

Cow's Milk Protein Allergy And Lactose Intolerance - Guide To Diagnosis And Treatment In Primary Care

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Purpose of document:	To aid recognition, diagnosis and management of cow's milk protein allergy and lactose intolerance and to support appropriate prescribing of alternative infant formula.
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Cow's Milk Protein Allergy and Lactose Intolerance - Guide to Diagnosis and Treatment in Primary Care

This guide is to help clinicians appropriately diagnose cow's milk protein allergy (CMPA) and lactose intolerance and to ensure that the correct alternative infant milk is given for the optimum length of time, based on age and symptoms. All infants with CMPA should be referred to a Paediatric Dietitian for ongoing management and advice on allergen avoidance, meeting nutrient requirements and reintroduction. Referral forms can be requested via idiatitians@nhs.net.

1.0 Background Information

- CMPA may develop in exclusively and partially breastfed infants, as well as in bottle-fed infants, and when cow's milk is introduced at weaning.
- CMPA has an estimated prevalence of 2 – 7.5% in the UK; 0.5% in exclusively breastfed infants.
- CMPA results from an immunological reaction to one or more cow's milk proteins. IgE mediated reactions are acute (within 2 hours) and non-IgE mediated reactions are usually characterised by delayed and non-acute reactions. Both types of reactions can occur in the same child.
- Symptoms may involve the GI tract, skin or respiratory tract.
- Severe CMPA symptoms may include anaphylaxis, severe eczema or faltering growth.
- Most children outgrow CMPA; 45 - 50% of infants at 1 year and 85 - 90% at 3 years.

The immunological basis of CMPA distinguishes it from lactose intolerance which is not an allergic condition.

2.0 Lactose Intolerance

Diagnosis: -

Lactose intolerance presents with lower GI symptoms: -

- Loose, watery stools
- Abdominal bloating or pain
- Increased flatus and nappy rash

It most commonly occurs after an episode of gastroenteritis – **secondary** lactose intolerance – and should be suspected in any child with loose stools that persist for > 2 weeks after episode. This temporary lactose intolerance usually lasts 6 - 8 weeks.

Management: -

- Trial of lactose free formula e.g. SMA LF (SMA) or Enfamil O'Lac (Mead Johnson), for 2 weeks for infants under 1 year or lactose free full fat cow's milk (available in supermarkets) for children over 1 year. **It is recommended that lactose free formulas are no longer routinely prescribed by GPs and should be purchased.**
- If symptoms resolve, continue for another 4 - 6 weeks on lactose free diet. Then **gradually** reintroduce ordinary infant formula or cow's milk. If symptoms recur, restart lactose free milk and consider referral to secondary care.
- If symptoms don't resolve, stop lactose free milk and consider other cause for symptoms. Refer to secondary care if faltering growth or unsure of diagnosis.

3.0 Cow's Milk Protein Allergy

Initial Recognition

Consider CMPA in infant/child who

- Has one or more of the signs and symptoms below

- Has had treatment for atopic eczema, gastro oesophageal reflux or chronic GI symptoms (including chronic constipation) but their symptoms have not responded adequately.

Organ System	Mild to Moderate Symptoms (most common)	Severe Symptoms (Refer to Paediatricians)
GI Tract	Frequent regurgitation Colicky abdominal pain Vomiting Loose or frequent stools Constipation (with/out perianal rash) Food refusal or aversion	Faltering growth due to chronic diarrhoea/regurgitation/vomiting/refusal to feed Iron deficiency anaemia Bloody stools
Skin	Pruritis or Erythema Atopic dermatitis Angio-oedema (lips, eyes) Urticaria (unrelated to acute infection or drug intake)	Exudative or severe atopic dermatitis not responding to moderate steroids Skin rash on touching cow's milk, meaning potentially more serious reaction with eating
Respiratory Tract (unrelated to infection)	Rhinitis Chronic cough Wheezing	Acute laryngoedema or bronchial obstruction with difficulty breathing Poorly controlled asthma
General	Persistent distress or colic (wailing /irritable for > 3 hours/day) at least 3 days/week for over 3 weeks	Anaphylaxis Parents remain concerned or child appears symptomatic on Nutramigen 1

4.0 Assessment

It is important to distinguish between IgE-mediated and non-IgE mediated allergy. IgE-mediated milk allergy is characterised by acute onset of urticaria/swelling on eating/touching cows milk protein based food/milk. It should occur within 2 hours of contact and happen with repeat contact. All children with suspected IgE-mediated CMPA should have skin prick tests or specific IgE antibodies performed as part of their assessment. These tests should only be performed by healthcare professionals with the appropriate competencies. Non-IgE mediated symptoms typically begin a few hours or days after exposure to cow's milk protein and may include eczema, colic symptoms and gastro-oesophageal reflux.

4.1 Allergy-focused History

An allergy-focused clinical history including a family history of atopy is vital. The risk of allergy increases if a parent or sibling has atopic disease; it is higher if both parents are atopic.

Ask about: -

- Any personal or family history of atopic disease (asthma, eczema or allergic rhinitis) or food allergy. The risk is higher if parent or sibling has atopic disease (20 - 40%).
- Eczema - difficult to treat and early onset is biggest risk factor for milk allergy and NICE (CG57) suggests a 6 – 8 week trial of a hypoallergenic formula for formula fed infants.
- Presenting symptoms and other symptoms that may be associated with CMPA including: -
 - Age at first onset and speed of onset
 - Duration, severity and frequency
 - Reproducibility of symptoms on repeated exposure
 - What food and how much exposure to it causes a reaction
- The child's feeding history including age of weaning and whether they were breastfed or formula-fed (if the child is breastfed, consider the mother's diet).

- Details of previous treatment, including medication for the presenting symptoms and the response to this.
- Any response to the elimination and reintroduction of foods.

4.2 Physical Examination

Based on the findings of the allergy-focused clinical history, physically examine the child or young person, paying particular attention to:

- growth and physical signs of malnutrition
- signs indicating allergy-related co morbidities (atopic eczema, asthma and allergic rhinitis).

5.0 Diagnosis

If CMPA is suspected, an infant should have a completely cow's milk free diet for 2 – 6 weeks. It is worth only prescribing 1 – 2 tins of infant formula initially to confirm tolerance and acceptance.

Diagnosis of non-IgE mediated CMPA is confirmed when symptoms improve or disappear on a cow's milk free diet and symptoms return if the infant is challenged again with cow's milk protein. Diagnosis of IgE mediated CMPA is confirmed by symptom improvement on a cow's milk free diet and positive allergy sensitisation tests e.g. skin prick tests, specific IgE antibody testing.

Once CMPA is confirmed, infants should be weaned on a cow's milk free diet until 9 – 12 months of age and for at least 6 months before challenging with cow's milk. Tolerance often returns gradually. This management should be overseen by a Paediatric Dietitian.

6.0 Management of Cow's Milk Protein Allergy

6.1 Bottle Fed Infants: -

For **mild to moderate** symptoms (see above), choose an extensively hydrolysed formula (eHF): -

Age	Recommended Formula	Size of tin	Cost	Average reqt/month
< 6 months	Nutramigen 1 with LGG (Mead Johnson)	400g	£11.21	10 -11 tins
> 6 months	Nutramigen 2 with LGG (Mead Johnson)	400g	£11.21	8 – 9 tins

Extensively hydrolysed formulas should be tolerated by over 90% of babies with CMPA. However, those with severe symptoms are likely to need an amino acid formula.

For **severe** symptoms, choose an amino acid formula (AAF) and refer to secondary care: -

Age	Recommended Formula	Size of tin	Cost	Average reqt/month
< 6 months	Neocate LCP (Nutricia)	400g	£24.91	10 - 11 tins
> 6 months	Neocate LCP (Nutricia)	400g	£24.91	7 – 8 tins

Due to the unpalatable taste of these formulas, it is recommended that those with non-IgE mediated allergy (i.e. delayed) are graded onto the new formula, combining it with their current milk. If the child has IgE-mediated allergy they should immediately go to exclusive specialised formula.

Day	Infant Formula Recipe (based on 120ml (4fl oz bottle))
0	120ml (4flox) current formula or 120ml (4flox) expressed breast milk (EBM)
1	30ml (1flox) new formula and 90ml (3flox) current formula or EBM
2	60ml (2flox) new formula and 60ml (2flox) current formula or EBM

3	90ml (3floz) new formula and 30ml (1floz) current formula or EBM
4	120ml (4floz) new formula

6.2 Breast fed infants: -

If babies develop symptoms of CMPA whilst being exclusively breastfed, mothers should be encouraged to continue to breastfeed whilst excluding cow's milk protein from their own diets. Mothers will require a calcium supplement (usually 1000mg/day) to meet their high calcium requirements (1250mg/day) and a vitamin D supplement (10micrograms/day) if they are not already taking one. If an infant formula is required (for weaning or to allow mixed feeding), an amino acid formula, Neocate LCP, should be prescribed. If reactions occurred only on introduction of formula, an extensively hydrolysed formula is suitable.

7.0 Indications for referral to secondary care (NICE Clinical Guideline 116):

- Any severe symptoms noted (see above table)
- Acute systemic reaction
- Significant eczema
- IgE mediated food allergy - to confirm diagnosis with skin prick tests or specific IgE antibodies
- Multiple food allergy
- Ongoing parental concern

8.0 Prescribing Notes

- Initial prescription should be for 1 - 2 tins to establish tolerance and acceptance.
- Repeat prescriptions should be reviewed every 2 - 3 months as CMPA does resolve.
- If a baby is on Nutramigen 1 with LGG, they should move onto Nutramigen 2 with LGG at 6 months.
- Soya based infant formula should not be used as first line treatment for CMPA under 6 months as there is a risk infants will be allergic to soya too (CMO Guidance). However, after 6 months of age, infants tolerating soya products e.g. desserts can and should be encouraged to purchase an over the counter soya infant formula or Alpro Soya 1+ (over 1 year).
- Lactose free formulas contain cow's milk protein and are not suitable for CMPA.
- **Infant formulas should not be prescribed for children beyond 2 years of age.**

9.0 References

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Prescription of Infant Formula in Infants with Suspected Cow's Milk Protein Allergy (CMPA)



