  - Ice cream
  - Yogurt
  - Soft cheeses
- **Sweeteners**
  - Sorbitol
  - Mannitol
  - Isomalt
  - Fructose
  - Corn syrup
  - Honey
- **Beans/legumes**
  - Chickpeas
  - Kidney beans
  - Lentils
  - Soybeans



## Foods suitable for a low FODMAP diet

- **Fruit**
  - Bananas
  - Blueberries
  - Grapefruit
  - Lemons
  - Raspberries
- **Vegetables**
  - Carrots
  - Celery
  - Green beans
  - Potatoes
  - Pumpkin
  - Zucchini
- **Cereals/grains**
  - Gluten-free bread or cereal
  - Rice
  - Oats
  - Polenta
  - Tapioca
- **Dairy**
  - Lactose-free milk and yogurt
  - Hard cheeses
- **Other**
  - Tofu
  - Sugar
  - Maple syrup
  - Molasses



# Key Messages

1. Celiac disease differs from NCGS, is somewhat common and under recognized in Primary Care
2. Testing for celiac disease is recommended with many common clinical presentations
3. Celiac Disease requires small bowel biopsy for confirmation of diagnosis
4. Lifelong avoidance of dietary gluten is the mainstay of treatment

# Post course needs assessment

1. What is the prevalence of celiac disease?
2. The diagnosis of celiac disease requires a small bowel biopsy?
3. If a patient has no GI symptoms it is unlikely they will have celiac disease?
4. The diagnosis of celiac disease implies lifelong avoidance of consuming gluten?
5. There is an association between celiac disease and unfavorable reproductive outcomes?

# Post course needs assessment

1. What is the prevalence of celiac disease? *Approx 1%*
2. The diagnosis of celiac disease requires a small bowel biopsy? *Yes*
3. If a patient has no GI symptoms it is unlikely they will have celiac disease? *No*
4. The diagnosis of celiac disease implies lifelong avoidance consuming gluten? *Yes*
5. There is an association between celiac disease and unfavorable reproductive outcomes? *Yes*