

BREASTFEEDING AND ALLERGIES

Claudia Gray¹ | MBChB, FRCPCH, MSc, DipAllergy, DipPaedNutrition, PhD

Evette van Niekerk² | BSc Dietetics, M Dietetics, PhD

1. Division of Allergy, Red Cross War Memorial Children's Hospital, Rondebosch, Cape Town, and University of Cape Town Lung Institute

2. Division of Human Nutrition, Faculty of Medicine and Health Sciences, University of Stellenbosch

Email | Claudiagray.paediatrics@gmail.com

ABSTRACT

There is evidence that allergens can be transmitted via breast milk, albeit in a highly processed form that is tolerated by the vast majority of infants. Occasionally, exclusively breast-fed babies can present with signs of allergies, rarely IgE-mediated manifestations, and more commonly delayed type manifestations of the gastrointestinal tract. Allergens transmitted via breast milk can occasionally exacerbate eczema. Blanket elimination of foods during breastfeeding is discouraged and is potentially harmful to both mother and infant. An assessment by a specialist to determine the exact causative allergens is encouraged. The vast majority of infants who present with allergies during the breastfeeding period can continue to breastfeed if the mother excludes specific foods from her diet.

INTRODUCTION: THE PROTECTIVE 'MILIEU' OF BREAST MILK

Colostrum and breast milk provide the multiple factors that are required to support the infantile humoral and cellular immunity, promote the establishment of a protective intestinal microbial population and ensure optimal growth and development.¹ The composition of breast milk changes throughout the lactation period as it adapts to the changing needs of the infant. Foods and proteins are already highly 'filtered' and processed by the time they pass into breast milk, and the vast majority of babies tolerate breast milk extremely well.

However, there is evidence that recognisable food proteins can pass into breast milk. In addition to the processed allergen, breast milk contains a number of protective substances, which usually means that the transmitted allergens are well tolerated. Such factors include allergen-specific IgG, soluble immunoglobulin A, transforming growth factor beta, vitamin A, optimal microbiota and human milk oligosaccharides.^{1,2}

Despite such a protective milieu, transmitted allergens occasionally evoke an aberrant immunological response in the infant and manifest as allergies. Therefore, infants who are exclusively breastfed can show signs and symptoms of food allergies. These can manifest both as IgE-mediated allergies, or more commonly as non-IgE-mediated food allergies, including eczema and gut symptoms.²

The pathogenesis, manifestations and management of allergies in breast-fed infants are described in this article, as well as the role of breastfeeding in allergy prevention.

TRANSMISSION OF ALLERGENS VIA THE BREAST MILK

Maternal dietary macromolecules are absorbed in the gut and can be transmitted in human milk. The amount of allergen transmitted via breast milk is allergen dependent, varies from one mother to another and from feed to feed. Peanut proteins, for example, have been shown to be transmitted in only 48% of lactating women after peanut ingestion.³ A positive association has been found with an increased permeability of the mammary epithelium and the risk of atopic disease in infants with allergic mothers.⁴ Further research is needed regarding factors that may influence the passage of food proteins into human milk and the effects it will have on infant immune tolerance.

Although there is a paucity of research regarding specific allergen availability in breast milk, some allergens have been studied and are summarised in Table I. For cow's milk (CM) protein it has been found that the whey component beta lactoglobulin passes into breast milk in small but variable amounts: usually equivalent to the amount in an extensively hydrolysed formula. In addition, in rare cases there may be some cross-reactivity between human-milk proteins and bovine-milk proteins.⁵⁻⁸

For egg protein, a recent randomised controlled trial found that increasing maternal dietary egg intake during early lactation was associated with higher breast-milk ovalbumin concentrations.⁹

TABLE I: ALLERGEN AVAILABILITY IN BREAST MILK AFTER MATERNAL CONSUMPTION

ALLERGEN	DURATION OF ALLERGEN AVAILABILITY IN BREAST MILK AFTER MATERNAL CONSUMPTION (HOURS)
CM protein ^{5,6,7,8}	1–12
Egg: Ovalbumin ^{9,10,11}	2–6
Peanut protein ³	1–3
Wheat protein: Gliadin ^{12,13}	2–4

MANIFESTATIONS OF FOOD ALLERGIES DURING BREASTFEEDING

IgE-MEDIATED ALLERGIES DURING BREASTFEEDING

IgE-mediated allergies most commonly manifest when supplementary feeds are introduced or solids are introduced. Much less likely is an IgE-mediated allergy manifesting during exclusive breastfeeding. In the latter case, the allergen is transmitted into the breast milk within 1–12 hours after maternal ingestion of the offending food and then causes symptoms in the infant any time from minutes to two hours after the breastfeed during which the allergen is transmitted.

Manifestations of IgE-mediated allergies in breast-fed infants can be urticaria, lethargy (floppiness) or respiratory symptoms. Because of the delay in the transmission of the allergen into the breast milk, the offending agent may not be immediately obvious and it will need to be determined by standard screening methods for IgE-mediated allergies, namely, skin-prick tests (SPTs), specific serum IgE or, in equivocal cases, food challenge.¹⁴

Anaphylaxis in breast-fed infants is probably underdiagnosed and food-induced anaphylactic reactions have been reported in infants starting as early as the age of one month. Common allergens that induce this reaction are CM and egg; however, other foods have also been associated.^{15,16} Anaphylaxis in infants is often overlooked because of an atypical presentation that includes lethargy, cyanosis, sudden cessation of activity and hypotension, which can occur in the absence of cutaneous symptoms.^{17,18} In addition, some signs are non-specific and are commonly seen in healthy infants; these include reflux, loose stools, irritability and sudden hoarseness.

NON-IGE-MEDIATED ALLERGIES DURING BREASTFEEDING

Five non-IgE-mediated allergies are described below. The symptoms are delayed by hours to days after ingestion of the offending allergen, which in the vast majority of cases

is CM and/or soya. Manifestations present as gut or skin signs.

Protein-induced allergic proctitis/proctocolitis

This condition usually presents by six months of age (typically between two and eight weeks of age) with fresh blood-streaked, mucous, loose stools, and occasionally loose or frequent stools in breast- or formula-fed infants who otherwise appear well and thriving.^{19,20} Anal fissures and viruses can cause a similar presentation, but approximately 60% of infants with rectal bleeding have food-protein-induced proctitis/proctocolitis and, in turn, approximately 60% of proctocolitis occurs in exclusively breast-fed infants.²¹ The exclusion of CM from the mother's diet results in resolution of the symptoms within 72–96 hours in most cases. Research has found that up to 5% of these infants do not show the desired improvement on a strict maternal elimination diet and that they benefit from an amino-acid formula. Most infants outgrow this disorder by one year of age.^{19,20}

Dietary protein enteropathy

Food allergy leads to distorted villous architecture and consequent absorption disturbances, leading to symptoms such as protracted diarrhoea, vomiting, bloating and failure to thrive. In contrast to infants with allergic proctocolitis, allergic enteropathy in infants usually manifests in a miserable, colicky infant with possible (but not inevitable) growth faltering.²⁰

Food Protein-Induced Enterocolitis Syndrome (FPIES)

FPIES is a potentially severe, non-IgE, cell-mediated food hypersensitivity. FPIES typically presents with severe, repetitive projectile vomiting 1–3 hours after ingestion of an offending allergen, leading to lethargy and sometimes profound dehydration or even shock. Some infants may have diarrhoea, usually starting 5–10 hours after food ingestion.^{22,23}

FPIES to CM and soya in exclusively breast-fed infants is extremely rare, although it has been reported.^{24,25}

The acute phase can be the first manifestation of FPIES, or it can occur when the allergen is removed from the diet and then reintroduced. Chronic exposure (such as from a CM- or soya-based formula) to the offending allergen may cause vomiting and diarrhoea, failure to thrive and hypoalbuminaemia.

Allergic eosinophilic oesophagitis (EoE)

Eosinophilic oesophagitis is characterised by chronic, relapsing eosinophilic inflammation of the oesophagus. The most common trigger is CM and this disorder has also been described in exclusively breast-fed infants.^{26,27}

Children with allergic EoE have symptoms suggestive of gastro-oesophageal reflux disease (GORD): vomiting,

dysphagia, irritability and feeding difficulties. However, they tend to be refractory to conventional GORD therapies.

Motility disturbances

Cells that are involved in allergic reactions, such as mast cells and eosinophils, can interact with the enteric nervous system (so-called 'neuro-immune' interactions) to cause motility disturbances. This can lead to food allergies manifesting as vomiting, constipation, treatment-resistant reflux or colic.²⁰

MIMIC OF CM ALLERGY – LACTOSE INTOLERANCE

Lactose is the sugar in milk of all mammals, including humans. Breast-fed babies can therefore experience symptoms of lactose intolerance if there is a relative lactose overload or a deficiency in lactase enzyme. An abundance of foremilk can worsen the problem. Symptoms such as diarrhoea, excessive gas, fussiness and failure to thrive may occur and mimic CM allergy. A trial of block feeding (using only one breast at a time per feed or even for two feeds in a row) and a trial of lactase enzyme drops may be considered if lactose intolerance in breast-fed babies is questioned. This often resolves by three months of age as lactase levels in the gut increase.

DIAGNOSIS OF FOOD ALLERGIES DURING BREASTFEEDING^{28–31}

IgE-MEDIATED FOOD ALLERGIES

These rare food allergies in breast-fed babies require a detailed history, skin testing and possibly serum-specific IgE testing. Both SPT and specific IgE testing can be performed from an early age – as early as 2–3 months of age. Positive tests are suggestive but not diagnostic of food allergy because false-positive results can occur, especially with atopic dermatitis. In equivocal cases an oral food challenge may be needed – this is usually not performed after an episode of anaphylaxis. Oral food challenges should be included in the patient reassessment plan to determine whether the child has outgrown the food allergy.

NON-IgE-MEDIATED FOOD ALLERGIES

The diagnosis of delayed-type gastrointestinal syndromes is not straightforward because a typical patient has undetectable food-specific IgE antibodies by SPT or blood test. The cornerstone of diagnosis is a typical history (e.g. blood in stool in proctocolitis, recurrent emesis in FPIES) followed by an elimination–re-introduction diet. The disappearance of symptoms during maternal avoidance of trigger foods and reappearance during the re-introduction of trigger foods to the maternal diet is diagnostic of food allergy. Re-introduction can be performed as an outpatient in milder cases but will need to be performed as an inpatient in more high-risk cases such as FPIES. In such a case intravenous access should ideally be in place before beginning the challenge.²² If the diagnosis of FPIES is clear from the history of recurrent typical episodes, a food

challenge will be avoided until such time as the patient has a good chance of having outgrown the condition, usually at 3–4 years of age.

In allergic EoE, endoscopy and biopsy show an increased number of eosinophils ≥ 15 eosinophils per high power field (HPF).^{26,27}

MANAGEMENT OF FOOD ALLERGY DURING BREASTFEEDING^{2,14,28–31}

If an infant is symptomatic owing to the presence of dietary food triggers in breast milk, the cornerstone of management is maternal avoidance of these foods, coupled with the choice of an appropriate formula milk if supplementary feeding is necessary or the mother is weaning, and avoidance of the offending food when solids are being introduced. Crucially, 'blanket elimination' of foods from a mother's diet should be avoided when allergies are suspected. Instead, expert testing and interpretation should allow targeted elimination. Infants with IgE-mediated allergy require a written emergency anaphylaxis plan and access to an adrenaline autoinjector in severe cases.

Once the allergen has been identified, strict avoidance of that allergen from the maternal diet is advocated. This is because it is difficult to identify the threshold for reactivity in an infant, and also the threshold dose can become smaller with repeated episodes. Some infants reacting to milk and egg via the breast milk may tolerate maternal ingestion of these foods in the baked form, but this is not routinely recommended without assessment by an allergist.

CM is the most common trigger for early manifestations of food allergy, regardless of the clinical presentation. Strict avoidance of CM from the mother's and infant's diet is needed in cow's milk protein allergy (CMPA), unless otherwise suggested on the basis of allergy testing: 95% of CM-allergic infants will respond to strict maternal elimination, and can therefore continue to breast feed. In allergic proctocolitis, the response to maternal elimination occurs within 48–72 hours. In enteropathy, the response may take 2–3 weeks, hence the trial of maternal elimination needs to be longer to look for any improvement in symptoms.

If there is no response to a CM elimination diet, options are that:²

- the maternal elimination diet is not complete and there is still ingestion of hidden sources of allergen;
- rarely, additional foods need to be eliminated (such as egg, peanut or wheat);
- symptoms are not related to food allergy (as is commonly the case in atopic dermatitis);
- the infant is actually reacting to breast milk proteins that are cross-reacting with CM protein. This latter case is rare, but will necessitate the discontinuation of breastfeeding and use of an amino-acid formula.

In all cases of maternal dietary elimination, a dietitian should be involved to help identify hidden sources of milk protein (or other identified allergens) in the diet, and to ensure the nutritional adequacy of the maternal diet. A good pre-natal vitamin and a calcium supplement (1 000 mg calcium daily) are needed for the mother who is avoiding CM protein strictly.

INTRODUCTION OF FORMULA MILK

If breast milk is inadequate or the mother is choosing to wean off the breast in a CMPA infant, alternatives include hypoallergenic formulas (extensively hydrolysed CM-based formulas and amino acid-based formulas). Partially hydrolysed CM formulas are not hypoallergenic and therefore not appropriate. Extensively hydrolysed formulas are tolerated by about 90% of infants with CM allergy. Breast milk, in theory because of the filtration process, is already 'equivalent' to an extensively hydrolysed formula.; therefore, strictly speaking, infants reacting to CM transmitted via breast milk will do better on an amino acid-based formula if the mother needs to wean or supplement. Certainly an amino-acid-based formula is recommended over extensively hydrolysed formulas in:

- infants with IgE-mediated CM allergy who are at high risk for anaphylaxis;
- EoE;
- those who continue to exhibit symptoms on extensively hydrolysed formulas;
- those who continue to exhibit symptoms after maternal elimination of CM.

In non-IgE-mediated CM allergy, there is a significant overlap with soya allergy; therefore, a soya formula is not recommended. In IgE-mediated CM allergy, use of a soya-based formula is an affordable and palatable alternative to hydrolysed formulas if the patient has tested negative to soya during allergy testing. Milks of other mammalian origin such as goat's milk should also be avoided owing to high degrees of cross-reactivity with CM.

TIMING OF RE-INTRODUCTION OF ALLERGENS IN THE ALLERGIC BREAST-FED BABY^{20,31}

In a child with an *immediate-type allergic reaction during breastfeeding*, it is recommended to wait until one year after the last reaction occurred and in addition to be guided by skin tests or specific IgE trends, as well as the history of dietary indiscretions. Re-introduction should take place under the supervision of a physician in infants with IgE-mediated allergy.

For non-IgE-mediated allergic manifestations which are evident in breast-fed babies, the introduction of CM and soya into the diet of lactating mothers should be attempted at the discretion of the physician/allergist, often at around 9–12 months of age. Milder cases may tolerate maternal re-introduction at an earlier stage, and certainly baked milk products may be attempted in a lactating mother at around

six months of age. The introduction of CM products into the infant's diet may be attempted after one year of age. This is often done in a stepwise fashion – starting with baked milk products, progressing to an extensively hydrolysed formula in infants supplemented with amino-acid formula, yoghurt and cheese, and then CM. If at any stage the child shows symptoms of allergy, the re-introduction should be halted, and resumed again 2–3 months later. In proctocolitis, introduction can be attempted at 9–12 months, but in FPIES it is usually recommended to wait until 12–18 months after the last reaction. In the case of EoE, the age at introduction of CM or soya is at the discretion of the clinician taking care of the infant, and is often delayed until later.^{26,27}

In case of proctocolitis and dietary protein enteropathies, the trigger food may be re-introduced at home if there is no history of an immediate reaction. Re-introduction should take place under the supervision of a physician in the case of infants with FPIES.

It is wise to repeat a SPT or specific IgE before such re-introduction in non-IgE-mediated allergies in order to detect the occasional case in which an IgE mechanism has evolved.

FOOD ALLERGIES MANIFESTING UPON WEANING

If the breast-fed child presents for the first time with symptoms during supplementary feeds with a CM-containing formula milk, or when solids are introduced, then they should be investigated and the offending allergen eliminated from the infant's diet. However, if they are asymptomatic during breastfeeding, even if the mother is consuming the offending allergen during breastfeeding, then insufficient amounts of intact allergen are passing into the breast milk to cause symptoms and the mother can continue to consume the offending foods during lactation. All too often strict elimination diets are prescribed for lactating mothers when in fact breast milk is not triggering symptoms.

ECZEMA IN THE BREAST-FED BABY

MILD ECZEMA

Atopic eczema is common in infancy. In an exclusively breast-fed infant with mild eczema, it is reasonable to initially prescribe a skin-care regimen, and only if the eczema does not respond to such a regimen may referral to a specialist be warranted. A significant elimination diet is unnecessary: it can compromise the well-being of both mother and infant and should not be implemented without a proper diagnosis of food allergy.

MODERATE TO SEVERE ECZEMA

Food allergies contribute to the severity of eczema in only about 20% to 33% of children with moderate to severe eczema, and in 90% or more of such cases, an IgE-mediated mechanism is involved. Clues to food allergy include eczema

TABLE II: INDICATIONS FOR ALLERGY TESTING IN CHILDREN WITH ECZEMA

Moderate to severe eczema, especially if not responding to standard treatment
Early onset eczema (<6 months)
A history suggestive of immediate food allergies
A history of recurrent worsening of eczema after ingestion of a certain food
Associated features suggestive of allergy such as severe colic or failure to thrive

that exacerbates within hours to a day with maternal ingestion of certain foods, such as CM or peanut, and improves with maternal avoidance of the trigger food. Additional clues are early onset eczema at less than three months of age, and in those infants with chronic gastrointestinal symptoms or failure to thrive. Indications for food-allergy testing in a child with eczema are outlined in Table II.³²

The National Institute of Clinical Excellence (NICE) and other guidelines for eczema guide that in moderate to severe eczema in a child less than six months of age, a trial of maternal elimination of CM protein (or a trial of extensively hydrolysed formula in the case of formula-fed babies) should be attempted for 3–4 weeks in addition to standard topical eczema therapy.³³

Food allergy needs to be proven before recommending specific elimination diets. Certainly there is no role for blanket elimination diets in the lactating mother if the child has eczema; targeted avoidance should be advised by the specialist after appropriate assessment. Many children with eczema have positive allergy tests but will tolerate the food; therefore, this is best dealt with by an allergist with the capacity to perform food challenges if needed. Generally, if foods seem to be tolerated with no obvious immediate symptoms, and eczema is treatment responsive, then foods do not need to be eliminated regardless of allergy test results.

COLIC AND BREASTFEEDING

Minor gastrointestinal problems are extremely common in the first year of life, and a source of great anxiety. The term 'colic' is used broadly to refer to prolonged excessive crying or unsettled periods for no apparent reason, and a discontentment that is difficult to soothe. It occurs in breast- and formula-fed babies alike.³⁴ A rather old-fashioned but still widely used definition of colic refers to crying which:

- lasts for more than three hours a day;
- lasts for more than three days per week;
- persists for longer than three weeks in a child with normal growth patterns.

Colic is multifactorial and possible contributing factors are listed in Table III.

Simple colic does not respond to CM exclusion.³⁵ A general reduction in caffeine, alcohol and gas-forming foods

TABLE III: FACTORS POSSIBLY CONTRIBUTING TO COLIC

Immaturity of the gut
Neurological immaturity
Trapped wind causing gut discomfort or pain
Disturbance in the bacteria of the gut
Reflux of gastric acid into the oesophagus
Feeding difficulties such as overfeeding, underfeeding, swallowed air or foremilk abundance
Exposure to tobacco smoke in pregnancy or after birth
CMPA plays a role in some patients
Lactose intolerance may play a role
Hypersensitivity to environmental stimuli
Infant temperament, family stress and emotional tension during pregnancy

should be considered in cases of severe colic, but blanket exclusion of multiple allergenic foods is not warranted.

In selected patients with colic, especially those with additional factors such as eczema, failure to thrive or treatment-resistant reflux, a non-IgE-mediated CMPA should be considered. Such cases may warrant a CM-free diet during breastfeeding for 2–3 weeks. If there is no response, the mother should revert to her normal diet or, in rare cases with a high suspicion of an allergic aetiology, be trialled on an amino-acid formula for 2–3 weeks while the mother continues to express to keep up her milk supply.

It should be remembered that colic can affect 20–40% of infants, whereas CM allergy affects 2–5%, so only a small proportion of colicky babies will have a CMPA. Alternative contributing factors in breast-fed babies, such as overfeeding or a quick let-down reflex, or relative lactose overload, should be considered.

ALLERGY PREVENTION AND BREASTFEEDING

THE VALUE OF BREAST MILK IN ALLERGY PREVENTION

The World Health Organisation (WHO) recommends exclusive human-milk feeding for the first six months of life, with continued breastfeeding for 1–2 years of life or longer.³⁶ However, data regarding exclusive breastfeeding for allergy prevention is conflicting.

Several studies have shown benefits of breastfeeding on food allergy and eczema prevention;^{37,38} however, breastfeeding beyond six months does not seem to confer additional benefits pertaining to allergy prevention.³⁹ Maternal breastfeeding for the first three months seems to reduce the incidence of AD,⁴⁰ possibly via ingestion of soluble IgA.⁴¹ Randomised studies and a systematic review found a reduction in the incidence of CMPA with exclusive breastfeeding for four months compared to feeding with CM protein formula, but this cannot be generalised to other food allergies.^{42,43} Breastfeeding may also reduce the number of early (mainly viral-related) wheezes.⁴⁴

However, the more long-term protective role of breast-feeding is still controversial, especially with view to long-term benefits in eczema and asthma.³⁷ Disappointingly, some studies have shown that extensive exclusive breastfeeding may increase food sensitisation and allergy in high-risk infants, and other studies have shown an increase in eczema with breastfeeding among children with no parental allergic history.^{45,46}

In summary, exclusive breastfeeding for the first 4–6 months of an infant's life is still recommended as an allergy-prevention strategy where genetic predisposition poses an increase risk; however, exclusive breastfeeding for six months remains a public-health message not relating to allergies. The continuation of breastfeeding after six months should be recommended because of other beneficial health effects even though research shows inconclusive results for allergy prevention.

Certainly, no formula milk has been found to be more beneficial than breastfeeding as an allergy-prevention strategy.

MATERNAL DIET DURING LACTATION

Mothers may inadvertently sensitise their children to certain foods through breast milk; however, changing maternal diets during breastfeeding has not been found to influence food allergy in infants.^{37,47}

In fact, a recent cohort found that maternal elimination diets during lactation resulted in lower levels of breast milk-specific IgA, which was associated with the development of CM allergy in infants.⁴⁸ However, the participants included in this study had a significant atopic family history, affecting the applicability of the results to the general public.

In summary, during lactation, maternal avoidance of highly allergenic food is not recommended as an allergy-prevention strategy. Note that this recommendation does not apply to infants who already show signs of allergic disease from an early age, and in whom maternal avoidance of certain foods may form part of the management.

MATERNAL SUPPLEMENTATION DURING LACTATION

There is increasing evidence that gut microbial composition plays an important role in local and systemic maturation of the immune system, and therefore plays a potential role in allergy pathophysiology. To this effect, probiotics (beneficial bacteria) and prebiotics (non-digestible oligosaccharides which stimulate selectively the growth of beneficial bacteria) have been investigated during the perinatal period for their potential modification of postnatal gut colonisation. Breastmilk is naturally rich in prebiotics, therefore it potentially contributes towards optimising gut microbiota in the infant. Maternal probiotic supplementation during pregnancy and lactation, while showing potential benefit in eczema reduction in the offspring, has led to

inconclusive results for food-allergy prevention.⁴⁹ Finding the optimal doses and strains of probiotics and the optimal timing of supplementation for potential allergy prevention remains in the realm of active research.

Maternal fish oil supplementation during lactation has not been shown to reduce infant food allergy.⁵⁰

BREASTFEEDING AND THE INTRODUCTION OF SOLIDS

From an allergy-prevention point of view, studies have shown that delaying solids beyond four months of age does not seem to confer additional allergy protection benefits.^{51,52} There is a growing body of evidence that excessive avoidance of natural exposure to allergens, which was the main food-allergy prevention strategy in the past, can lead to impaired immunological tolerance. Therefore, the current recommendation of the European Academy of Allergy and Clinical Immunology (EAACI) and the American Academy of Paediatrics (AAP) is to introduce complementary foods between 4 and 6 months according to local standard practice and the needs of the infant, irrespective of atopic heredity. However, looking beyond allergy prevention, care should be taken in advising the early introduction of solids in resource-constrained settings, in which enforced partial breastfeeding may lead to an overall reduction in the duration of breastfeeding.⁵³ Moreover, the early introduction of solids and a shortened duration of exclusive breastfeeding has been associated with risk for childhood obesity, adult-onset coeliac disease, eczema, anaemia, diarrhoeal disease and non-communicable diseases.⁵⁴

As far as *highly allergenic solids* go, there is no benefit in withholding exposure to potentially allergenic solids once weaning has commenced, irrespective of atopic heredity. Current studies are showing a trend towards an advantage to introducing allergenic foods such as peanut earlier.^{55,56} *However, if the infant already shows signs of atopy or allergy, further evaluations need to be pursued to help introduce solids prudently.*

Introducing potential food allergens while continuing to breastfeed may provide a reduced risk for the development of food allergy.

CONCLUSION

Food allergens do get transmitted via breast milk, but generally in a protective form. Rarely, exclusively breast-fed babies can present with food allergies – either immediate reactions (such as hives or maculopapular rash) or, more commonly, delayed-onset reactions (such as eczema, proctocolitis, FPIES, and eosinophilic gastroenteropathies).

The most common allergens transmitted via breast milk and causing symptoms are cow's milk and soya. Investigations to elicit the offending allergen should ideally

be done in the specialist setting: blanket elimination diets during breastfeeding are unnecessary and nutritionally inadequate.

The vast majority of infants with allergies during breastfeeding can continue to breastfeed with targeted exclusions by the mother. The involvement of a dietitian in overseeing exclusion diets and appropriate nutritional supplementation is vital. Around 5% of infants will not

improve adequately on a maternal elimination diet and will need an amino acid formula. Breastfeeding still has a role to play in allergy prevention – mostly in the first 4–6 months of life. Exclusion diets during lactation do not prevent allergies.

DECLARATION OF CONFLICT OF INTEREST

The authors declare no conflict of interest.

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