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Dr Groenewald is particularly interested in paediatric food allergy, allergy prevention, and allergic skin disorders. She is also interested in allergy diagnostics and immunotherapy and is currently in charge of this clinic at 1 Military Hospital. She is a founder member and past executive member of the Allergy Society of South Africa. At present she is an executive member of the South African Medical Association Research Ethics Committee and is currently registered at UCT for a Post-graduate Diploma in International Research Ethics. She has been a principal investigator in numerous clinical trials in allergic rhinoconjunctivitis, asthma and eczema.

The 'bite' in paediatric food allergy

The study of food allergies has an increasingly important role in allergology, not only because of advances in tracking diseases but also because of major changes in eating habits.¹

The prevalence of atopic disease is increasing worldwide for reasons that are not clear. Our Western diet has changed from traditional freshly cooked meals, in many cases, to prepacked, sterilised substitutes. Many children's lunch boxes now contain foods with 'empty calories'. The famous 'gut barrier' is often crossed over by allergens or inflammatory mediators such as histamine and its derivatives.¹

Our Western diet has changed from traditional freshly cooked meals, in many cases, to prepacked, sterilised substitutes.

EPIDEMIOLOGY

The epidemiology of food allergy/intolerance (FA/FI) is far from established.¹ A recent survey suggests a figure of 12% (10% of children and 2% of adults), which is probably underestimated since 'hidden' food allergies are on the increase. Thirty to forty per cent of eczema in children is related to FA compared with 20% in adults. Eight per cent of asthma due to FA has been noted in selected populations, unlike atopic populations, where up to 17% are suffering from asthma associated with FA.

About 80% of allergic reactions in children are the result of hypersensitivity to

legumes (including peanuts and soybeans), cow's milk and chicken eggs. Most children (80%) 'outgrow' their hypersensitivity to milk and eggs by the end of their first decade.²

Peanut allergy persists in about 80% of young children found to be allergic in the first 2 years of life and virtually in all individuals reacting to peanuts after the age of 5 years. Why these particular foods account for most reactions in children is not clear, although their early introduction into the diet appears to be important.²

Egg-specific IgE with a positive family history (FH) of atopy is a highly specific and predictive marker for sensitisation to inhalant allergens at 3 years of age.

The diagnosis of adverse reactions to food is difficult and is complicated by the fact that many foods are involved, causing a wide range of symptoms. A single food may give rise to different symptoms, but the same symptoms may have a number of different causes. For example, eczema may be caused by milk, eggs and many other foods in the same person. Asthma can occur as an allergic response to milk, but can also be triggered by preservatives such as sodium metabisulphite irritating the air passages.³

Even when a single food is involved and a single part of the body is affected, different mechanisms may be responsible in different individuals. For example, diarrhoea in infants receiving soy formula can be caused by a reaction to the protein in soy, or by an inability to digest disac-

charides, especially in formula containing sucrose. A single food can cause many adverse reactions. For example, wheat can cause diarrhoea, urticaria, eczema and bakers' asthma.³

About 80% of allergic reactions in children are the result of hypersensitivity to legumes (including peanuts and soybeans), cow's milk and chicken eggs.

DIFFICULTIES WITH DIAGNOSIS OF FOOD ALLERGY AND FOOD INTOLERANCE

The main difference between FA and FI is the involvement of the immune system (most often type I hypersensitivity in FA). The clinical symptoms in both groups are identical, possibly less severe in FI. As no standardised extracts are available (in contrast to inhalant allergens) many cases of food allergy to proteins may be misdiagnosed as

FI because of low sensitivity of the tests (skin prick test (SPT)), measurement of specific IgE (RAST) or histamine release (HR) from basophils.⁴

Food allergy — Immediate food reactions — a specific antibody is present to the allergen and is measured by SPT or RAST, e.g. peanut allergy. Reaction develops within minutes.

Food intolerance — Delayed food reactions — these are not antibody dependent and the reaction can be delayed for hours and even days. In children who suffer from eczema, the reaction can be later and longer. This is more common than FA (20% of the population) and can only be diagnosed using exclusion diets that bring relief of symptoms which recur on reintroduction of the food.⁵

Recognising food intolerance

Certain features help to distinguish FI reactions from those that might be a result of some cause unrelated to food.⁵

Symptoms are not immediate

After 4 or more days of food avoidance, symptom onset after digestion ranges from immediate to sev-

eral hours. If the foods are avoided for several days and then eaten again, the symptom response may be brisk, lasting a day or so. A further amount eaten a day or so later, may have no effect. This is called masking, an immune response caused by retention of troublesome food within the system until full elimination from the bowel.

Symptoms are usually multiple

In FA a limited range of symptom responses occurs (Table I). In FI a much wider range of symptoms may occur, relating to different organ systems (Table II).

Brief elimination may precipitate withdrawal symptoms

Patients who exclude the culprit food will experience a worsening or precipitation of symptoms during the first 2 - 3 days of starting the exclusion diet. This is a well-established withdrawal phenomenon, the cause of which is unknown, but is also a useful diagnostic sign when it happens. They should begin to improve from day 5 - 14 of the diet. If this does not happen, the diagnosis of FI is highly unlikely.

Table I. Conditions which may be caused or affected by immediate food allergy in children

- Rhinitis
 - Dairy, egg, peanuts, citrus fruits
- Asthma
 - Foods most likely to provoke asthma
 - Dairy, egg, nuts, peanuts, seafood, citrus fruits
- Urticaria and eczema
 - May be provoked as IgE-mediated FA
 - Egg (especially ovalbumin), peanuts, cow's milk, fish, nuts, citrus fruits
- Oral allergy
 - Itching and swelling of lips, tongue, sometimes throat — FA is involved in majority of cases
 - Apple, orange, watermelon, mango, melon, avocado, banana and the berry family are commonly implicated
- Laryngeal oedema
 - Throat swelling — FA is often involved
- Anaphylaxis
 - Food allergy is a common cause, especially peanuts and tree nuts

Adapted from: Radcliff M, Brostoff J. Food intolerance. *British Allergy Foundation* 2000.⁵

Table II. Conditions which may be caused or affected by food intolerance in children

Respiratory

Asthma, rhinitis, serous otitis media, especially CMI

Bronchospasm can be precipitated by sulphur dioxide (SO₂) and sodium metabisulphite, and in a few cases by monosodium glutamate (MSG)

Skin

Atopic eczema, urticaria

Precipitated by foods containing histamine, e.g. cheese, mangos, bananas, sausages, citrus

Foods which contain histamine-releasing agents, e.g. strawberries, shellfish, paw-paw, pork, chocolates

Foods containing tartrazine or benzoates

Gastrointestinal

Infantile colic, recurrent abdominal pain, diarrhoea, constipation and coeliac disease

Central nervous system

Headache – caused by nitrates found in some sausages and preserved foods ('hot dog headache')

Migraine – often caused by cheese, chocolate and citrus fruits. They contain pressor amines – tyramine and phenylethylamine

Hyperactivity can be caused by tartrazine and benzoic acid

Cardiovascular

Palpitations caused by caffeine

Musculoskeletal

Unexplained joint and muscle pain

Renal tract

Bedwetting, nephrotic syndrome

Psychiatric

Fatigue, hypersomnia

Adapted from: Radcliff M, Brostoff J. Food intolerance. *British Allergy Foundation* 2000.⁵

A withdrawal response can also explain why FI patients are often mildly addicted (without realising it) to the food or foods causing their problem. The child with recurrent serous otitis media, insomnia and irritability who craves regular milk, cheese and yoghurt, is a good example. Night-time waking, only settling after a drink of milk, is an even stronger clue! The complete disappearance of symptoms with milk avoidance (and recurrence with milk reintroduction) is then clear evidence of the relationship.

Brief elimination followed by reintroduction results in a swifter and stronger response

This is essential to confirm the diagnosis. Strict elimination for 5 - 10 days unmasks the hidden allergy, so that the initial eating of the food after this period of avoidance usually produces symptoms within 1 - 2 hours.

If the elimination diet is not carefully designed symptoms may not disappear until all forms of food are excluded. For example, sensitivity to maize (corn) includes cornstarch, cornflour, dextrose and often food additives. It may also require the avoidance of toothpaste and certain medications. Sensitivity to milk includes all forms of whey and casein fractions in powdered soups, margarines, biscuits, processed meats, yoghurt, etc.

Prolonged elimination builds tolerance

Having excluded the food for weeks, months or years, reintroduction without reaction may be possible. This is known as tolerance and its maintenance depends on establishing the threshold of both frequency and quantity for that child/person.

Double-blind placebo-controlled food challenge (DBPCFC)

Some would say this is the gold standard. While this test is valid for FA when testing for FI, it has many flaws. The standard DBPCFC test does not employ an adequate elimination diet phase. The patient undergoes the food challenge tests only after an overnight fast. Unfortunately, when dealing with FI (as opposed to FA) the patient may not show an immediate symptom response unless an adequate period of strict elimination has preceded the food challenge.⁵

COW'S MILK ALLERGY / INTOLERANCE (CMA/CMI)

Prevalence

CMA/CMI is the most common FA in infants (2 - 5%), inducing a large spectrum of atopic diseases, e.g. eczema, asthma and rhinitis, and could herald the start of a long

atopic disease. It is the most frequent allergy in newborn babies, in whom cow milk protein (CMP) is the first antigen encountered. Sensitisation can also occur during pregnancy, breast-feeding and bottle-feeding. Associated adverse reactions to other foods develop in about 50%, and allergy to inhalants in 50 - 80% before puberty.⁶

The high frequency of CMA /CMI is caused by an incomplete mucosal barrier, increased gut permeability to large molecules, and immaturity of local and systemic immunological responses. Human colostrum/milk facilitates the maturation of the gut and provides passive protection (specific secretory IgA and additional protective factors) against bacteria and antigens.⁶

The sensitised infant develops symptoms any time between 1 week and 6 months after birth

Aetiology and risk factors

- Genetic predisposition — 3% will develop CMA and 8% egg allergy.
- Positive family history of CMA and other atopic diseases or FAs — this doubles the risk for FA/FI during the first 6 years of life.
- Early exposure to CMP.
- Feeding CM formulae in the nursery, even in small amounts, is a significant risk factor for CMA. The antigenic load of a supplement for CM formula is extremely high for a baby in the first days of life. For high-allergy risk infants, periodic CM formula feeds in the maternity ward

should be strictly avoided to prevent sensitisation. Only glucose water or a truly hypoallergenic formula should be given as a substitute until the amount of breast-milk is sufficient.⁶

Symptoms

The diagnosis of CMA is based on the history of milk-related symptoms, sometimes supported by laboratory tests. (Table III) The sensitised infant develops symptoms any time between 1 week and 6 months after birth. If eczema and urticaria present, an allergic cause is more likely. Mild cases of CMA can be missed in the irritable child with poor sleep or mild diarrhoea.⁶

Reactions can be immediate or start several hours or even days after the intake of moderate to large amounts of CM⁶ (Table IV).

Problems

- Many studies confirm that CMA/CMI develops in early infancy, rarely after 12 months of age.
- In most cases the onset of disease is closely related to the time of introduction of CM-based formula.

- The diagnosis of CMA/CMI should always be made within the first year of life and 90% manifests within the first weeks of life.
- Sixty to seventy per cent of all adverse reactions to CMP are intolerant reactions, and therefore SPT or RAST will be negative.

CONDITIONS LINKED TO FA/FI

Upper respiratory symptoms

The ear, nose and throat are the most common target organs for food allergens. FA may be the undiagnosed cause of congestion or inflammation of the nose (rhinitis), sinuses (sinusitis) and throat (pharyngitis).⁷

The most common conditions and symptoms encountered at our clinic are:

- Recurrent upper respiratory tract infections (URTIs), otitis media or tonsillitis
- Chronic blocked and runny nose
- Recurrent wet and wheezy chest
- Grommets already inserted or to be inserted

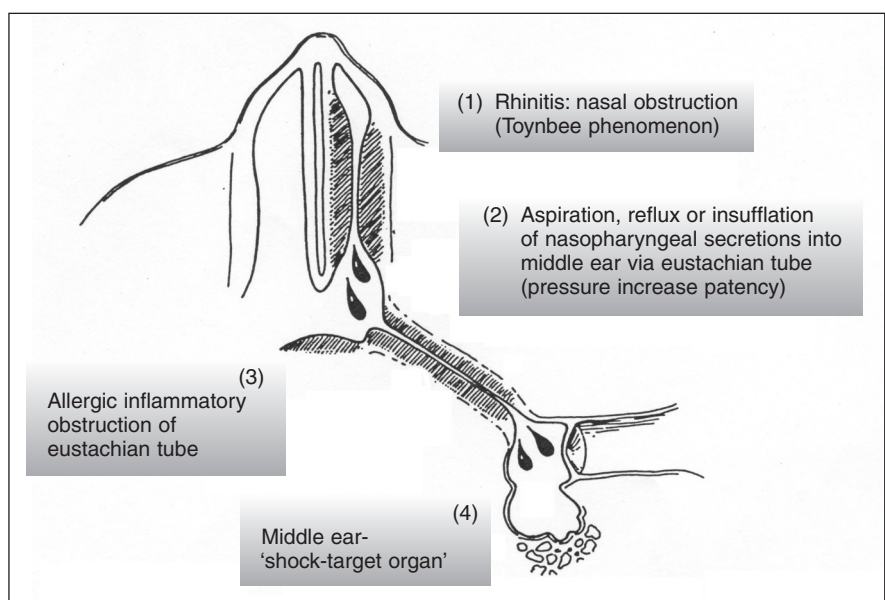


Fig. 1. Schematic representation of possible mechanisms involved in serious otitis media with effusion associated with food allergy.⁸

Table III. Symptoms that could indicate a possible milk allergy/intolerance

Infant	Toddler/older child
<ul style="list-style-type: none"> • Excessive colic • Diarrhoea/constipation • Eczema • Chronic blocked nose • Chronic runny nose • Recurrent otitis media • Chronic serous otitis media • Recurrent tonsillitis, URTIs • Wet, wheezy chest • Irritability • Sleep problems • Failure to thrive 	<ul style="list-style-type: none"> • Chronic blocked nose • Snoring • Chronic runny nose • Recurrent otitis media • Chronic serous otitis media • Recurrent sinusitis, tonsillitis • Wet, wheezy chest • Hearing disorder • Speech delay • Fatigue • Poor school performance

- Presence or absence of eczema or other associated gastrointestinal symptoms.

Any of these immediately alerts one to the possibility of CMA/CMI, with or without associated FA/FI. Our experience at 1 Military Hospital has shown that a wet, wheezy chest in a young child is a common symptom of CMA/CMI.

Serous otitis media (SOM) (Fig. 1) SOM is a common problem, occurring in 20% of children.⁷

The precise pathogenesis of the disease process is unknown and the condition has provoked considerable controversy.⁸ Studies⁸ have shown a significant statistical association between FA and recurrent SOM in 78% of patients.

According to Nsuoli *et al.*,⁸ it is well established that nasal congestion and rhinorrhoea are the most common respiratory manifestations of FA in young children. They postulated the mechanism(s) by which allergic hypersensitivity may trigger middle-ear disease (Fig. 1). They concluded that OM may be secondary to factors that cause eustachian tube obstruction and, although such inflammation is often associated with recurrent URTIs, the study indicated that FA may contribute significantly to a proportion of cases.¹

Furthermore, Wall⁹ advocates dietary intervention rather than surgery for recurrent OM (ROM) and SOM, as FA is probably the most overlooked and important factor in these children, emphasising that good nutrition is impera-

tive to enhance immune system functioning.

Allergic rhinitis

FA, especially CMA/CMI, is an important cause of allergic rhinitis⁸⁻¹⁰ in the young child, with or without inhalant allergens.

Gastro-oesophageal reflux (GOR) and reflux oesophagitis

The frequency of GOR and CMA/CMI is estimated at about 40% and eosinophilic oesophagitis attributed to GOR has also been noted. In infants, GOR may be associated with ROM as a result of reflux of milk into the eustachian tube.¹

DIAGNOSIS

Important considerations⁶

- In South Africa, with very few and very expensive hypoallergenic milks available, managing CMPA/CMPI and FA/FI is difficult. Health professionals need to educate themselves regarding nutrition and basic alternative local food and provide 'free from' lists and information for the patients.
- Adequate time allocated for a detailed history is the most important aspect of the consultation.
- A menu from the crèche/nursery school is essential to allow advice on changes. Soya protein is

Table IV. Clinical types of milk allergic reactions⁶

<p>Type 1 Symptoms start within minutes of intake of small volumes of CM. Mainly causes skin problems, eczema or urticaria. May have respiratory (runny nose, wheezy chest) or gastrointestinal (vomiting and diarrhoea) symptoms – IgE mediated</p>
<p>Type 2 Symptoms start several hours after intake of modest volumes of CM; mostly symptoms of vomiting and diarrhoea – non-IgE mediated</p>
<p>Type 3 Symptoms develop after more than 20 hours or even days after intake of large volumes of CM. Symptoms include diarrhoea, with or without respiratory or skin reactions – delayed cell mediated. Variable degrees of IgE sensitisation</p>

Table V. Approximate calcium needs⁶

Infants	300 mg
Toddlers	600 mg
Older children and adults	900 mg
Teenagers	1 200 mg
Pregnant, lactating mothers	1 200 mg

Toddlers – 500 ml Ca-fortified milk daily

often added to mince. Macaroni and cheese, hot dogs, custard and jelly are regular items on the menus.

- Cultural habits must be considered and questioning may reveal that the mother drinks fresh farm milk (untreated) while breast-feeding. Peanut butter is often added to the infant's cereal for extra protein. Pica in a lactating mother is not uncommon and peanut butter is commonly eaten. She should be tested for iron deficiency anaemia. Orange and guava juices are also used to improve the vitamin C content of breast-milk, causing eczema and wheezing in some atopic infants. Breast-fed infants who are sensi-

tive to foods taken by the mother are highly allergic individuals. The lactating mother's diet must be adjusted accordingly.

- The variety of drinks and quantities consumed are important. No more than 500 ml of milk per day is needed from the age of 10 - 12 months. Often tea is made up as 50:50 milk:tea ratio and the child drinks 6 cups per day! Vast volumes of inappropriate juices and soft drinks are also consumed, which can cause symptoms.

Orange, guava and pineapple (fruit or artificial drinks) caused reactions in 14% of children, regardless of the preservatives used. In this group 62.3% react-

ed to one or more soft drinks. Sulphur dioxide caused coughing or cough and wheeze in 27.2% of patients. Orange and guava juices and Oros were implicated most frequently.⁶

- Iron deficiency anaemia is the main cause of anaemia in infancy, and CMPA and the consumption of untreated CM by infants under 6 months of age are important causes. All these should be checked routinely using iron studies.

Calcium supplements

Dairy products contain the highest concentration of calcium, which needs to be supplemented in a dairy-free diet. Calcium requirements depend on the type of milk formula used and the quantities consumed by the infant. Not all soya milk contains the required 120 mg /100 ml calcium. The Australian RDI approximate calcium needs is a more suitable guideline for our locally available calcium supplements (Table V).

- Calcium supplements differ in

Table VI. Medical history

Main complaints

May present as chronic blocked and/or runny nose, chronic wet and wheezy chest, recurrent ear infections, eczema, vomiting, diarrhoea, irritability, sleep problems or reflux

Feeding history

Was breast-milk or formula used first, and for how long? Chronological history for later changes in formulae and reasons why – this is the most important part of the history

Past history

Admissions? Grommets? Operations?

Family history

Food allergy? Eczema? Asthma? Hay fever? Drug allergy?

Diet history

Detailed history on each food item: product name, flavour, quantity and frequency used to identify foods with 'hidden' milk allergens, and snacks/foods/drinks also known to give symptoms

Fluids

Dairy, soft drinks, fruit juices, tea, coffee

Solids

Cereals, margarine/butter, white sauces, yoghurt, cheese, custards, ice-cream, biscuits, processed meats, viennas, snacks, chips, sweets, chocolates, vegetables, fruits (fresh, dried, citrus), sandwiches (cheese spread, peanut butter, polony), vegetables/mashed potato (margarine, butter, Aromat added?)

History

It is not unusual to find that a child may ingest 1 500 ml milk, 600 - 800 ml Oros/orange juice, yoghurt, cheese, viennas/polonies, cheese curls, sweets and chocolates every day ('empty calories'), with virtually no vegetables! All cause severe allergic symptoms and signs

Table VII. Most common foods/drinks containing either milk allergens or preservatives/colourants/flavourants that can cause allergic symptoms and signs

Foods/snacks

- Pronutro, Provita, Marie biscuits
- Processed meats, polony, some vienna sausages, luncheon meats
- Fish fingers, pie crusts, creamed soups
- Cheese curls, Niknaks, cheese bites and other chips containing cheese
- Smarties, Astros, sherbet powder, toffees, chocolates
- Frozen artificially coloured suckers (ice lollies)
- Citrus fruits – oranges, naartjies (can exacerbate eczema/urticaria)
- Peanut butter in sensitised patients

Drinks

- Cedar concentrated fruit nectar
- Hall's concentrated fruit nectar
- Oros, Lecol and made-up soft drinks
- Energade, Powerade, Red Bull, Lucozade
- Fortris, Tropica (contains milk)
- Juices – orange, guava, pineapple, berry (especially in plastic bottles)
- Fanta orange, grape and pineapple
- Coca-Cola (migraine/urticaria in sensitive patients), Soda Stream
- Hot chocolate, Milo, Ovaltine, Horlicks and coffee creamers (e.g. Cremora)

elemental concentration, palatability and cost. Compliance is generally poor.

- Rennies tablets are easy to chew and crush, are very palatable for the infant/toddler and are inexpensive.
- Calcium carbonate preparations are absorbed best and are separately formulated both as antacids (Rennies/Tums) and as calcium supplements.

- Elemental calcium in Rennies is 273 mg and in Tums 200 mg.
- A divided dose regimen with meals is advocated.

Medical history

‘Allergic’ disease in babies is triggered by foods, not inhalants. Over one-half of atopic infants show allergy in the first month of life, most by 3 months. Milk is the most common allergen and as there is no reliable specific *in vitro/vivo* test for CMPA/CMPI, the diagnosis is made on clinical history and symptom improvement on withdrawal (Table VI).

Management

Foods containing dairy products are excluded, and alternatives are given (Tables VII and VIII) with reduced volumes of fluids and advice on a balanced diet. Lists of alternative foods, synonyms and allergy/food information leaflets are provided and if at all possible the parent is referred to a dietician for

balanced meals/information and recipes.

Diagnostic tests

Overall SPTs seem to be superior to CAP RASTS as a diagnostic tool in infants with symptoms suggestive of CMPA or FA.¹ SPTs for foods can be done successfully in early infancy (from 2 months of age). The CAP RAST tests for milk protein as a whole, or the individual fractions of milk. A negative result does not exclude a milk/food intolerance.⁶

CONCLUSION

CMI is mainly a disease of infancy and 90% manifests in the first few weeks of life. Most children will outgrow their CMA/CMI (± 78% at 6 years). Unfortunately, the diagnosis is often missed, with all the unwanted sequelae of chronic SOM, discharging ears, permanent perforations, cholesteotoma and hearing loss.

References available on request

Egg-specific IgE with a positive family history (FH) of atopy is a highly specific and predictive marker for sensitisation to inhalant allergens at 3 years of age.

Table VIII. Some milk-free products⁶

Milk-free cereals

- Nestum
 - No. 1, No. 2, No. 3
- Honey
- Purity
 - Rice, maize
- Cooked cereals
 - Mealie meal
 - Kreemy Meel
 - Maltabella
 - Jungle Oats
- Kelloggs
 - Rice Krispies
 - All Bran Flakes
 - Raisin Bran
 - Corn Flakes
 - Just Right
- Weetbix

Milk-free bread or snacks

- Brown/white bread
- 100% rye bread
- Ryvita
- Rice cakes
- Corn thins
- Bokomo sliced rusks

Milk-free snacks (sulphur dioxide/tartrazine free)

- Simba chips
 - Plain
 - Salt and vinegar
- Willards chips
 - Plain
 - Salt and vinegar
- O'Grady's chips
- Popcorn (white)

Milk-free biscuits

- Bakers
 - Boudoir
 - Zap
 - Matzo
 - Tanner (lemon, ginger, vanilla)
- Baumann's
 - Coconut
 - Shortbread
 - Snackbread
- Pyotts
 - Ginger Nuts (choice)
 - Savoy Crackers
 - Cracker bread
 - Cream Crackers
 - Farley's

Milk-free chocolate

- Nestlé chocolate
 - Easy Melt Dark
 - Dark Albany
 - Dark Albany with mixed peel and raisins
- Cadbury's
 - Bourneville/mint/orange
 - Chocolate Tree Mint Crisp
 - The Carob Tree Mint Crisp
 - Toblerone dark chocolate

Milk-free margarines

- Cardin – tub (expensive, but bakes well)
- Olé Medium Fat – tub or block
- Blossom Lite – tub only

Milk-free ice cream

- All fruit suckers
- Gatti's fruit suckers
- Basset's
 - Fruit sorbets (milk/soya free)
 - Whirley Whip (soya based)
 - Torfu Treat (soya based)
- Dairy Maid
 - Litchi Sorbet (milk solid-free label)

Milk-free sweets (relatively safe sweets – mixed natural and artificial colourants)

- Jelly babies
- Other jelly sweets
- Jelly Tots
- Sugus
- Marshmallows
- Hard-boiled sweets, e.g. Sparkles
- Nougat

Kosher products

Check all products with the Kosher sign. Where P or PAREV is used, the product is milk free; M or MILCHIK means it contains milk

IN A NUTSHELL

'Allergic' disease in babies is triggered by foods, not by inhalants, and most manifest by 3 months. FA may affect up to 10% of children.

About 80% of all food allergic reactions in children are caused by legumes (peanuts, soybeans), cow's milk and eggs. Most children (80%) will outgrow their hypersensitivity to milk and eggs at the end of their first decade.

Egg-specific IgE with a positive FH of atopy is a highly specific and predictive marker for sensitisation to inhalant allergens at 3 years of age.

CMA/CMI is the most frequent FA in infants (2 - 5%). The diagnosis should be made within the first year of life and 90% manifests within the first weeks of life.

Sensitisation to CMP can occur during pregnancy, breastfeeding and usually by being bottle-fed.

CM formula feeds in the maternity ward should strictly be avoided in high-risk allergy infants and only glucose water or truly hypoallergenic formula should be given until breast-milk amounts are sufficient.

Sixty to seventy per cent of all adverse reactions to CMP are intolerant reactions and therefore no SPT or RAST will be positive. Generally, SPTs for foods in children are superior to RASTs.

The ear, nose and throat are the most common target organs for FA/FI. Recurrent otitis media affects two-thirds of all children by age 2 years.

SOM is the most common problem, occurring in 20% of children, and causes acquired hearing loss in children. FA/FI (especially CMP) may be the cause of many of these multiple episodes and should be considered.

A detailed clinical history and history of all foods/fluids ingested are essential for an accurate diagnosis and management of FA/FI.

All foods must be checked for 'hidden allergens'. Junk foods and incorrect soft drinks and volumes consumed must also be checked. No diet history is complete without a menu from the day mother/nursery school.

Calcium and iron supplements must be given to all children on a dairy-free diet and to those diagnosed with an iron deficiency.

The importance of a dietician in the management of FA, whenever possible, cannot be over-emphasised.

Half page Metropolitan ad