Weaning an infant with cow’s milk allergy: a practical guide

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Introduction
Cow’s milk allergy (CMA) occurs in 2% to 7.5% of infants. As with all food allergies, CMA may be IgE-mediated (immediate) or non-IgE-mediated (delayed) and can present with a variety of symptoms affecting the skin (e.g. urticaria, atopic eczema), gastrointestinal tract (e.g. vomit, diarrhoea) and respiratory tract (e.g. wheezing, stridor).1

A significant number of children are diagnosed with CMA around the critical stage of weaning, an important nutritional and developmental milestone that marks the transition to solid foods.2 The elimination of cow’s milk imposes significant limitations on the diet, and healthcare professionals are often faced with the additional challenge of advising parents on the practical aspects of weaning an infant with CMA. This publication draws on current literature and clinical practice to provide healthcare professionals with a practical guide for advising parents during this crucial period.

Principles of weaning infants with CMA
The mainstay of treatment for CMA is the complete avoidance of cow’s milk, its derivatives (Box 1) and other mammalian milks (e.g. goat’s milk). However, cow’s milk is an important source of energy, protein, calcium and some fat-soluble vitamins. Therefore, it is vital that suitable alternatives to milk are continued during weaning to ensure that children with CMA still receive the essential nutrients for optimal growth and development.6 Otherwise, the principles of weaning remain the same as for a non-allergic child, but extra care should be taken to support progression through the normal stages, encouraging children to eat varied flavours and textures and setting up healthy eating habits.7

Current guidelines

A number of guidelines have been published on the overall management of CMA in children.1,11 However, there is a scarcity of published data and guidelines on the introduction of solids in food-allergic infants. By contrast, there is a wealth of publications examining the link between delayed introduction of certain foods and the development of allergies in children considered to be at high risk.8–12 The following practical advice draws on key recommendations from these publications, as well as current guidance from the World Health Organization (WHO).8–12

Supporting parents during weaning

1. When should weaning commence in infants with food allergy?

The WHO states that solids should be introduced to healthy infants at 6 months of age (180 days), prior to which babies should ideally be exclusively breastfed.8–12 A number of other expert bodies recognise this as a desirable goal, while recommending that if weaning is started sooner, it should not commence before age 4 months (17 weeks; Table 1).8–11 There are no special recommendations on the timing of weaning in infants with CMA, and there is no evidence that delaying introduction of complementary foods beyond 6 months has a protective effect against allergy.12 Therefore, in line with other children, infants with CMA should ideally be weaned at 6 months of age, but not before age 4 months.

Table 1. Summary of current guidelines on weaning.

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Target population</th>
<th>When to start weaning</th>
<th>Which foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO8–12</td>
<td>Healthy infants born at term.</td>
<td>6 months (180 days)</td>
<td>No restrictions; any food can be introduced</td>
</tr>
<tr>
<td>ESPGHAN8,9,14,15</td>
<td>Healthy infants and infants at risk of developing allergy.</td>
<td>Ideally 6 months, but not before 17 weeks (4 months)</td>
<td>No restrictions; any food can be introduced</td>
</tr>
<tr>
<td>Section on Nutritional and Digestive Health, EMA12,13</td>
<td>Infants at high risk of developing allergy (specific intake).</td>
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<td>AAP14</td>
<td>Infants at high risk of developing allergy (specific intake).</td>
<td>4-6 months of age</td>
<td>There is no evidence that delaying potentially allergenic foods prevents allergies</td>
</tr>
</tbody>
</table>

*Recommendations are in line with the 2009 discharge guidelines of the UK Department of Health. "Nuts should be avoided under 5 years). 24  *Soy should only be introduced if the child does not have a soy allergy.

Table 2. Practical weaning advice for parents.

- **Mealtime**
  - Gradually increase quantity
  - Use a shallow plastic spoon
  - Start by offering small amounts of:
    - Soft finger foods can be introduced
    - Carbohydrate-rich foods like potato or rice
    - Fruit
    - Vegetables
    - Meat
    - Fish
    - Eggs
    - Dairy
    - Any other potentially allergenic foods
  - Continue to introduce a variety of vegetables and fruit
  - Let your baby touch and play
  - Provide a spoon to play with

- **Feeding textures**
  - Cook and serve foods well beyond the age of 6 months.17
  - Avoid introducing certain potentially allergenic foods be introduced?

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8–10 months

10 months and older

Cow’s milk and its derivatives

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delayed introduction of certain foods and the overall management of CMA in children.1,2,7

A number of guidelines have been published on Current guidelines

Table 1. Summary of current guidelines on weaning.

Academy of Allergy and Clinical Immunology, AAP, American Academy of Pediatrics

WHO, World Health Organization; ESPGHAN, European Society for Paediatric Gastroenterology, Hepatology and Nutrition; EAACI, European

Guideline

Target population

When to start

AAP9

Paediatrics,

Box 1. Common derivatives of cow’s milk.

• frais • ghee • hydrolysed casein • hydrolysed

• non-fat milk solids • skimmed milk powder

• artificial cream • evaporated milk • fromage

• whey protein • lactoalbumin • lactoglobulin

• sodium caseinate • whey • whey protein

• butter • butter milk • butter oil • calcium

• cheese • condensed milk • cream and

• whey solids • yogurt

developing allergy (atopic developing allergy (atopic

at risk of developing

Healthy infants and infants

term 6 months (180 days) No restrictions; any food can be

Ideally 6 months, but

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allergies

No restrictions

There is no evidence that delaying

No restrictions

No restrictions

3. What about breast milk and/or hypoallergenic formula?

Breast milk and/or hypoallergenic formula continue to play an important role during weaning. Extensively hydrolysed formulas remain the first-line choice for formula-fed infants with CMA, whereas amino acid-based formulas are suitable for managing severe or multiple allergy.21

Although the intake of breast milk and/or formula may decrease during weaning, they remain crucial sources of nutrients until at least 1 year of age. It is therefore important to maintain breast milk or formula feeds throughout the weaning process. Formula-fed infants should receive 500–600 ml (17–20 oz) per day. Healthcare professionals

4. Practical tips

For infants with CMA before age 6 months.1,20

Soya-based formulas and products are not suitable

after 6 months depends on the child’s allergy status. If the child has IgE-mediated CMA and is

not reactive to soy (as shown by skin prick test or specific IgE blood test), then the introduction

of soy can be considered.21,22 However, in children with

non-IgE-mediated CMA, concomitant reactivity may be considered.21,22

for infants with CMA after 6 months.1,20

To manage CMA, introduce a variety of vegetables and fruit:

- Start offering protein-rich foods like chicken, turkey, beef and pork (beef and lamb)

- Include iron-rich varieties of the above (e.g. red meats, green leafy vegetables, cereals)

Food

introduction

Introduce when:辅-ri, eye- and barley-based foods, as well as egg yolk, fish and milk

New introduction of cow’s milk and derivatives

to introduce these potentially allergenic foods.

Parents of children with CMA often ask when
to introduce these potentially allergenic foods.

Unfortunately, there are very few studies and no guidelines that directly address this question. In
the past, guidelines focusing on children at high risk of developing allergies recommended delaying
the introduction of certain potentially allergenic foods well beyond the age of 6 months.11

However, more recent recommendations state that there is no convincing evidence that delaying introductions has a protective effect against allergy (Table 1).11 12 Therefore, the introduction of high allergenic foods should commence as for healthy children, at 6 months of age (and not before).

2. When should potentially allergenic foods be introduced?

Aside from cow’s milk, the foods that most commonly evoke an allergic reaction include egg, soy, wheat, fish, ground nuts and tree nuts.6 Parents of children with CHA often ask when to introduce these potentially allergenic foods.

It is therefore important to maintain breast milk or formula feeds throughout the weaning process. Formula-fed infants should receive 500–600 ml (17–20 oz) per day. Healthcare professionals
Delaying the introduction of certain foods and the overall management of CMA in children. However, there is a scarcity of published data on the introduction of solids in infants at high risk of developing allergy (atopic dermatitis). Healthy infants born at term 6 months (180 days) No restrictions; any food can be introduced.

### Current guidelines

<table>
<thead>
<tr>
<th>Food</th>
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</tr>
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<tbody>
<tr>
<td>Artificial cream</td>
<td>Initially food trials, then gradually introduce one at a time</td>
</tr>
<tr>
<td>Evaporated milk</td>
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</tr>
<tr>
<td>Fromage</td>
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</tr>
<tr>
<td>Whey protein</td>
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</tr>
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</tr>
<tr>
<td>Milk powder</td>
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</tr>
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<td>Calcium</td>
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<td>Milk solids</td>
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<tr>
<td>Milk sugar</td>
<td>Initially food trials, then gradually introduce one at a time</td>
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<tr>
<td>Modified milk caseinate</td>
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<td>Whey solids</td>
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### Table 2. Practical weaning advice for parents.

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<tr>
<td>1. When should weaning commence in healthy infants (at 6 months of age)?</td>
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<tr>
<td>2. When should potentially allergenic foods be introduced?</td>
</tr>
<tr>
<td>3. How should food be introduced?</td>
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### 4. Practical tips

It is important to provide the parents of children with CMA with practical advice, as weaning can be a very challenging time. Table 2 translates points 1–3 above into practical advice and provides...
some useful hints for introducing a variety of food textures and developing a mealtime routine. Importantly, when parents introduce potentially allergenic foods, they should do so in small amounts over approximately 3 days, to allow time to observe delayed reactions. It is also better to introduce these new foods at lunch-time, rather than in the evening, making it easier to get medical help if an immediate or severe reaction occurs. Parents should also be asked to document the timing of new introductions and any symptoms that occur. This may be particularly useful for children with non-IgE-mediated allergy as symptoms may take up to 48 hours to develop.

Parents may find written information helpful, particularly recipe ideas for using breast milk or hypoallergenic formulas as a substitute for milk products. Not only does this allow the child to enjoy similar foods to other family members (e.g. milk-free lasagne), but also helps meet the child’s nutritional requirements. Furthermore, it is a significant milestone that marks the transition to solid food.

**Conclusions**

The introduction of weaning foods signals an important nutritional and developmental milestone for children. Unfortunately, there is a dearth of published literature on weaning infants with CMA. Nonetheless, a cautious and methodical approach is pertinent for managing this crucial stage, drawing upon current guidelines and clinical practice. Although cow’s milk protein should be completely excluded from the diet, there is no evidence to delay the introduction of foods with high allergic potential. At the same time, it is important to regularly monitor children with CMA to ensure the nutritional adequacy of their diet and to detect feeding difficulties early. Throughout the weaning process, parents benefit from practical advice and support from healthcare professionals, helping them manage their baby’s transition to solid food.
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- Including easy-to-make and nutritious milk-free recipes

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