

Cow's Milk Protein Intolerance

Cow's milk protein intolerance (CMPI) is defined as an abnormal reaction by the body's immune system to protein found in cow's milk. The immune system normally protects our bodies from harm caused by bacteria or viruses. In CMPI the immune system reacts unusually to the protein found in cow's milk. This reaction can cause injury in the stomach and intestines.

Risk Factors

Risk factors for developing CMPI include having a parent or sibling with atopic or allergic disease (like asthma, eczema, and seasonal allergies). Breastfeeding seems to protect infants from developing CMPI.

Types of Cow's Milk Protein Intolerance

Cow's milk protein intolerance can be divided into *IgE-mediated* (immediate reaction) and *non-IgE mediated* (delayed reaction) types. The two types have different symptoms associated with each.

IgE, or immunoglobulin E, is an antibody normally found in humans that causes the symptoms seen with allergies (hives, rashes, wheezing, runny nose). In *IgE-mediated* cow's milk protein allergy, symptoms usually start within 2 hours of drinking cow's milk. In *non-IgE-mediated* CMPI, symptoms happen later, from 48 hours to 1 week after drinking cow's milk.

Signs and Symptoms

Signs and symptoms of cow's milk protein intolerance are very diverse. The symptoms will usually develop within the first week of starting cow's milk in their diet. Most infants will show signs that involve the skin or the gastrointestinal (GI) system. GI symptoms can include vomiting, abdominal pain, blood in the stools, and diarrhea. Skin manifestations include hives and eczema. Babies can also present with wheezing, irritability, facial swelling, and poor growth due to poor absorption of nutrients.

When to see a doctor or Pediatric Gastroenterologist?

Red flags include increased tiredness or lethargy, fevers, severe vomiting or diarrhea, not tolerating any feedings, weight loss, and blood in the stools.

Diagnosis

History and physical examination are the most helpful investigations in diagnosing CMPI. Describing your child's signs and symptoms (what your child is experiencing) to the physician is very important in making the diagnosis of this disease. The timing of the symptoms in relation to

starting feeds with cow's milk protein is also key in diagnosis. Whether there is a family history of allergies, asthma, or eczema can be helpful for diagnosis.

CMPI also is diagnosed after seeing how your child responds to the elimination of cow's milk from the diet.

Tests

Checking for blood in the stool of infants suspected of having CMPI can be helpful in diagnosing this disorder. Blood tests and other invasive studies are not always helpful in diagnosing cow's milk protein intolerance. Your physician may recommend tests to exclude other problems.

Treatment

The treatment of CMPI includes eliminating cow's milk protein from the infant's diet. Elimination diets are usually started with extensively hydrolyzed formulas. These formulas are made up of broken down proteins and are able to be digested without an immune reaction. These formulas will work in 90% of patients with CMPI. In some patients, it is necessary to use amino-acid based formulas, which are formulas containing the individual building blocks of proteins.

In breastfed infants with CMPI, the mother must exclude all dairy and soy products from her diet if she continues to breastfeed. This may be difficult, and is helped by having a dietitian discuss hidden sources of dairy and soy with the mother prior to starting the elimination diet.

Giving infants goat's milk or sheep's milk will not improve CMPI. Soy milk also is not recommended. Many infants will have similar allergic reactions to the proteins in these milks or soy-based formula.

Prognosis

Fortunately, cow's milk protein allergy resolves in 90% of children by the age of 6 years. 50% of infants will have tolerance at age 1 year, and more than 75% will have resolution by 3 years of age.

Most infants that are started on cow's milk-free formulas or breastfed by a mother on a cow's milk-free diet will need to remain on the diet for about 6-12 months. At that point, the child can be challenged with cow's milk, and if they have no reactions, milk can be put back into the child's diet.