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PAEDIATRIC ALLERGY SESSIONS | 2022 |

Summary booklet

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INTRODUCTION

IT WAS A PRIVILEGE TO BE JOINED BY LEADING INTERNATIONAL EXPERTS FOR OUR PAEDIATRIC ALLERGY SESSIONS 2022. THE TWO-DAY VIRTUAL EVENT INVOLVED PLENARY, WORKSHOP AND LIVE QUESTION AND ANSWER SESSIONS WITH OUR GUEST SPEAKERS.

The event began with an overview of the latest clinical insights and evidence into the diagnosis and management of paediatric allergy. Current trends in allergy prevalence were explored, and clarity was provided regarding differing national and international guidelines for the diagnosis and management of food allergy. Conference attendees were also given a unique introduction to the recently updated worldwide recommendations, which are due to be published later this year.

In light of the recent global pandemic, the impact of COVID on food allergy was examined. Specifically, the influence of the pandemic on the gut microbiome was discussed, as well as possible ways of modifying the microbiome for a protective role.

Parents and families live with the burden and challenges of food allergy. Understanding the food allergy journey from the parents' perspective offered an interesting insight for our attendees. Subsequent sessions covered varied topics such as non-IgE mediated eosinophilic oesophagitis, which is becoming more widely recognised, and the role of artificial intelligence and technology in the diagnosis and management of food allergy.

This conference summary booklet provides an overview of each event session. It has been prepared by an independent attendee, with the assistance of video presentations and transcripts.

PLENARY SESSIONS DAY ONE

SESSION ONE: DR EDWIN KIM

Where are we in 2022? What does the latest data tell us about the incidence and prevalence of paediatric food allergy?

IgE-mediated food allergy is characterised by the sensitisation phase (on first exposure to an allergen) and the effector phase (whereby exposure to the allergen leads to the onset of allergic symptoms triggered by histamine and other chemicals).[1] The most common food allergy triggers are cow's milk, hen's egg, peanut, tree nuts (e.g., cashew, pistachio), wheat, soy, fin fish and shellfish.[2] These eight food groups account for 85-90% of all food allergies. Regional differences between countries exist (e.g., sesame and lupin rate highly as common food triggers in some countries but not others).

The global prevalence of food allergy in children has been explored. In the United States, a large parent-reported survey showed a perceived rate of food allergy of 11.4% vs a 7.6% probable rate of food allergy, indicating a need for further education.[3] Among food-allergic children, 42.3% reported ≥1 severe food allergy and 39.9% reported multiple food allergies. The most common food triggers were peanuts (2.2% frequency), cow's milk (1.9%), shrimp (1%) and egg (0.9%).[3] Similarly, European data shows a high rate of self-reporting, particularly with cow's milk. The EUROPREVALL study (7-10 years old) analysed data from several European countries, finding self-reporting of food allergies as high as 24.6% (Poland) with the prevalence of clinically diagnosed food allergy across European countries ranging from 1.9-5.6%.[4] Further investigations (EUROPREVALL-INCO) including China, Russia and India showed country-specific variation in self-reporting (e.g., Russia 38% vs. probable 0.9% and India 1.8% vs. probable 0.1%).[5] In Australia, the HEALTHNUTS study (1-4 years old) showed 11% of one year olds with food allergy decreased to 3.8% by age four.[6] Later, the SCHOOLNUTS study (10-14 years old) saw a food allergy prevalence of 4.5% for this population.[7]

Food allergy is a significant public health problem with some variability across the globe. Future prevalence rates may be affected by factors such as the global move towards early introduction of potential allergenic foods (resulting from LEAP 2015/ EAT 2016 studies)[8,9] and the COVID pandemic (reduced access to healthcare, hygiene hypothesis).

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SESSION TWO: PROFESSOR ALESSANDRO FIOCCHI

An update on the latest allergy management guidelines from the World Allergy Organisation and the Global Allergy and Asthma European Network.

Ten years ago, the World Allergy Organisation (WAO) issued the world Diagnosis and Rationale for Action against Cow's Milk Allergy (DRACMA) guidelines.[1] These guidelines provided three main messages:

a) Each patient has the right to receive a complete diagnosis (via oral food challenges).

b) Children with cow's milk allergy (CMA) are in need of an appropriate replacement formula (choices include extensively hydrolysed formula (eHF), amino acid formula (AAF), hydrolysed rice formula (HRF), and soy formula (SF)).

c) Oral Immunotherapy (OIT) was experimental.

Since 2010, numerous country-specific guidelines have been produced with some variability. Guidelines on allergen immunotherapy: IgE-mediated food allergy were introduced in 2018.[2] Extensive research (including pairwise comparisons) of replacement formulas has also been conducted. A need for high quality, evidence based (GRADE) global guideline updates on CMA management was identified, leading to current and upcoming 2022 WAO/DRACMA update guidelines.[3] The Global Allergy and Asthma European Network (GA2LEN) has also recently submitted a 2022 guideline for managing food allergy.[4]

Updates to the soon to be published guidelines include recommendations for replacement formulas for infants with CMA who are unable to be breastfed. Both guidelines will continue to propose eHF as the first choice of replacement formula. The GA2LEN update suggests the use of documented hypoallergenic eHF, or AAF if better tolerated or more appropriate. GA2LEN also recommends against partially hydrolysed cow's milk formula, mammalian milks and, for infants under 6 months, SF. Differences in guidelines can be accounted for by methodological differences.

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SESSION THREE: PROFESSOR GARY WONG

Living with COVID: what has been the impact of the COVID pandemic on paediatric food allergy?

The COVID pandemic has seen measures such as school closures, limited business hours for restaurants, social distancing, robust personal hygiene practices and widespread use of cleansers (e.g., disinfectant, bleach). All these measures have a profound effect on the environment, resulting in changes to the microbiome. Interaction with environmental microbes is important in the development of children's immune systems.

Effects of the pandemic on food allergy have been both positive and negative. Children confined to home may have a reduced risk of exposure to allergens. However, diagnosis and treatment have been difficult or delayed due to various degrees of lockdown limiting access to in-person healthcare. Parental anxiety scores have also been measured as high in parents of children with food allergies (1.5-8 years old), during the pandemic.[1] Qualitatively, some parents have reported elevated levels of stress and frustration with delays in treatment, although others report not having to be as alert/having better control at home.

Thinking ahead, we need to consider the potential long-term effects of the pandemic measures which affect the microbial environment of young children and those born during the pandemic. The so-called COVID generation has been exposed to a vastly different environment in their first two years of life, resulting in changes to their gut microbiome. Alteration of the gut microbiome is associated with an increased risk of development of allergic disorders, including food allergy. Understanding these microbial factors and how these factors interact with the early immune system will provide insights into future primary preventive treatments for allergies. Microbial or immuno modulation as preventive treatments could be tools for primary prevention.

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SESSION FOUR: DR ROSAN MEYER

Cow's milk allergy, immunity and infections – what does the latest information tell us?

Alongside clinical symptoms of cow's milk allergy (CMA), clinicians have recognised high rates of infections in CMA patients. These have largely been anecdotal, but now clinical studies have confirmed the association between CMA and infections.[1,2] A large retrospective study of the clinical burden of CMA in early childhood identified significant increases in ear (e.g., otitis media), gastrointestinal (e.g., viral gastroenteritis, gastroenteritis), respiratory (e.g., upper respiratory tract infection and acute tonsillitis) and skin infections in these patients.[3]

Risk factors for infection and CMA in children appear to overlap with features affecting the gut microbiome, suggesting a common influence.[4] Such features include number of siblings, birth via caesarean section, and mode of feeding. Gut microbiota changes dramatically during the first year of life with the developmental phase, building into the transitional phase and is then relatively stable and mature after three years of age. In allergic infants, studies have shown the presence of an altered gut microbiota, or 'dysbiosis'.[5,6] Children with CMA have lower gut microbiota diversity, and infants with IgE-mediated allergy typically have low levels of beneficial Bifidobacteria.[6]

This suggests that microbiota could be modified for a protective role. To develop a protective microbiome, breastfeeding should be recommended and supported. Breastfed infants have been shown to have lower infection rates;[7] these infants develop an intestinal flora dominated by Bifidobacteria and Lactobacilli with less pathogenic bacteria compared to formula-fed infants.[8] Human milk contains beneficial oligosaccharides (which have a prebiotic effect) and several genera of bacteria including Lactobacillus and Bifidobacterium. When breastfeeding is not possible, trials with hypoallergenic amino acid formula with synbiotics have shown promising results for bringing the infant gut microbiota closer to that of healthy breastfed infants, potentially reducing the burden of infection.[9]

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PLENARY Q&A SESSIONS

DAY ONE

Hosted by Professor Nikos Papadopoulos, the expert panel for day one's Q&A session comprised Professor Alessandro Fiocchi, Professor Gary Wong, and Dr Rosan Meyer. The questions were varied and directed to each expert.

International and regional differences in the prevalence of food allergy were discussed. The panel highlighted that the development of food allergies depends on a wide variety of reasons or exposures such as genetics, timing of exposure, feeding practice, food type and dose.

Delegates were interested in hypoallergenic formula and questioned their suggested length of use for infants with cow's milk allergy (CMA). The use of unpasteurised milk was also a topic of interest; the panel reported that from a safety perspective, unpasteurised products cannot be considered for vulnerable groups, especially for infants. Regarding infections and links with CMA, the expert panel was asked if associations had been observed between infections and other food allergies (such as egg or peanut). The panel were not aware of any studies observing increased infection rates with peanut or egg allergy.

EXPERT PANEL

Professor Nikos Papadopoulos

Professor Alessandro Fiocchi

Professor Gary Wong

Dr Rosan Meyer

PLENARY SESSIONS DAY TWO

SESSION ONE: DR VICKI MCWILLIAM

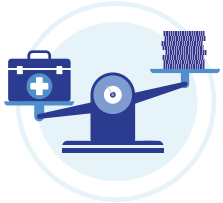
The food allergy journey: a parent/patient perspective.

Parents of children with suspected food allergy often experience a long and difficult journey to diagnosis, a treatment plan and support. In a roundtable discussion, two mothers discussed their perspective.

Challenges reported during the journey to diagnosis include a lack of timely access to services, limited information, and a lack of support with continuing breastfeeding. Accessing suitable products during COVID restrictions was noted as being problematic. Communication during the early investigation stages (awareness and acknowledgement of the signs and symptoms) was a challenge with the mothers feeling dismissed by healthcare professionals. The impact of food allergy on the family, particularly as a result of sleep disturbance and irritability, was also highlighted. The mothers noted positive experiences around recognition and support once a diagnosis was made.

Families would like timely access to services, best practice recommendations for breastfeeding, clear guidance on symptoms which are "red flags" and help with food introduction. Families face challenges around choice, acceptability, and ongoing supply of infant formula as well as confusion around milk replacement options.

SESSION TWO: DR KATE GRIMSHAW



Understanding the wider burden of cow's milk allergy.

The presentation of cow's milk allergy (CMA) in children does not always fit a "standard picture". Clinicians have recognised varied presentations (e.g., high rates of gastrointestinal, respiratory, and skin infections, immunodeficiency) in patients with CMA. To explore the wider clinical burden of CMA, a retrospective, observational study comparing clinical and healthcare outcomes among children with and without CMA was conducted.[1] 6998 children (54% male) were included in the study, including 3499 with CMA (mean age at diagnosis 4.04 months) and 3499 matched controls without CMA, observed for a mean period of 4.2 years.[1]

Results of this real world evidence study found gastrointestinal, skin, and respiratory symptoms affected significantly more children with CMA ($p < .001$), at a higher rate and for a longer period of time, compared with children without CMA.[1] Additionally, significantly more children with CMA had infections and antibiotic prescriptions, at a significantly higher rate, the greatest increase being seen in gastrointestinal infections. Compared to children without CMA, medications for gastrointestinal, skin, and respiratory symptoms were prescribed to significantly more children with CMA at a significantly higher rate. Compared to children without CMA, healthcare contacts were experienced by significantly more children with CMA, at a significantly higher rate. CMA was associated with additional potential healthcare costs of £1,381.53 (€1609.22) per person per year.[1]

It is important that clinicians consider the broader impact of CMA in their patients when managing their symptoms. Healthcare costs associated with CMA demonstrate the likely cost effectiveness of investment into timely diagnosis and effective management.

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SESSION THREE: DR REBECCA STRATTON

Can we improve the management of cow's milk allergy through modulating the gut microbiota?

New evidence shows the longer term clinical and health care burden of cow's milk allergy (CMA).[1] It has been suggested that gut dysbiosis in infants with CMA may be a contributory factor. In turn, microbiota could be modified for a protective role. Breastfeeding remains the best option for infants with CMA but if a formula is required, clinical trials have shown that the use of an amino acid formula (AAF) containing pre- and probiotics (synbiotics) (AAF-Syn) may lead to significant reductions in infections, medication prescriptions and hospital admissions, compared to AAF without synbiotics.[2] Faecal samples of infants fed with AAF-Syn show increased bifidobacteria, reduced *Eubacterium rectale* and *Clostridium coccoides*, as well as reduced microbial diversity, similar to that described in healthy breastfed infants.

Real world data, obtained from a retrospective matched cohort study with 148 infants has also been examined.[3] Analysis showed that infants fed with AAF-Syn had fewer symptoms, infections, medication prescriptions and health care contacts than those fed with standard AAF. Compared to those fed with AAF, infants fed AAF-Syn had a significantly higher probability of achieving asymptomatic management without hypoallergenic formula, with a shorter clinical course of symptoms. The use of AAF-Syn was associated with a potential healthcare cost-saving per infant over the clinical course of symptoms.[3]

Outcomes observed in this research may be related to the effect of the synbiotic on the gut microbiome, bringing it closer to that observed in studies of healthy breastfed infants. More research is required to ascertain the longer-term impact of modulating the infant gut microbiome, with the aim of achieving better outcomes in the management of infants and children with CMA.

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SESSION FOUR: PROFESSOR MIRNA CHEHADE

Eosinophilic oesophagitis and complex allergy: current trends and best practice.

The prevalence of eosinophilic oesophagitis (EoE) has been increasing worldwide.[1] Despite this, a long-time gap between symptom appearance and diagnosis remains (as high as 1.5 years).[2] Children usually present with non-specific gastrointestinal symptoms (e.g., abdominal pain, reflux symptoms) and failure to thrive. Additionally, symptoms in children vary with age.[3] Very young children may present with feeding dysfunction (either oro-motor or oro-sensory).[4] Complementary feeding behaviours are often present (e.g. prolonged chewing, drinking with every bite of food, cutting food into very small pieces, lubricating tough/lumpy foods and avoidance of tough textured foods).[5] Obtaining a history on feeding patterns, in addition to dysphagia, is important for these patients. For patients presenting with clinical features suggestive of EoE, diagnosis rests on performing an upper endoscopy and biopsy.[6] Treatment consists of initiation therapy (dietary and/or pharmacological) followed by maintenance therapy.

Dietary therapy options include an elemental diet, test-directed elimination diet (foods are removed based on the results of skin prick testing, and/or atopy patch testing), and empiric elimination diet (removal of common food allergens without testing). Elimination diets have the highest efficacy/histological remission rate whilst test-directed elimination diets have the lowest.[7] The most effective empiric elimination diet is the 6FED elimination diet which eliminates wheat, milk, egg, soy, nuts, and seafood. The dietary process involves a complex elimination and challenge process, which may take up to two years. When working with these patients, it is also important to note that there can be a bidirectional relationship between food induced IgE-mediated allergy and food induced EoE.[8] Pharmacological treatment includes a variety of proton pump inhibitors in addition to topical corticosteroids. There are now multiple new biologic agents to treat EoE in various stages of development.

Whilst undergoing either dietary or pharmacological therapy, nutrition support is important, particularly for children with nutritional deficiencies or feeding issues. Amino acid formula supplementation may be required for these patients.

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SESSION FIVE: PROFESSOR YVAN VANDENPLAS & MS AGATHE FOUSSAT

The future of allergy management using digital technology: can artificial intelligence help us in the management and diagnosis in food allergy?

Digital technologies and artificial intelligence (AI) (e.g., apps, websites, trackers, social media feeds) have the potential to assist in assessing food allergy risk and to enable healthcare professionals (HCPs) to make well-informed, faster diagnostic and therapeutic decisions. Examples of some digital technologies already available are food allergy risk assessment/prevention tools, symptom trackers, electronic clinical diaries, wearable technology and mobile health. These are used to collect clinical and real-world data from patients, to improve diagnostic precision.

Opportunities for using AI in food allergy include the ability to support education, raise awareness, promote check-ups/access, and monitor patients remotely. However, there are limitations to using AI. Active participation from a HCP is still needed for diagnosis, assessments and interventions; particularly as signs and symptoms for the diagnosis of food allergy (such as cow's milk allergy (CMA)) are non-specific. To date there is no clinically validated tool using AI for the diagnosis of CMA.[1,2,3] Data privacy is also a consideration.

To implement these technologies in daily clinical practices and improve allergy care, adapted regulations are needed worldwide. COVID-19 has shown the urgency of a reliable, efficient, and secured Digital Health system.

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PLENARY Q&A SESSIONS

DAY TWO

Professor Nikos Papadopoulos hosted the Q&A session on day two. The expert panel included Dr Kate Grimshaw, Dr Rebecca Stratton, Professor Mirna Chehade, and Professor Yvan Vandenplas.

Delegates asked about the timing of introducing new foods when treating eosinophilic oesophagitis. Professor Chehade suggested that it is useful to wait two to three months between food introductions as waiting may speed up recovery processes, helping to avoid multiple endoscopies. It was highlighted that waiting is also important for practical reasons such as a period of adjustment with a new diet, and for logistical reasons such as minimising hospital visits.

The panel also discussed the benefits of using real world data which included a possible reduced bias and change in practice, which can be seen in the research environment. However, it was noted that care must be taken not to overinterpret real world data.

The Q&A session also covered the use of faecal transplantation and artificial intelligence. The panel was asked whether the use of faecal transplantation should be considered in correcting dysbiosis; they agreed that all the studies for faecal transplantation in immune-mediated disease are so far disappointing. The challenges of validating artificial intelligence tools with robust trials were also noted during the presentation and it was concluded that we are not able to rely on this technology in allergy at the moment.

EXPERT PANEL

Professor Nikos Papadopoulos

Dr Kate Grimshaw

Dr Rebecca Stratton

Professor Mirna Chehade

Professor Yvan Vandenplas

WORKSHOPS

WORKSHOP ONE

What to do about the appropriate diagnosis of cow's milk allergy – Interactive practical discussion workshop.

Dr Mario Vieira and Dr Kate Grimshaw led a practical workshop and discussion on the appropriate diagnosis of cow's milk allergy (CMA). The workshop begun by asking participants if the diagnosis of CMA is difficult in their particular area of the world - 49% of participants responded yes and reported challenges such as lack of healthcare professional expertise in primary care, difficulties accessing specialists in secondary care and difficulties accessing diagnostic tests.

Two main challenge points were discussed:

- The overlap of clinical manifestations of functional gastrointestinal (GI) disorders and symptoms of CMA e.g., crying, irritability, colic, parental anxiety, feeding refusal, regurgitation, and sleep disturbances
- The burden of CMA on General Practitioners (GPs) e.g., GPs being overstretched, lacking confidence, having budget constraints, and lacking timely access to secondary care

The importance of correctly diagnosing patients was the next discussion point. The consequences of over and under diagnosis were considered; issues such as feeding difficulties, growth concerns, long term functional GI issues, decreased family quality of life and increased health costs were identified. The workshop discussion highlighted key factors that need to be considered for preventing under/overdiagnosis of CMA: 1) The need to recognise that CMA can present alongside other conditions 2) The need for concise history/tools to help guide the diagnosis 3) The need to do re-introduction trials after elimination to confirm diagnosis 4) Considering secondary lactose intolerance when diagnosing CMA. Education and training for CMA diagnosis was discussed with 71% of participants suggesting that written guidelines would help with reducing over and under diagnosis.

Dr Vieira presented a case study of a three month old boy, presenting with overlapping GI symptoms, undergoing invasive testing, and being diagnosed first with reflux. Early diagnosis and intervention were flagged as important to prevent or reduce maternal stress and anxiety, avoid early cessation of breastfeeding, reduce the risk of faltering growth, and avoid frequent formula changes, laboratory tests and pharmacological treatment.

In summary, CMA may be missed in primary care settings and the overlap with GI conditions should be considered. Strategies to improve diagnosis may include:

- Improving our listening skills and acknowledging the distress finding the correct diagnosis can cause
- Allowing more time for a complete clinical history
- Providing more training on how to recognise and manage CMA
- Improving awareness of current guidelines
- Developing and validating tools to aid our diagnosis and management
- Having more access to secondary and tertiary care

WORKSHOP ONE Q&A

Dr Mario Vieira and Dr Kate Grimshaw answered a number of questions on diagnosis and testing of cow's milk allergy (CMA) from workshop attendees.

The issue of identifying differences between common, non-food allergic infant complaints versus food allergy symptoms was raised, with many childhood disorders being associated with crying or fussing. An indication that a patient is presenting with CMA is when they display symptoms that involve different organ systems; involvement of two or more systems increases the probability of CMA. It was also noted that in food allergy, symptoms often arrive in patterns.

Another line of questioning was focused on testing for CMA in children less than one year old; there was interest in food panels, total IgG and the radioallergosorbent (RAST). Testing should only be done for specific foods that are suspected to be causing the allergy, as indicated in the clinical history. Food panel tests should not be used for the diagnosis of food allergy. For those working frontline, it was noted that the presence of specific IgE for cow's milk or positive skin prick testing indicates sensitization to cow's milk protein however, these results must be interpreted with caution in the context of a careful medical history and food challenge procedures. Blood tests or skin prick testing alone should not be relied on for diagnosis.

WORKSHOP TWO

Exploring the opportunities and concerns of using plant-based formulas in allergy management.

In this workshop, Professor Anna Nowak-Węgrzyn and Professor Yvan Vandenplas explored the opportunities and addressed the concerns of using plant-based formulas (PBF) when it comes to allergy management.

The workshop leaders first reviewed the definition of infant formula. In the United States, there is a strict definition as defined by the US Federal Food, Drug and Cosmetic Act, "infant formula is a food which purports to be or is represented for special dietary use solely as a food for infants by reason of its simulation of human milk, or its suitability as a complete or partial substitute for human milk."

Infant formula must be nutritionally complete, it must have a similar composition and digestibility to human milk and, if total substitution is required, it should provide all the nutrients necessary for growth and development. Currently, the majority of infant formulas that are available globally are based on animal milk (cow's milk, and occasionally goat's milk). However, there are also some PBFs (e.g., based on soy, rice, pea protein) with future potential sources being studied (e.g., quinoa, fava bean, white potato, lentil, chickpea). Plant-based "milks"/drinks such as oat, rice, hemp, and a variety of tree nuts (e.g., almond, cashew, coconut, hazelnut) are not suitable for infants. Professor Vandenplas directed delegates to the North American Society of Paediatric Gastroenterology, Hepatology and Nutrition position paper on plant-based milks (2020)[1], which highlights the danger of plant-based milks/drinks (e.g., potential residual allergenicity of intact plant protein-based drinks).

Looking specifically at infant formula, when questioned, almost half of the workshop participants had never used soy formula (SF). SF is not considered as the first line formula for infants with cow's milk allergy (CMA). It can be recommended for infants >6 months old with CMA but this recommendation is based on a small number of studies. It was noted that SF is now fortified and contains soy isolate rather than the previous soy concentrate. Professor Nowak-W□grzyn and Professor Vandenplas also dispelled the myths around SF such as hormonal effects.

When considering rice hydrolysates (HRFs), 40% of workshop participants were not familiar with this formula, whilst 30% often recommended it. HRFs are not available everywhere but are often used in Europe. The allergenicity of rice is low (<1%) and HRF have a good nutritional adequacy. The efficacy of HRF in children with CMA is reported as very high.

Professor Nowak-Węgrzyn and Professor Vandenplas covered the benefits of PBF including their adequate safety profile and palatability and discussed the barriers to using PBF. The barriers included concerns that have been raised around this formula such as labelling and declaration of allergens. It was highlighted that to help parents identify nutritionally sound PBF, labelling (e.g., making it clear if the product is fortified or not) and legislation were needed.

References

1. Merritt R, et al. NASPGHAN Committee on Nutrition North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition Position Paper: Plant-based Milks, J. Pediatr. Gastroenterol. Nutr. 2020;71(2): 276-281.

WORKSHOP TWO Q&A

Following their workshop, Professor Anna Nowak-Węgrzyn and Professor Yvan Vandenplas were asked about different plant-based options for infants and children with cow's milk allergy.

The issue of distinguishing fortified versus non fortified plant-based drinks was raised. These may be distinguished by checking labels and advice from a dietitian is useful. It was highlighted that it can be difficult to determine which product is fortified as labelling can be misleading and therefore there is a need for product labelling legislation. In general, the distinction between plant-based formulas and plant-based drinks that are not fortified should be made clear. Plant-based drinks should not be used in infants as they are not nutritionally adequate.

Concerns were raised about the possibility of arsenic in rice hydrolysate formula. Intact rice does contain arsenic, but rice hydrolysate formulas are adapted so that all the arsenic has been removed. An analysis of arsenic levels in rice hydrolysates and cow's milk based infant formula (Europe) found that arsenic levels in the rice hydrolysates were no cause for concern.

WORKSHOP THREE Meet the expert.

Professor Carina Venter took us through a series of case presentations, describing how each case was approached and how resolutions were found.

Case 1: Complex non-IgE allergy

At four years old, John was diagnosed with eosinophilic esophagitis (EoE) and IgE-mediated allergy to fish accompanied by feeding difficulties, dysphagia, and poor weight gain. John was initially managed with hypoallergenic formula and a six-food elimination diet. His case was made more complicated by a diagnosis of ARFID (avoidant restrictive food intake disorder). At ten years old, John had successfully increased the range of foods in his diet and improved his weight. However, at fourteen years old, alongside ARFID, John's case was made more complex with a diagnosis of pollen food syndrome.

Key Learning 1: Complex presentations of food allergy and ARFID are becoming more common and require specialist support from a healthcare professional.

Case 2: The use of milk ladders

Allison developed symptoms after her first bottle of cow's milk formula. She was prescribed hypoallergenic formula and given milk free dietary advice and information, which proved successful. After one year, Allison was started on a milk ladder, under supervision.

Key Learning 2: Milk ladders have allowed us to advance food allergy practice in 2022 - these include some careful safety considerations.[1]

The use of a milk ladder at home is common in non-IgE mediated cow's milk allergy. However, for IgE-mediated allergy milk ladders can be considered in those without anaphylactic reactions, without asthma, with good family comprehension, access to emergency service and low or decreasing skin prick wheal or serum specific IgE levels.

Case 3: Support for the introduction of allergens and complementary feeding

Lisa presented to the allergy clinic at four months of age with atopic dermatitis, red and inflamed skin. She was exclusively breastfed and not yet introduced to solids. Her older sister is allergic to milk. Lisa's food allergy risks were explored.

Key Learning 3: The latest guidelines have been amended and are not making any formula recommendation for allergy prevention. Food diversity should be prioritised, alongside food allergen diversity. Aim for a high variety of plant-based foods each week to feed the microbiome, with six food allergens twice a week (including iron containing foods). Infants should be fed a diverse diet as this may help foster prevention of food allergy.[2]

References

1. Fleischer D, et al. A Consensus Approach to the Primary Prevention of Food Allergy Through Nutrition: Guidance from the American Academy of Allergy, Asthma, and Immunology; American College of Allergy, Asthma, and Immunology; and the Canadian Society for Allergy and Clinical Immunology. J Allergy Clin Immunol Pract. 2021;9(1):22-43.e4.

2. Halken S, et al. European Academy of Allergy and Clinical Immunology Food Allergy and Anaphylaxis Guidelines Group. EAACI guideline: Preventing the development of food allergy in infants and young children (2020 update). Pediatr Allergy Immunol. 2021;32(5):843-858.

WORKSHOP THREE Q&A

Professor Carina Venter followed her workshop with a Q&A session. Questions were raised on the stepwise approach to food challenges and the use of the milk ladder.

Attendees questioned if there was a stepwise approach for food allergens such as eggs or nuts. Currently there is a stepwise approach published for milk, and more recently, the new British Society for Allergy and Clinical Immunology (BSACI) egg ladder.[1] However, there is no stepwise approach for nuts; nut challenges should be done in clinical practice, under supervision.

The possible use of milk powder or cow's milk-based formula in the milk ladder was also discussed. In the first milk ladder, there was some data to suggest that UHT milk might be slightly less allergenic than pasteurised milk. However, this wasn't considered in the second milk ladder because there were no children who could tolerate the UHT if they reacted to pasteurised milk. The same could be said for milk powder, so all milk is treated as equal.

Diagnosis was the next thread of questioning, with attendees asking about avoidant restrictive food intake disorder (ARFID) diagnoses and skin tests versus blood tests. The number of patients being diagnosed with ARFID is starting to rise, and it is seen much more in children with eosinophilic esophagitis. When ARFID screening tools begin to be used in allergy clinics the rate is likely to increase. On the matter of skin tests versus blood tests, both can be used. Specific IgE tests are used to trace the IgE levels over time. One is not clinically superior to the other, but the skin prick test is very helpful for the initial diagnosis.

Reference

1. Leech S, et al. BSACI 2021 guideline for the management of egg allergy. Clin Exp Allergy. 2021;51:1262– 1278.

CONCLUSION

THANK YOU TO ALL THE DELEGATES OF THE PAEDIATRIC ALLERGY SESSIONS 2022; WE WERE DELIGHTED TO HAVE HAD EXCELLENT ATTENDANCE FROM AROUND THE WORLD.

Nutricia would like to thank all the experts who presented at this year's conference: Dr Edwin Kim, Professor Alessandro Fiocchi, Professor Gary Wong, Dr Rosan Meyer, Dr Vicki McWilliam, Dr Kate Grimshaw, Dr Mario Vieira, Dr Rebecca Stratton, Professor Mirna Chehade, Professor Anna Nowak-Węgrzyn, Dr Carina Venter, Professor Yvan Vandenplas, Ms Agathe Foussat and the conference host, Professor Nikos Papadopoulos.

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