Milk protein hypersensitivity

Milk protein hypersensitivity or allergy is a diagnosis often used in conjunction with breast milk, cow’s milk or soy milk to describe groups of symptoms seen in pediatric patients, including infants. The protein in milk triggers such hypersensitivity. It is not IgE mediated, and lack of specific suggestive symptoms, along with absence of sensitive diagnostic testing, adds complexity to such diagnosis. The intensity of milk protein hypersensitivity or allergy may vary from mild to severe.

Cow’s milk-sensitive enteropathy was the first recognized food allergic enteropathy and remains the most common one. Associated clinical features may include colic, gastroesophageal reflux, vomiting, failure to thrive, rectal bleeding, or extragastrointestinal manifestations including eczema. Up to 40 % of infants with classic cow’s milk-sensitive enteropathy are also sensitized to soy, often after an initial period when it is tolerated.

Food protein-induced enterocolitis syndrome is a severe and sometimes life-threatening form of mucosal food hypersensitivity. Although usually triggered by cow’s milk or soy ingestion, food protein-induced enterocolitis syndrome may be induced by a verity of foods, including rice, oat, barley, vegetables and poultry. Milder symptoms can be seen in breast-fed infants, triggered by milk protein in the mother’s diet. Most cases show negative skin-prick tests. The infant usually presents with severe vomiting and diarrhea, requiring emergency admission to the hospital. Some demonstrate melena and passage of mucus per rectum, and may even undergo a laparotomy if the diagnosis is not recognized.

Food-induced proctocolitis usually occurs in the first few weeks or months of life and is most often secondary to cow’s milk or soy protein hypersensitivity. Infants usually have occult or gross blood in their stools with or without mucousy stool or diarrhea. Aside from occasional apparent pain on defecation, and eczema in a few cases, infants with food-induced proctocolitis generally appear healthy and have normal weight gain. Proctocolitis infants with food-induced proctocolitis generally appear healthy and have normal weight gain. Proctocolitis is the principal protein found in cow’s milk and makes up the curd that forms when milk is left to sour. Milk proteins are what cause the allergic reaction in some people. There is often some confusion between milk allergy and lactose intolerance. A milk allergy is the immune system’s reaction to the protein found in milk and milk products. Symptoms usually appear in early infancy and can affect the digestive system as well as other systems in the body. Lactose intolerance is caused by the body’s inability to break down lactose (milk sugar). Lactose intolerance is not life threatening. It is very rare in the first years of life and only affects digestion. By drinking milk or eating dairy products bloating, gas or loose bowel movements can occur. Symptoms of a milk allergy may include itchy red rash, hives, eczema, allergic “shiners” (black eyes), swelling of the face, mouth, lips, or throat, nausea, vomiting, itchy eyes, nasal congestion, wheezing, diarrhea, gas, bloating, stomach cramps, cutting, watery eyes, shortness of breath, or coughing.

For infants with a milk allergy, the doctor may recommend the breastfeeding mother try a dairy free diet to see if the infant’s symptoms improve. If this is unsuccessful, a soy-based formula may be used. Soy-based formulas contain proteins found in soybeans rather than those found in cow’s milk and may be recommended if the infant is found to have a reaction to cow’s milk-based formulas. The infant soy milk formulas are fortified with the needed vitamins, minerals and essential fatty acids in specified amounts. If cutting dairy out of the mother’s diet and/or switching to a soy formula does not help, the infant will usually be switched to a hypoallergenic formula. These formulas are less likely to trigger an allergic response. The two types of hypoallergenic formulas are:

- Hydrolyzed formulas in which the milk proteins have been broken down or “pre-digested”
- Amino acid-based infant formulas, which contain protein in its simplest form.

For a milk-allergic older child, beyond the formula stage (usually at one year old) eating and drinking real foods and liquids, and avoiding milk, can be a challenge. Rice, almond, coconut, or soy milk may be substituted instead of cow’s milk as long as the child is not allergic to the proteins that make up these other milks. The nutritive value of fortified commercial soy milk is almost equal to that of cow’s milk. Be aware that there are some milk preparations sold that are not fortified and, therefore, will not supply the nutrients (especially calcium) found in cow’s milk.

**Recommended Dietary Allowances (RDAs) for Calcium**

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Pregnant Lactating</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–6 mos</td>
<td>200 mg</td>
<td>150 mg</td>
<td>300 mg</td>
</tr>
<tr>
<td>7–12 mos</td>
<td>260 mg</td>
<td>200 mg</td>
<td>300 mg</td>
</tr>
<tr>
<td>1–3 yrs</td>
<td>700 mg</td>
<td>500 mg</td>
<td>1,000 mg</td>
</tr>
<tr>
<td>4–8 yrs</td>
<td>1,000 mg</td>
<td>700 mg</td>
<td>1,300 mg</td>
</tr>
<tr>
<td>0–13 yrs</td>
<td>1,300 mg</td>
<td>1,000 mg</td>
<td>1,600 mg</td>
</tr>
<tr>
<td>14–18 yrs</td>
<td>1,300 mg</td>
<td>1,000 mg</td>
<td>1,600 mg</td>
</tr>
</tbody>
</table>

**Additional Tips for a Cow’s Milk Free Diet**

- Do not give your child foods that contain the words “caseinate” or “casein” on the label.
- Do not give your child foods that contain the words “lactate,” “lactose,” “lacto-“ or “lacta-” on the label.
- Be aware that “nondairy” products are not necessarily milk-free. Always check ingredient labels carefully.
- Foods that may be made with milk or milk products include many baked products, such as cakes, cookies, doughnuts, breads, frozen desserts, creamed foods and soups.
- Avoid buying “deli” meats, because the slicers frequently are used to cut both meat and cheese products, therefore the meat could be contaminated.
- Use milk-free milks or creamers on cereal.
- Substitute tofu, a soy product, for cheese in pasta dishes.
- Milk is an important source of calcium, vitamin D, the B vitamins, and protein. Calcium supplements may be needed.
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East Tennessee Children’s Hospital
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Having an infant that is fussy at times is not unexpected. A baby becomes fussy when hungry, sleepy or needs a diaper change. Infants may develop an intolerance to milk protein in their diet and, as a result, manifest a verity of symptoms.

Milk protein hypersensitivity or allergy can be seen in conjunction with breast milk, cow’s milk or soy milk. The intensity of milk protein hypersensitivity may vary from mild to severe.

The vast majority of infants with milk hypersensitivity are expected to outgrow their intolerance; but a small percentage does not. The family of an infant with milk protein sensitivity needs support at different levels.

At GI for Kids, we have appropriate staffing to intervene and provide support as needed.

Youhanna S. Al-Tawil, MD
Medical Director

Celi-Act is sponsored by GI For Kids, PLLC, located at East Tennessee Children’s Hospital, and open to anyone with celiac disease or their family members.