

Cow's Milk Allergy – the facts

What is cow's milk allergy? What are the symptoms? What you should bear in mind when managing cow's milk allergy. This factsheet aims to answer some of the questions which you and your family may have about living with cow's milk allergy. Our aim is to help you to understand and minimise risks, and also provide supporting information on where additional help and advice is available.



Cow's milk allergy is a common cause of symptoms in babies and very young children. In most cases the allergy is outgrown, but occasionally it persists into adulthood.

This fact sheet will focus on a particular type of cow's milk allergy where the symptoms are immediate: that is, they occur within seconds or minutes of contact with cow's milk or a product containing cow's milk. This type of allergy will be referred to in the text as "immediate cow's milk allergy". Although symptoms usually occur rapidly, on rare occasions they can begin up to two hours after contact with cow's milk.

Towards the end of this fact sheet there will also be brief sections on other conditions where cow's milk is the trigger, including *delayed* cow's milk allergy. As will be explained in the text, these conditions require a different approach.

Throughout this fact sheet you will see brief medical references given in brackets. Full references are provided at the end.

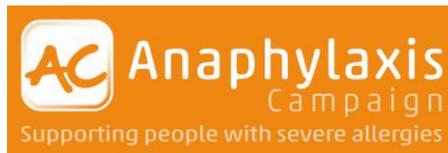
What causes immediate cow's milk allergy?

Immediate cow's milk allergy is well understood by doctors. It occurs when the body's immune system wrongly perceives proteins in the milk to be a threat. This leads to the production of a specific antibody of the Immunoglobulin E class (known as IgE for short). When milk proteins combine with the milk-specific IgE antibody, chemicals including histamine are released from cells in the blood and tissues where they are stored. An allergy of this kind is often referred to as "IgE mediated."

It's the release of these chemicals in the body that causes the problem. There may be swelling in the mouth, around the face or in the throat. In asthmatics, there can be an acute attack of wheezing and coughing. In a few cases, there may be a serious fall in blood pressure leading to collapse. These are all serious symptoms. The medical term for a serious allergic reaction of this kind is anaphylaxis.

However, many people experience only mild or moderate symptoms, such as a rash or tingling in the mouth or on the lips.

Experience shows that no two reactions follow the same pattern. Whether a reaction is severe or mild depends on numerous factors including the amount of milk ingested, the person's general health, and



whether they have asthma. The presence of asthma is a major risk factor for a severe reaction, especially if it is not well managed.

Getting a diagnosis

If you suspect you have cow's milk allergy you should see your GP as soon as possible. Some GPs have a clear understanding of allergy, but allergy is a specialist subject so it is more likely that your doctor will need to refer you to an allergy clinic. Your GP can locate an allergy clinic in your area by visiting the website of the British Society for Allergy and Clinical Immunology (www.bsaci.org).

Once you get a referral, the consultant will discuss your symptoms with you in detail as well as your medical history. This will help determine whether allergy is indeed the cause of your symptoms.

The results of skin prick tests and blood tests will also help the specialist form a clear picture. Where an infant has immediate cow's milk allergy, the parents need to be aware that skin and blood tests may be negative initially and may only become positive later.

In many cases, doctors are not easily able to determine whether a food allergy is mild or severe. However, there will be certain clues. For example, the presence of asthma – especially when poorly controlled – has been shown to be a major risk factor for the occurrence of more severe immediate allergic reactions to cow's milk (Boyano-Martinez et al 2007).

Following a diagnosis

Once a diagnosis has been made, you will need detailed information on how to treat an allergic reaction if it occurs. Your allergy clinic should offer guidance in this area.

You will also need information on how to avoid culprit foods containing cow's milk. As a first step, ask your local surgery to refer you to a registered dietitian. Gradually you will become used to reading food labels and asking direct questions when you eat out.

The Anaphylaxis Campaign can provide information, advice and ongoing support on immediate cow's milk allergy. Call our helpline on 01252 542029.

Is cow's milk allergy outgrown?

Most children grow out of immediate cow's milk allergy by the time they are in their mid teens, but in rare cases it persists into adulthood and can be lifelong. An American study showed that at least 19% of children with cow's milk allergy will grow out of it by four years of age, 42% by eight years and 79% by 16 years (Skripak 2007).

Reactions through touch and smell

A splash of milk on the skin can cause immediate symptoms such as hives, otherwise known as urticaria. Inhaled cow's milk protein, such as the smell of cheese on a pizza, can also cause immediate reactions in very sensitive people. In coffee shops, "frothing milk" has been known to cause itchiness in the eyes and nose. It is our opinion, based on our experience, that these reactions would not be life-threatening for the vast majority of people. However, we believe it is sensible to be cautious and if your cow's milk allergy is particularly severe, you should talk to your allergy specialist about these types of contact reactions with milk.

If the milk were to get through a cut in the skin, on the lips or in the eye then it is more likely a reaction could be severe. The area of contact with the milk should be washed with liberal quantities of water. If a severe reaction is suspected, emergency treatment will be necessary.

Treating symptoms

Antihistamines such as Cetirizine or Chlorphenamine (known as Piriton) are usually sufficient to treat mild symptoms. However if your allergy is thought to be severe, then you may be prescribed adrenaline (also known as epinephrine). The three adrenaline injectors prescribed in the UK are Anapen, EpiPen and Jext. These injectors are easy to use and designed for self-administration. If you are prescribed an injection, it should be available at all times – with no exceptions. Medical attention should be sought after use.

If you are prescribed an adrenaline injector, you will need to know how and when to use it. Ask your GP or allergist for advice. You can also find help on the website relevant to the injector you carry.

Anapen: www.anapen.co.uk

EpiPen: www.epipen.co.uk

Jext: www.jext.co.uk

We advise that you are provided with a written care plan to help you manage your allergy. In the case of allergic children, this is strongly recommended by the Royal College of Paediatrics and Child Health. Ask your local surgery or your allergist to provide such a plan. Medical professionals can consult the following website:

<http://www.rcpch.ac.uk/allergy/anaphylaxis>

Avoidance of milk

People with immediate cow's milk allergy should avoid milk in all forms. As well as the obvious ingredients (such as cream), avoid the following:

- Cheese
- Yoghurt
- Butter, butter fat, buttermilk or butter oil
- Ice cream (even when sold as non-dairy)
- Fromage frais
- Crème fraiche

This is not a full list and there are many other food products that contain milk protein. Many pre-packaged foods (such as crisps, snacks and ready meals) contain milk while others don't. It can appear in unexpected products. For instance, cow's milk proteins are included in some energy drinks and some fruit drinks. By law, cow's milk must always be declared in the ingredient list when present in pre-packaged food. It is important to check food labels thoroughly every time you shop – even if you have bought a product before. Recipes do sometimes change.

Sometimes you may see the terms casein, whey, sodium caseinate and calcium caseinate. These are all types of milk protein and must be avoided.

A good dietitian will help you understand exactly what to avoid. Ask your GP to refer you to one. A dietitian's advice is also needed to ensure that the body gets a good balance of nutrients such as calcium, which are found in cow's milk.

When preparing food at home, care should be taken to ensure that cross contamination does not occur. Separate utensils and dishes should be used where necessary and then washed thoroughly (not just rinsed).

Plain chocolate

Although plain chocolate (also known as dark chocolate) does not usually have milk as an intentional ingredient, there can be a high risk of cross-contamination on the production line. The Government's Food Standards Agency accepts that this is a risk. The Anaphylaxis Campaign advises anyone with immediate cow's milk allergy to be extremely cautious of plain chocolate.

Some manufacturers of specialist brands claim to have removed the risk of cross-contamination. If you think this may be the case with a particular brand, contact the manufacturer.

Heated milk

In an American study, 75 per cent of children with immediate cow's milk allergy (IgE-mediated) were able to drink extensively heated [baked] milk without suffering a reaction (Nowak-Wegrzyn et al 2008). However, we advise everyone with immediate cow's milk allergy to take care. In our view, all people with immediate cow's milk allergy should avoid cow's milk in all forms unless they have been tested by their allergy specialist that they are able to tolerate heated milk without reacting.

Alternatives to milk

Some people with immediate cow's milk allergy enjoy soya milk, but soya milk is not considered a suitable alternative to cow's milk for babies less than six months old (British Dietetic Association, 2010).

Goat's milk and sheep's milk are **not** suitable alternatives to cow's milk as they share similar proteins with cow's milk that commonly results in cross-reactivity (2010 World Allergy Organisation guidelines).

Infant feeding

Whilst breast milk is the preferred food for all babies, some mothers are unable to breast feed and others choose not to. In such cases, special consideration is needed if the baby is found to react to cow's milk.

Many health professionals recommend special infant formulae where the milk protein has been broken down. These are made from cow's milk that is treated (extensively hydrolysed) to change the proteins. They are only available on prescription.

A few children with immediate cow's milk allergy react to special hydrolysed formulae and need an elemental formula which contains no cow's milk. These formulae too are only obtained from a pharmacy on prescription. In general children reacting to the highly modified formulae are more likely to have severe and persistent milk allergy.

Medicines

Some medicines contain milk products so check with the prescribing doctor or with the pharmacist when collecting your prescription.

Some tablets are manufactured with the aid of lactose. Lactose does not normally contain the proteins responsible for causing reactions, but could cause problems for people whose milk allergy is severe. This is because tiny residues of protein may be present. Lactose is found in most antihistamines. Some of the powder inhalers used to treat asthma also contain lactose, therefore meter dose aerosol inhalers should be preferred.

Milk protein is used in the manufacture of most condoms. We have heard reports of people with milk allergy reacting with skin irritation and soreness. If this is a concern for you, we recommend that you contact individual manufacturers of condoms to find out if they do indeed use milk protein in their manufacture of their condoms. We are not aware of any medical evidence that determines how risky this is.

Delayed cow's milk allergy

Delayed cow's milk allergy is less well-understood by doctors and therefore less easy to diagnose, as skin tests and IgE antibody tests are negative. Symptoms can occur several hours or even days after ingestion of milk. Whereas immediate cow's milk allergy involves the antibody called Immunoglobulin E, delayed cow's milk allergy has a different mechanism. A range of symptoms can occur, most commonly affecting the skin (such as a rash) or the digestive system (nausea, vomiting, behavioural problems relating to feeding in infants, bloating, intestinal discomfort or diarrhoea). Delayed cow's milk allergy is unlikely to be life-threatening other than in very rare cases of Food Protein Induced Enterocolitis Syndrome (see below), but a doctor's advice should be sought in all cases.

As with immediate cow's milk allergy, a referral to an allergy clinic is advised.

Allergy skin and blood testing is of no value in the diagnosis of delayed cow's milk allergy and a brief exclusion diet may be required to reach a diagnosis. This involves eliminating cow's milk from the diet and then introducing it under the supervision of a dietitian.

Once a diagnosis has been made, treatment usually involves avoiding milk. Sometimes medication is also used.

Other conditions triggered by milk

If you or your child suffers symptoms triggered by cow's milk, this may be immediate cow's milk allergy or it may be something else. A doctor's advice is essential. The following conditions are just a few of those triggered by cow's milk.

Lactose intolerance occurs in people with an enzyme deficiency, leading to the body's inability to digest the milk sugar lactose. Symptoms include diarrhoea and stomach upset. Lactose intolerance can be a temporary problem affecting people of all ages. However, it is common for older people to develop lactose intolerance due to a natural decrease in lactase-making ability. Lactose intolerance is most common in people of oriental origin.

Cow's milk-induced proctocolitis: This usually begins at two months and is not normally serious. Usually there are colic like symptoms, with fresh blood mixed with mucus in the stools. Otherwise the child is thriving. Most infants with this condition can tolerate milk by 12 months.

Cow's milk protein-induced enteropathy: Symptoms begin in infancy and are usually outgrown at between one and two years. Usually there is diarrhoea and sometimes vomiting. This may result in malabsorption and faltering growth.

Food protein-induced enterocolitis syndrome (FPIES): This is a rare but dramatic condition that mimics infection. Symptoms start before nine months and usually involve severe diarrhoea, vomiting, lethargy, pallor and reduced muscle tone. The most common causes are cow's milk and soya, although solid foods such as rice have also been implicated. Symptoms occur one to three hours after ingestion but then settle. However, it can sometimes be very severe with collapse due to loss of fluid and circulatory failure. The condition is normally outgrown over one to three years but some children may continue to react for many years.

Oral immunotherapy

One day it may be possible to "cure" people of their food allergy – including milk allergy – by means of a treatment called oral immunotherapy (OIT). This works by slowly introducing small amounts of the problem food into the allergic patient's diet and gradually building up to larger amounts. This must be done under strict medical supervision. It is hoped that eventually the immune system learns to tolerate the food. Various



research centres are testing whether OIT works for people with milk allergy. It will take some years before the safety of OIT has been established, but this does offer some hope for people who might otherwise face a lifetime of milk allergy.

References

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Reviewers

The content of this fact sheet has been peer-reviewed by Prof John Warner, Professor of Paediatrics and Head of Department, Imperial College; and Sue Clarke, Nurse Adviser to the Anaphylaxis Campaign.

Disclosures

Prof Warner sits on the scientific advisory boards for Danone, Airsonette, Allergy Therapeutics, Novartis and Mead Johnson; is a paid lecturer for all of the above and Merck, and Astra-Zeneca; has received research grants from Danone, Airsonette, Allergy Therapeutics and Lincoln Medical; is medical advisor to the Anaphylaxis Campaign; is a member of the ACNFP (FSA), RCPCH council and trustee; and is President of the Academic Paediatric Association.

Sue Clarke has a son with immediate cow's milk allergy and she has a milk allergy herself.

Disclaimer – The information provided in this Factsheet is given in good faith. Every effort has been taken to ensure accuracy. All patients are different, and specific cases need specific advice. There is no substitute for good medical advice provided by a medical professional.



About the Anaphylaxis Campaign – *"supporting people with severe allergies"*

The Anaphylaxis Campaign is the only UK wide charity to exclusively meet the needs of the growing numbers of people at risk from severe allergic reactions (anaphylaxis) by providing information and support relating to foods and other triggers such as latex, drugs and insect stings. Our focus is on medical facts, food labelling, risk reduction and allergen management. The Campaign offers tailored services for individual, clinical professional and corporate members.

Visit our website www.anaphylaxis.org.uk.