PAEDIATRIC FOOD ALLERGY: A COMPLEX ISSUE

It is well recognised that dietitians play a central role in managing paediatric patients with food allergies. Not only can dietitians help secure a diagnosis, but they can help support families to ensure adequate nutrition is received by the patients for optimum growth.[1] Here, we focus on four different presentations of allergy, highlighting the complex nature of this dietetic specialism.

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The prevalence of paediatric food allergy in Western countries is estimated at 6% to 8% in children under three years, with cow's milk allergy (CMA) being the most common (2% to 5% prevalence).[2] Food allergy is a complex issue to be managed in primary care and patients often require support from other healthcare professionals, such as dietitians, to secure a diagnosis. A detailed allergy-focused clinical history is key in diagnosing food allergy.[3] Food allergy is well documented as causing increased anxiety for parents with a decrease in quality of life,[4] and dietitians can help support parents and carers to avoid the allergens and encourage optimum nutrition.

CASE STUDY 1: SYMPTOMS OF CMPA

Sophie is a nine-week-old infant referred to the dietetic clinic by the health visitor for presumed cow's milk protein allergy (CMPA). She was born at term, weight 25th centile at birth and is currently thriving with no growth concerns, having been breastfed from birth to four weeks of age with no issues. Combination feeding commenced at this stage.

From five weeks of age, Mum felt Sophie was showing more colic signs with increased irritability. There was a change to stooling, which became watery and loose, with an increase in stool frequency and red areas behind her knees and elbows. Mum had been reading about the symptoms online and was keen for a trial of a dairy-free formula. Sophie was commenced on an extensively hydrolysed formula by her GP. Mum reported an improvement in stooling within the first week and a reduction in unsettled periods once Sophie had fully transitioned to extensively hydrolysed formula. Sophie was then challenged using iMAP guidelines,[5] with recurring symptoms on the introduction of standard formula. Mum has now removed dairy from Sophie's diet but is finding it difficult to meet her calcium requirements.

At the consultation:

At the dietetic appointment the history is explored. Mum is clear that Sophie only developed symptoms following the introduction of standard formula and during the first four weeks, there was no concern about stooling.

A plan is made for the infant to remain dairy-free for six to nine months and then reintroduction to be made using the milk ladder. Dairy-free weaning is discussed and alternatives are suggested to ensure the infant meets her calcium requirements throughout the first year. However, as Mum says there were no symptoms when breastfeeding alone, Mum is then advised to reintroduce dairy back into Sophie's diet and support is given around this.

REFERENCES

Please visit: www.NHDmag.co.uk/article-references.html

Diagnosis: Non-IgE-mediated CMPA

Learning points
1. CMPA can be observed in breastfed and formula-fed infants.
2. Diagnosis should be confirmed by a challenge as outlined in the iMAP guidelines.
3. If no symptoms while breastfeeding alone, then mum does not need to exclude dairy from her diet.

CASE STUDY 2: WEIGHT LOSS AND VOMITING

Ruby is a 15-week-old infant referred to dietetic service. She was born at term but growth dropped from the 50th to the 9th centile despite her consuming adequate volumes. Ruby's parents reported their concerns regarding Ruby's feeding from around 10 days of age. She has always been unsettled post feeds and they have been unable to lie her flat after feeds.

Ruby is reported to vomit up to 10 times daily; she is not distressed by these vomits and they are described as projectile. She has been prescribed Infant Gaviscon by her GP, which resulted in constipation. Ruby has been trialled on omeprazole suspension with some improvement in distress episodes, but she continues to vomit frequently throughout the day. She has been on an extensively hydrolysed formula for three weeks now with no improvement in vomiting and with further concerns regarding her weight, Ruby's parents are growing increasingly concerned.

At the consultation:
Ruby is reviewed, her length and OFC are both on the 25th centile, and her weight has now started to track the 9th centile. Mum reports that Dad was unable to tolerate dairy as an infant. Both parents are exhausted and are highly concerned about their daughter.

Given the lack of improvement in symptoms on extensively hydrolysed formula and the ongoing concerns regarding growth, the decision is made to switch to an amino acid formula. However, Ruby's vomiting gets worse following this transition and Instant Carobel is added to feeds which she tolerates. Ruby remains on amino acid feed for four weeks, with a slight reduction in vomiting in the last week.

Ruby's parents are advised about the milk challenge to introduce 1oz standard formula to Ruby's first bottle of the day and to increase this as they can. They are advised to continue with Infant Carobel. Ruby is able to complete the milk ladder with no significant change in vomiting. She continues to vomit a few times daily but her parents feel this is manageable. Ruby's weight has continued to track the 9th centile and her parents have been advised on early weaning as a supportive strategy for reflux management.

Diagnosis: Gastro-oesophageal reflux[6]

Learning points:
1. Symptoms can be standalone and not necessarily linked to cow's milk protein intolerance.
2. Early weaning may be a helpful strategy in managing infant reflux but not before 17 weeks of age.
3. Challenge is important as part of the diagnostic process to ensure the infant is not left on a restricted diet unnecessarily.

CASE STUDY 3: EGG ALLERGY SYMPTOMS

Sam is a four-year-old boy who was referred to paediatric dietitians via the allergy clinic. Sam had been helping Gran make cakes and ate some uncooked cake batter. He then developed lip and eye swelling, was projectile vomiting and had a hoarse voice. Sam attended the emergency department which prescribed antihistamine and referred him to the allergy clinic.

At the allergy clinic:
Sam's history is revisited and he is referred for skin prick testing to determine the severity of the reaction. Sam has previously eaten hard-boiled eggs and has also tolerated baked cakes with eggs, but Mum can't recall if he has ever had scrambled eggs.

Sam's SPT demonstrates a positive reaction to egg, so treatment is recommended with antihistamine, as adrenaline is not felt to be required. Sam is advised that he can continue to eat well-cooked eggs in cakes and biscuits, etc, but he should avoid less-cooked eggs. Dietetic advice is given around this and alternatives are suggested. Sam's parents are advised to self-refer back to the allergy clinic in two to three years to have his SPT repeated.

Diagnosis: IgE-mediated egg allergy

Learning points:
1. IgE-mediated allergy can be diagnosed on skin prick testing.
2. IgE-mediated allergy does not require complete exclusion of food if previous foods have already been tolerated.
3. IgE-mediated allergy will require input from allergy specialist services to confirm the diagnosis.

CASE STUDY 4: FOOD PROTEIN-INDUCED ENTEROCOLITIS SYNDROME (FPIES)

Stuart is a six-month-old infant who has been fed standard formula milk with no issues. Stuart's mum introduced baby rice as part of his weaning diet when commencing solids. After two weeks, Stuart's mum was expanding the variety of his foods and after having breakfast with baby rice, formula and pureed apple, around mid-morning Stuart became pale, lethargic and vomited. Mum attended the GP as his vomiting lasted several hours and was thought to be an intercurrent infection.

Stuart had baby rice with formula and apricot puree the following week. He began vomiting again around mid-morning and became pale and unresponsive. He attended the emergency department and required fluid resuscitation and was observed for 48 hours.

On review on the paediatric ward, a concern was raised about potential food protein-induced enterocolitis syndrome given the severity of his symptoms. Stuart's mum agreed to a food challenge whilst on the ward and he had a similar event to what was observed at home which confirmed the diagnosis.

Diagnosis: Food protein-induced enterocolitis syndrome (FPIES)

FPIES is a non-IgE-mediated food allergy characterised by delayed and potentially severe gastrointestinal symptoms. FPIES results in severe vomiting one to six hours post ingestion of the allergen. Other symptoms include paleness, lethargy, floppiness, diarrhoea and dehydration resulting in fluid resuscitation. Symptoms can worsen on repeat exposure. FPIES does not cause skin rashes or eczema.

Common foods that cause FPIES are cow's milk, soya and grains, but FPIES can be caused by any food. FPIES can be diagnosed by a food challenge that should be carried out in the inpatient setting. Once confirmed, dietetic involvement is required to eliminate the allergen and recommend alternatives. Treatment for FPIES is to avoid the allergen but, if consumed, infants may require support with intravenous fluids depending on the degree of reaction. Antihistamine and adrenaline are not useful in treating FPIES. Infants with FPIES usually outgrow the condition by around four years of age and an in-hospital food challenge is often carried out around this time to determine whether the food is safe to be reintroduced.[7]

Learning points:
1. FPIES is a non-IgE-mediated food allergy that can present with severe GI symptoms.
2. An in-hospital food challenge is required to confirm the diagnosis.
3. The only treatment is to avoid the allergen.

CONCLUSION

Paediatric allergy is a highly complex area and a dietitian is key in all presentations of food allergy. An allergy-focused history is key in securing the diagnosis and accessing the correct treatment for infants. Paediatric dietitians should be aware of the various types of allergies patients can present with and how these should differ in management around elimination and reintroduction.