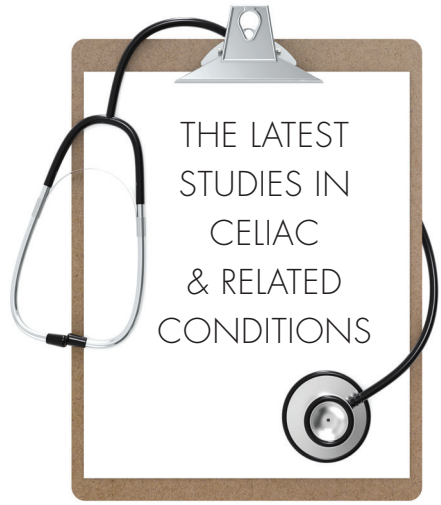
Research Roundup

Gluten and the Connection to Rheumatoid Arthritis



Rheumatoid arthritis (RA) is a chronic progressive inflammatory disease manifesting in inflammation and gradual structural destruction of peripheral joints predominantly small hand joints, wrists, small foot joints, shoulders, ankles, and feet, and to a lesser extent joints of the spine. The diagnosis of RA is typically based on a patient's clinical presentation, laboratory findings supportive of diagnosis, and radiographic data (ultrasound, x-rays, MRIs) demonstrating a specific type of joint inflammation and bone deterioration.

Typically, the traditional model of RA development and progression requires three key components:

- **Genetic component:** typically, a cluster of genes which make the individual predisposed to RA.
- **Trigger:** in cases of RA this is most likely an infectious component or a combination of several infectious components
- **Modifying factors:** diet, heavy metals, environmental pollutants, UV light exposure

When these components are all present, RA begins to flare. The natural history of RA includes preclinical as well as erosive disease phases.

If blood work during the preclinical phase shows high concentrations of particular autoantibodies, disease onset can be predicted years before overt clinical RA.

The hallmark RA-associated autoantibodies include rheumatoid factor (RF), antibodies to citrullinated proteins (ACPA), and anti-carbamylated peptide antibodies (anti-CarP).

Evidence that gluten can be a part of the disease process in RA

Growing evidence suggests that the imbalance of gut mucosal microbiota is closely related to autoimmune processes and the composition of the microbiota is significantly disturbed in patients with both early and long-standing RA. This disturbance leads to increased intestinal permeability (leaky gut), which is exacerbated by gluten.

Because intestinal permeability correlates with disease severity; when we treat abnormal intestinal permeability, we ameliorate the symptoms of RA.

Studies on how to modulate gut permeability are still at very early stages. The impact of different dietary components on gut permeability is poorly studied.

Common dietary strategies that theoretically improve the gut barrier function include:

- The avoidance of energy-dense Western diets, sugars, and fat
- The use of prebiotic and probiotic-rich diets
- Diets that increase short-chain fatty acid production

Many new strategies to improve intestinal barrier strength may include:

- Fiber-rich diets with high intake of plant-based foods
- Polyphenol sources, such as olive oil
- Adequate intake of n-3 polyunsaturated fats (PUFA), commonly achieved through a higher intake of oily fish or fish oil, to improve the n-3/n-6 PUFA ratio

Should you be gluten-free with RA?

Traditionally, a gluten-free diet is not recommended for RA patients with no evidence of gluten-sensitivity or celiac disease. However, a gluten-free diet can result in various degrees of pain and inflammation improvement. In our clinic, when determining if a patient should be gluten-free we take a few key factors into consideration—test results and physical manifestations of gluten intolerance or celiac disease.

Testing

In our practice, patients with RA are universally tested for the presence of IgA and IgG antibodies to deamidated gliadin (protein in wheat), IgA and IgG antibodies to tissue transglutaminase, and IgA endomysial antibodies during the initial consultation.

In addition, RA patients are also tested for the presence of celiac-associated genes, such as HLA DQ2 and HLA DQ8. As an option, we offer stool testing for IgA anti-gliadin antibodies and zonulin, a protein that increases gut permeability.

If all the above-mentioned tests are negative, a gluten-free diet is not recommended as a part of therapy. However, **if even one test is positive**, a gluten-free diet is strongly suggested.

Physical Factors

Clinically, the presence of active keratosis pilaris, a condition that causes rough patches and small, acne-like bumps on the skin, predominantly over the shoulders, is a strong indicator of ongoing problems with gluten.

In addition, RA patients frequently suffer from another autoimmune disease, Sjogren's syndrome, which manifests in the form of eye and mouth dryness. There are several clinical and serological subtypes of Sjogren's syndrome. Based on our clinical observation, patients with positive anti-SSA/Ro antibodies often benefit from a gluten-free diet.

Finally, as celiac disease has a known connection to osteoporosis, we strongly suggest a gluten-free diet for RA patients who have associated severe osteoporosis.

Other Considerations

In general, due to antigen cross-reactivity, patients who have gluten-intolerance or celiac disease are advised to avoid dairy products from cow's milk, egg whites, and soy.

We suggest introducing supplements to improve intestinal permeability including probiotics and prebiotics as well as short-chain fatty acids with a butyric and propionic acid combination.

We recommend trying the gluten-free diet for at least three months with a minimal re-introduction of gluten to assess its impact on the clinical and laboratory markers of inflammation.

Another issue is drug selection in RA patients with gluten-intolerance and celiac disease. First, any prescription drug should be gluten free—best practice is to have your healthcare provider specify this in the prescription. Second, certain drugs are not well tolerated by patients with gluten-intolerance or celiac disease including oral or injectable methotrexate and oral bisphosphonates.

While evidence has shown that people with RA can benefit from a gluten-free diet, monitoring the response to gluten elimination should be performed under strict supervision of a rheumatologist or other qualified health care practitioner.

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

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