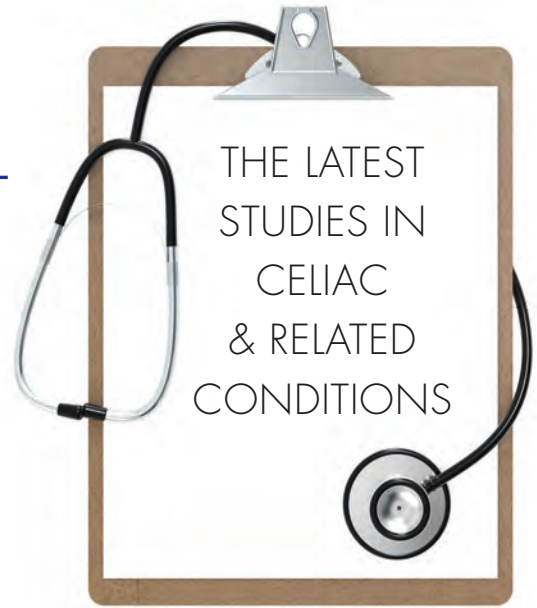


Research Roundup



In this article, I focus on a very important topic of nutritional deficiencies in patients with celiac disease.

With celiac disease, nutrient malabsorption is very common, leading to varying deficiencies. The severity of deficiencies can vary among those with celiac, depending upon the duration of the disease, the extension and location of the lesions, and the degree of malabsorption.

The reversal of nutritional deficiencies after introduction of a gluten-free diet is a lengthy process and certain individuals may never fully get back to normal. Recovery is directly related to the restoration of the intestinal mucosa integrity. Strict adherence to the gluten-free diet leads to an improvement in six to 12 months.

Nutritional deficiencies can be divided into macro- and micronutrient deficiencies.

Macronutrient deficiencies incorporate deficiencies of fat, carbohydrates, protein, and fiber absorption. While micronutrient deficiencies incorporate deficiencies of vitamin and mineral absorption.

This article will focus on micronutrient deficiencies in those with celiac.

Common Vitamin and Mineral Deficiencies in Celiac Patients

Vitamins: There are several studies that show high prevalence of vitamin D and E deficiencies followed by low intake of B group vitamins like folate (B9), thiamine (B1), riboflavin (B2), and pyridoxine (B6).

Vitamin D deficiency may be of special importance since a higher prevalence of osteoporosis has been seen in people with celiac disease and this vitamin is considered of vital importance in bone metabolism.

Low levels of vitamin B12 and folate were described in large portions of celiac patients, even among those who have been compliant with a gluten-free diet for a long time.

Minerals: The most common mineral deficiencies described in celiac patients are those of iron, calcium, and magnesium; followed by iodine, potassium, and zinc. Special attention should be paid to iron deficiency. This is a major problem in non-treated active celiac disease and in those with incompletely regenerated mucosa who have difficulties in achieving normal iron values.

Reference:

“Nutritional Imbalances in Adult Celiac Patients Following a Gluten-Free Diet.”

Nutrients. Aug 21, 2021;13(8):2877.

Cardo, A., Churrua, I., et al.



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Anemia Outcomes in Celiac Patients after Introduction of a Gluten-Free Diet

Iron deficiency anemia is the most recognized type of anemia in patients with celiac disease.

Celiac disease is a well-recognized cause of iron deficiency anemia, even in asymptomatic patients.

Iron deficiency refers to reduced iron stores and can progress to iron deficiency anemia, which is a more serious condition in which low iron store levels are associated with anemia.

In adults, iron deficiency anemia results in fatigue and diminished muscular oxygenation, which may affect muscle strength and quality and, subsequently, physical performance. In both children and adults, iron deficiency leads to increased vulnerability to infections, especially of the respiratory tract.

Recovery from anemia usually occurs within one year after the start of a strict gluten-free diet, in most cases even without additional iron supplementation. This is due to the improvement of intestinal atrophy and reduction in inflammation allowing for greater absorption of iron.

The indications for choosing iron supplementation are determined by the impact of iron deficiency on symptoms, health-related quality of life, reduced work productivity, and the deleterious effects of anemia on any existing conditions, especially in older patients.

Because there is a high percentage of celiac patients with iron deficiency anemia, this also reinforces the need for screening celiac disease in patients who present with iron deficiency anemia or iron deficiency.

Reference:

“Iron Deficiency in Celiac Disease: Prevalence, Health Impact, and Clinical Management.” *Nutrients*. Sept 28, 2021;13(10):3437. Montoro-Huguet, MA., Santolaria-Piedrafita, S., et al.

Recovery from anemia usually occurs within one year after the start of a strict gluten-free diet, in most cases even without additional iron supplementation. This is due to the improvement of intestinal atrophy and reduction in inflammation allowing for greater absorption of iron.

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Dietary Guidelines for a Balanced Diet


Professional nutritional counseling by a nutrition adviser is highly desirable from the beginning of any gluten-free diet. This helps to promote a better understanding in relation to pathology and the gluten-free diet. Dietary counsel could also help to improve adherence to the diet, achieving a healthy nutritional status.

This study evaluated the impact of standard dietary education in adult celiac patients on a gluten-free diet, by measuring the nutritional composition of the diet before and after one year of education. Results showed that although adherence to the diet improved, nutritional profile of the diet did not, revealing the necessity to increase the role of dietitians in the treatment of celiac disease.

Some highlighted recommended guidelines from the study include:

- The most notable guideline would be to improve the diet by promoting a greater consumption of plant-based foods, such as fruits, vegetables, legumes, and nuts.
- The consumption of pseudo-cereals, such as quinoa and amaranth, is also an excellent option, since they are considered good sources of some micronutrients such as folate, riboflavin, vitamin C, and vitamin E.
- Naturally gluten-free foods rich in micronutrients are preferred before fortified foods or supplements. However, it could be interesting to combine the two options, with the aim of achieving a faster recovery from some vitamin and mineral deficiencies. Once suitable levels have been restored, it could be enough to only follow a gluten-free diet without the supplementation.
- The deficiencies in iron, calcium, and vitamin D are noteworthy, in relation to their involvement in pathologies such as anemia or osteoporosis, which are more prevalent among the celiac population. Thus, it is recommended to take care of their intake through their food sources, such as legumes, cereals, and dairy products (when tolerated).
- Similarly, to overcome deficiencies observed in B group vitamins, dietary treatment is especially important. B vitamins are involved, at least in part, in the higher prevalence of cardiovascular diseases in celiac patients. Folate is usually given more importance; its consumption should be promoted through vegetables, pulses (chickpeas, lentils, peas etc.) and pseudo-cereals (amaranth, quinoa). Moreover, this micronutrient is one of those proposed for food fortification and liable to be obtained through supplementation in high-risk cases.
- It is common to find nutrient deficiencies in the gluten-free diet, but this does not mean that it has to be normalized. Although adherence to the diet may seem enough, patients with celiac disease should be continuously supervised to prevent deficiencies, and to ensure they continue to have sufficient adherence to the diet.

Reference:

“Expanded Role of a Dietitian in Monitoring a Gluten-Free Diet in Patients with Celiac Disease: Implications for Clinical Practice.” *Nutrients*. May 29, 2021;13(6):1859. Gładys, K., Dardzińska, J., et al. 

As always, consult a medical professional before beginning any new protocol.



ABOUT THE AUTHOR:

Dr. Alexander Shikhman, founder of the Institute for Specialized Medicine, is board certified in internal medicine and rheumatology. Dr. Shikhman also launched *Gluten-Free Remedies™*, a line of all natural supplements which help treat the complications that can arise from celiac disease. Find Dr. Shikhman at ifsmcd.com and glutenfreeremedies.com.



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