

Practical guide to dietary management of cow's milk allergy

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Prevalence

Cow's milk protein allergy is one of the most common food allergies in infants and young children, with a prevalence of 2%–7%. NICE guidelines were recently published to assist the management of food allergy in primary care; aiming to help healthcare professionals increase their expertise in its diagnosis. This article aims to complement the NICE guidelines, highlighting the practical issues in following a cow's milk protein free diet after diagnosis is made.

What is cow's milk protein allergy (CMPA)?

CMPA can be broadly divided into two categories: IgE mediated allergy and non-IgE allergy. The symptoms of an IgE mediated allergy tend to occur within minutes, (and certainly within 4 hours) of exposure to cows milk protein. These include:

- Gastrointestinal – vomiting, pain, diarrhoea.
- Cutaneous – urticaria, angioedema, rashes and flushing
- Respiratory – wheezing, coughing, shortness of breath, rhinorrhoea
- Anaphylaxis.

Symptoms of non-IgE mediated CMPA are usually delayed by several hours and include:

- Gastrointestinal – colitis, colic, constipation, oesophagitis
- Cutaneous – atopic eczema.

CMPA is a disease of early childhood. Most usually develops in the first year of life with resolution being common before the age of 5, although some children may continue to react beyond that age. Persistence into adulthood is unusual.

What do you do next? Check their age!

It is important to establish the child's age group—infants or older children – as this will delineate the specific dietary advice whichever category of CMPA allergy they suffer from.

Infants: breastfed infants.

In breastfed infants suspected of a cow's milk allergy it is worth trialing a 4–6 week period of maternal cow's milk exclusion, to establish if symptoms resolve. Maternal milk substitutes include calcium fortified oat/rice/coconut milk. Soya milk is not normally recommended by most authorities as first line

replacement in the mother's diet due to the possibility of concomitant soya allergy in infants with cow's milk allergy.

Infants: bottle fed infants.

The treatment and diagnosis in bottle fed infants is to replace a standard infant cows milk based formula for an extensively hydrolyzed formula (eHF). Only in those with anaphylaxis, failure of an eHF formula after 4–6 weeks, or possibly FPIES (food protein induced enteropathy syndrome) should an amino acid formula be used. An improvement in symptoms is often considered a positive diagnosis of a cow's milk allergy.

Choosing the most appropriate specialized infant formula

The choice of product depends on the:

- age
- level of sensitivity to cow's milk
- immune severity – e.g. anaphylaxis or not
- nutritional status of the infant.

Table 1 highlights the different formulae that are currently available.

Weaning

The WHO and the UK's Department of Health recommend commencing solids around 6 months old. The British Dietetic Association paediatric group suggests no earlier than 17 weeks, and no later than 6 months to be a better reflection of the evidence. Normally there is no reason to delay other allergenic foods past the recommended weaning age for most infants. In those who may have experienced a severe immediate response to an allergen, strictly avoiding this food antigen and only trialing a processed version (less allergic) of the allergen later (probably in hospital) is prudent.

When avoiding cows milk in an infant's diet it is often the energy dense products such as cheese, butter and yoghurt that are missed. As part of their education, parents should recognize that there are different names for cow's milk which may include any of the following: butter, casein, lactose, milk solids, whey, ghee, curd, lactoglobulin, evaporated or condensed milk, cream, yoghurt. Care must be taken to continue to read ingredient lists, as manufactures may change recipes, and if a product has been improved it is important to know what is the added ingredient that has improved the product.

Growth should be monitored to ensure the diet is adequate and suggestions for using the extensively hydrolyzed formula in cooking for fortification purposes should be given.

Weaning should be encouraged to introduce low allergenic foods first, try the cooked version of a food first, increase the amount given, and expand the diet as soon as possible.

Older children (18 months and over)

It is recommended that hydrolyzed formulae continue to be used until a child is able to tolerate a suitable alternative. Although some of these alternative milks may not always be nutritionally adequate for a few children who may need to continue on hydrolyzed formulae. The products in Table 2 outline some alternative substitute milks for children compared to standard cow's milk and formula.

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Different extensively hydrolyzed and amino acid-based formulae available in the UK for managing CMPA

Extensively hydrolyzed formula	Hypoallergenic properties	Usage: Diagnosis and management for CMPA both IgE or non-IgE
Aptamil Pepti 1 & 2 (Milupa)	Extensively hydrolyzed whey. Contains a higher % of peptides above 1.5 kD Contains prebiotics Contains 40% lactose so may be considered more palatable	Not recommended if secondary lactose intolerance suspected Pepti 2 suitable > 6 months
Pepti Junior (Cow and Gate)	Extensively hydrolyzed whey Clinically lactose free 40% Medium chain triglycerides as fat source	Suitable for primary and secondary lactose intolerance
Nutramigen 1 & 2 (Mead Johnson)	Extensively hydrolyzed casein (peptides are <1.5 kD) Clinically lactose free	Suitable for primary and secondary lactose intolerance Nutramigen 2 suitable > 6 months
Pregestimil (Mead Johnson)	Extensively hydrolyzed casein 54% medium chain triglycerides as fat source Clinically lactose free	Suitable for primary and secondary lactose intolerance
Alimentum (Abbott Nutrition)	Extensively hydrolyzed caesin (peptides are <1.5 KD)	Suitable for primary & secondary lactose intolerance
Althéra (VitaFlo)	Extensively hydrolyzed whey (peptides are <1.5 KD) Contain lactose	Not recommend if secondary lactose suspected
Elemental amino-acid based formula	Elemental formula	IgE • in anaphylaxis • multiple food allergies Non-IgE • infants suffering with food protein enteropathy syndrome with severe symptoms may also benefit from an amino acid formula (AAF) OR for both IgE and non-IgE Continued symptoms on extensively hydrolyzed formula or despite maternal avoidance of cow's milk
Nutramigen AA (Mead Johnson)		
Neocate LCP (SHS) — up to 1 year		
Neocate active/neocate advance (SHS) (1–10 years)		

Table 1

How strict do I need to be?

At diagnosis strict avoidance may be necessary. Historically clinicians have recommended a strict milk free diet for the first few years until resolution occurs. However, for some children it may not be necessary to completely exclude all cow's milk protein from their diet, especially in children with a non-IgE mediated

allergy. This ensures the child has a more varied diet and is a decision that health professionals can raise with the parents when discussing planning for a balanced diet.

In cases where the child's diet requires the strict elimination of all cows milk protein then educating the parents and children on how to avoid allergens in foods is important. Since November

Cows milk, cows milk formula and their alternative substitutes

Per 100 ml	Full fat cows milk	Cows milk formula	Soya milk (fortified)	Oat milk (fortified)	Almond milk (fortified)	Coconut milk (fortified)
Cals (kcal)	66	66+	43	45	25	27
Protein (g)	3.1	1.5	3.1	1	0.5	0.2
Calcium (mg)	112	45–95	120	120	120	120
Vit D (µg)	Trace	1.2	0.75	0.5	1.25	0.75

Note — rice milk is not recommended for children under 5 yrs due to the traces of arsenic which cannot ever be excreted from the body once ingested.

Table 2

2005, manufacturers must follow a EU-wide allergen labelling directive (2003/89/EC) in which they are legally obliged to declare any food allergen (including milk and milk products) added as a deliberate ingredient, however small the amount. However, caution is advised when purchasing fresh items from outlets such as restaurants, delicatessens and bakeries as the directive will not cover these places, until December 2014.

The more milk is processed the less allergic it becomes. The lower the “dose” the less likely it is to cause an allergic reaction. For some children with an IgE mediated allergy, it is also possible for some to tolerate processed versions of cows milk products, e.g. in baked goods, with some recent evidence suggesting that introducing milk in this way can actually help induce tolerance of cow’s milk protein.

When and how should I reintroduce cow’s milk?

There are currently no agreed guidelines on how to reintroduce cow’s milk protein (CMP) into a child’s diet, with many centres suggesting different versions of processed products containing cow’s milk. Our local advice is to start with the introduction of foods which have only small amounts of highly processed milk present, e.g. biscuits or bread, or muffins. This is introduced over a number of days allowing for any delayed responses to be monitored. The amount can then be steadily increased over time. When successfully introduced larger amounts of less modified CMP e.g. cheese could be given before the next step moving onto yoghurts. Milk (initially heated), can then be tried, either mixed in with the formula in increasing proportions each week 25% cows milk with 75% formula, then 50% cows milk then 75%. Alternatively whole cows milk can be given in small daily amounts say 30 ml, and increasing the aliquots as the child tolerates.

Conclusions

Implementing a CMP free diet can provide a number of challenges for families and appropriate support and monitoring is needed to ensure growth and nutritional needs are met. Educating families on how to manage their diet will improve patient outcomes and may help to avoid unnecessary dietary restrictions. ◆

FURTHER READING

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