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Pilot Testing a Novel Treatment for Inflammatory Bowel Disease

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Pilot Testing a Novel Treatment for Inflammatory Bowel Disease

Barbara Olendzki, RD, MPH; Gioia Persuitte, MPA; Taryn Silverstein, DO; Katherine Baldwin, MD; David Cave, MD, PhD; John Zawacki, MD; Kanishka Bhattacharya, MD, Yunsheng Ma, MD, PhD

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BACKGROUND and OBJECTIVE

Inflammatory Bowel Disease (IBD), which includes Crohn's disease (CD) and ulcerative colitis (UC), are chronic non-specific inflammatory conditions. Standard IBD treatment typically employs a combination of anti-inflammatory and immune suppressive medications; however, the pharmacological approach is not by itself curative. The Anti-Inflammatory Diet for IBD (IBD-AID), which is derived and augmented from The Specific Carbohydrate Diet (SCD), is a nutritional regimen that restricts the intake of complex carbohydrates such as refined sugar, gluten-based grains, and certain starches from the diet. These carbohydrates are thought to provide a substrate for pro-inflammatory bacteria. The second component of the diet involves the ingestion of pre- and probiotics to help restore an anti-inflammatory environment.

Study Objective

To assess the efficacy and feasibility of the Anti-Inflammatory Diet (IBD-AID) intervention for the treatment of IBD.

METHODS

**Intervention:** Patients were recruited from the UMMHC gastroenterology clinic upon referral from their gastroenterologist. They received individual instruction of the diet and its restrictions through 5 individual nutrition sessions over approximately a 6-10 month period. Support materials were provided. Cooking classes were also available to the patients.

**Outcome Survey Measures:**

**Ulcerative Colitis:** Modified Truelove and Witts Severity Index (MTLW)
- Scoring system of 0-21 points, clinical response is defined as a decrease from baseline score of 50% or greater, or less than 10 on 2 consecutive days
- Number of stools/day
- Nocturnal stools
- Visible blood in stools
- Fecal incontinence
- Abdominal pain/cramping
- General well-being
- Abdominal tenderness
- Use of anti-diarrheal drugs

**Crohn’s Disease:** Harvey Bradshaw Index (HBI)
- General well-being (0 = very well, 1 = slightly below average, 2 = poor, 3 = very poor, 4 = terrible)
- Abdominal pain (0 = none, 1 = mild, 2 = moderate, 3 = severe) number of liquid stools per day
- Abdominal mass (0 = none, 1 = dubious, 2 = definite, 3 = tender)
- Complications, with one point for each.

**RESULTS**

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>Disease</th>
<th>Disease duration</th>
<th>Extent disease</th>
<th>Dx Based on</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>F</td>
<td>CD</td>
<td>8 years</td>
<td>Rectum to transverse colon</td>
<td>Colonscopy</td>
</tr>
<tr>
<td>47</td>
<td>F</td>
<td>CD</td>
<td>4 years</td>
<td>Distal ileum</td>
<td>Colonscopy &amp; MRI</td>
</tr>
<tr>
<td>39</td>
<td>F</td>
<td>CD</td>
<td>9 years</td>
<td>Distal ileum</td>
<td>Small bowel follow through</td>
</tr>
<tr>
<td>24</td>
<td>F</td>
<td>CD</td>
<td>14 years</td>
<td>Small bowel</td>
<td>Capsule endoscopy, sigmoidoscopy</td>
</tr>
<tr>
<td>39</td>
<td>M</td>
<td>CD</td>
<td>7 years</td>
<td>Ileocecal, perianal area</td>
<td>Colonscopy and capsule endoscopy</td>
</tr>
<tr>
<td>69</td>
<td>M</td>
<td>UC</td>
<td>24 years</td>
<td>Descending colon &amp; rectum</td>
<td>Colonscopy</td>
</tr>
<tr>
<td>19</td>
<td>F</td>
<td>UC</td>
<td>5 years</td>
<td>Pan-colonic</td>
<td>Colonscopy</td>
</tr>
<tr>
<td>40</td>
<td>M</td>
<td>CD</td>
<td>1 year</td>
<td>Colonic</td>
<td>Colonscopy &amp; MRI</td>
</tr>
<tr>
<td>41</td>
<td>M</td>
<td>CD</td>
<td>8 years</td>
<td>Distal ileum</td>
<td>CT scan &amp; colonscopy</td>
</tr>
<tr>
<td>37</td>
<td>F</td>
<td>CD</td>
<td>4 years</td>
<td>Ileocecal</td>
<td>CT scan &amp; pathology from surgery</td>
</tr>
<tr>
<td>70</td>
<td>F</td>
<td>UC</td>
<td>19 years</td>
<td>Pan-colonic</td>
<td>Colonscopy &amp; histology</td>
</tr>
</tbody>
</table>

**Therapy Legend:**
- S=steroid dependent, ASA= 5-ASA derivatives, IM=immunomodulator, aTNF=Anti-tumor necrosis factor antibody

**Age**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Disease</th>
<th>Prior Tx Include</th>
<th>Recent Tx</th>
<th>HBI/MTLW before</th>
<th>HBI/MTLW after</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>F</td>
<td>ASA, IM, aTNF</td>
<td>ASA + IBD-AID</td>
<td>HBI 12</td>
<td>3</td>
</tr>
<tr>
<td>47</td>
<td>F</td>
<td>S, IM, aTNF</td>
<td>S(taper) + IBD-AID</td>
<td>HBI 9</td>
<td>2</td>
</tr>
<tr>
<td>39</td>
<td>F</td>
<td>S,IM</td>
<td>IM + IBD-AID</td>
<td>HBI 12</td>
<td>2</td>
</tr>
<tr>
<td>24</td>
<td>F</td>
<td>S,ASA, IM, aTNF</td>
<td>S(taper), IM + IBD-AID</td>
<td>HBI 15</td>
<td>0</td>
</tr>
<tr>
<td>39</td>
<td>M</td>
<td>IM, aTNF</td>
<td>IBD+AID</td>
<td>HBI 20</td>
<td>0</td>
</tr>
<tr>
<td>69</td>
<td>M</td>
<td>ASA, IM, aTNF</td>
<td>ASA, IM + IBD-AID</td>
<td>MTLW n/d</td>
<td>2; “improved”</td>
</tr>
<tr>
<td>19</td>
<td>F</td>
<td>S,ASA, IM, aTNF</td>
<td>ASA, IBD-AID</td>
<td>MTLW 6</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>M</td>
<td>S,ASA, IM</td>
<td>IM + IBD-AID</td>
<td>HBI 15</td>
<td>2</td>
</tr>
<tr>
<td>41</td>
<td>M</td>
<td>S,ASA, IM</td>
<td>IM + IBD-AID</td>
<td>HBI 15</td>
<td>2</td>
</tr>
<tr>
<td>37</td>
<td>F</td>
<td>S,ASA, aTNF; elemental diet</td>
<td>aTNF + IBD-AID</td>
<td>HBI 8</td>
<td>0</td>
</tr>
<tr>
<td>70</td>
<td>F</td>
<td>ASA, IM, aTNF</td>
<td>aTNF + IBD-AID</td>
<td>MTLW 8</td>
<td>0</td>
</tr>
</tbody>
</table>

**Probiotic Foods**
- Aged cheeses
- Dark chocolate
- Fermented cabbage
- Kefir
- Miso soup
- Microalgae
- Pickles
- Yogurt (active)

**Prebiotic Foods**
- Artichokes
- Asparagus
- Bananas
- Chicory root
- Garlic
- Honey
- Leeks
- Oats
- Onions

**Conclusion**

This case series indicates the potential for the IBD-AID to be used as an adjunctive or alternative therapy for the treatment of IBD. Notably, 9 out of 11 patients were able to be managed without anti-TNF therapy, and 100% of the patients had their symptoms reduced. To make clear recommendations for its use in clinical practice, randomized trials are needed alongside strategies to improve acceptability and compliance with the IBD-AID.