

Cows' Milk Protein Allergy in the Older Child



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Introduction

Contrary to popular belief it is a misconception to view cows' milk protein allergy (CMPA) simply as a disease of early childhood. While it is true that many infants who develop allergic reactions to cows' milk protein find that their symptoms resolve spontaneously before the age of four or five, the majority do not.

Indeed, one study that looked at the clinical records of over 800 children with CMPA, found that only 19 per cent of cases had resolved by the age of four! More than half of the children still showed an allergic response to cows' milk protein at the age of eight and 20 per cent of cases continued to at least the age of 16.

It is therefore common for those of us who work in the field of paediatric allergy to deal with cases that persist well into childhood, adolescence and beyond.

Challenge of CMPA in the older child

The management of these persistent cases of CMPA presents a number of challenges.

As in infants, the mainstay of preventing CMPA symptoms in the older child is the exclusion diet. But while it is relatively simple to exclude cows' milk protein from the diet of a pre-weaned infant, it becomes progressively more difficult as the child grows older and begins to eat a wider range of solid foods.

Dietary management may be further complicated by changing taste preferences, increasing energy requirements and the need to ensure the child obtains certain nutrients. As the child becomes more independent and able to make his or her own dietary choices, excluding milk from the diet becomes increasingly challenging for parents and for the healthcare professionals guiding them.

What is CMPA?

CMPA is the most common food allergy in infants and young children, with a prevalence estimated between two per cent and 7.5 per cent.²

It can be divided into two categories: IgE-mediated allergy and non-IgE-mediated allergy.³

Symptoms of IgE-mediated CMPA typically occur within minutes of exposure to cows' milk protein. They include:²

- Gastrointestinal – vomiting, pain, diarrhoea
- Cutaneous – urticaria, angioedema, pruritis, rashes and flushing
- Respiratory – acute rhinoconjunctivitis, wheezing and coughing
- Anaphylaxis.

Symptoms of non-IgE-mediated CMPA are usually delayed by several hours.

They include:²

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

There is evidence that IgE-mediated CMPA is likely to persist longer than non-IgE-mediated allergy.⁴

The severity of CMPA can vary widely from patient to patient. However, there is no doubt that allergic reactions to cows' milk can be extremely unpleasant and are likely to affect



the child's quality of life. It has been estimated that 40 per cent of children with CMPA have at least one reaction a year and around 10 per cent of these reactions are severe or potentially life-threatening.⁵

Tailoring dietary management

Given the potentially serious consequences of CMPA, it is particularly important that the child follows a well-thought-out dietary management plan. As long as the condition is properly managed there is no reason why CMPA should prevent a child progressing healthily and happily into adulthood.

The risks of poor management, however, include the continuation of symptoms and impaired growth and development as a consequence of a nutritionally inadequate exclusion diet.⁶

For growing children it is particularly important to ensure that the exclusion diet continues to contain sufficient calories, protein, calcium and vitamins to enable healthy growth and development. Each child must be regularly and individually assessed as nutritional needs vary between children and change as the child grows older.

For instance, a child who has been suffering nutritional problems for some time may present with impaired growth and will need a high calorie diet in order to catch up. Alternatively, an overweight or obese child will need a low calorie diet, while a child with multiple allergies might benefit from a hypoallergenic supplement.

It may also be necessary to tailor the diet to the child's cultural or ethnic background. Here, the advice of a paediatric dietitian can be invaluable in tailoring the diet to ensure the child's individual nutritional demands are met.

Dealing with comorbidities

Children with CMPA are also prone to developing a number of other atopic conditions, such as allergic asthma, hay fever, rhinitis and eczema.^{1,4} By the age of 12, 50 per cent of children with CMPA also have asthma, 55 per cent have rhinitis, 67 per cent have eczema and 64 per cent have another food allergy.¹

This 'allergic march' can complicate the dietary management of CMPA as it can be difficult to determine which allergy is causing which symptoms.

„children on highly restrictive diets may need additional energy and/or micronutrients...“

Table One: Milk Alternatives for Children

Per 100ml	Cows' Milk	Soya Milk (enriched)	Oat Milk (enriched)	Almond Milk (enriched)	Neocate Active	Neocate Advance
Calories (kcal)	66	43	45	25	100	100
Protein (g)	3.3	3.1	1	0.5	2.8	2.5
Calcium (mg)	118	89-120	120	120	95.1	50
Vit D (µg)	Trace	0-0.75	0.5	1.25	0.82	0.81
Iron (mg)	0.03	0.31	Ns	0.25	1.3	0.62
Advantages		<ul style="list-style-type: none"> Palatable taste No lactose 	<ul style="list-style-type: none"> High calcium content 	<ul style="list-style-type: none"> High calcium content 	<ul style="list-style-type: none"> Supplement to restricted diet for children aged 1-10 Hypoallergenic, lactose-free and easily digested Unflavoured or blackcurrant 	<ul style="list-style-type: none"> Can be used as sole source of nutrition for children aged 1-10 Hypoallergenic, lactose-free and easily digested Unflavoured or banana-vanilla
Disadvantages		<ul style="list-style-type: none"> Unsuitable for infants below the age of 6 months due to the presence of phytoestrogens Up to 14 per cent of children with IgE-mediated CMPA and up to 50 per cent of children with non-IgE-mediated CMPA will also have soy allergy² 	<ul style="list-style-type: none"> Poor nutritional content – low in protein and some micronutrients 	<ul style="list-style-type: none"> Poor nutritional content – low in protein. Not widely available May not be suitable for children with nut allergy 	<ul style="list-style-type: none"> Only available on prescription 	<ul style="list-style-type: none"> Only available on prescription

Table sources:
Nutricia Ltd; McCance and Widdowson's The composition of Foods. 6th Edition. Food Standards Agency: Cambridge (2002)

Table notes:

- Potato, hemp and pea milk are used in a small proportion of patients
- Rice milk – the Food Standards Authority has recommended rice milk is not used as a cows' milk replacement in children aged between one and four and a half due to levels of arsenic¹¹
- Goat's or other mammalian milks – these are not appropriate for a child with CMPA due to the close similarity between the constituent proteins. A child with CMPA is likely also to be allergic to goat's milk.

Choosing a milk substitute

Milk is an important part of most children's diet due to the calcium and other nutrients within it. Fortunately, these nutrients can also be found in non-milk foodstuffs and within a growing range of products that can be substituted for milk in a child or young person's diet.

Nevertheless, there is no doubt that many parents find it difficult to find appropriate foods for their CMPA child. Many common components of a normal diet contain milk proteins that are not always well labelled on the packaging. Advisory labels can be helpful, but are not always reliable and milk contamination may occur even in the absence of such labelling.⁷

For instance, analysis of dark chocolate in one study found that over 75 per cent of brands that did not list cows' milk as an ingredient, were in fact contaminated with cows' milk protein.⁸ In contrast, of the products that did carry an advisory label warning of possible milk contamination, only 42 per cent showed any trace of milk protein.

In recent years a number of milk alternative products have become widely available. These products vary in terms of taste, appearance and

nutritional content (see **Table One**). It is, therefore, important to tailor choice of product to the dietary needs and preferences of the child.

Some of these alternative milks may not be nutritionally adequate for some children. In particular, children on highly restrictive diets may need additional energy and/or micronutrients to supplement their limited intake.

When to include milk in the diet

Some children with IgE-mediated CMPA can tolerate milk that has been extensively heated, such as in baked goods.⁹ There is some evidence that introducing milk in this way can speed up the development of tolerance.¹⁰

For older children it may not be realistic to completely exclude milk protein from the diet. For instance, children with non-IgE mediated allergy, who are not at risk of anaphylaxis, may choose to include small amounts of milk in their diet and risk occasional symptoms in exchange for a more varied diet. The decision to take such risks should only be taken once the child and the parents have been fully informed by their healthcare professional about what is and what isn't safe.

Conclusion

The days of regarding CMPA as a condition of early childhood are over. Most infants with CMPA will still have the condition by the time they begin primary school and a significant proportion will still be allergic to milk throughout their secondary school years.

Managing CMPA in these older children is undoubtedly challenging but can be effective if tailored to the individual needs and preferences of the child. A wide range of milk protein alternatives are available. Healthcare professionals should accustom themselves with the nutritional content of these products to ensure the advice they offer gives genuine assistance to parents seeking to provide a nutritious and balanced diet for their child.



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