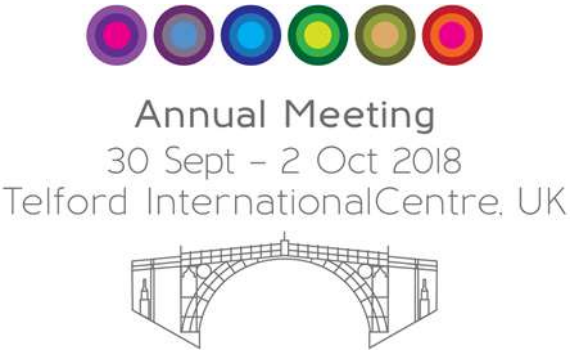

ABSTRACTS

Presented at the 2018 Annual Meeting

of the

British Society for Allergy and Clinical Immunology

Contents

ORAL PRESENTATIONS: ADULT CLINICAL

OP.012

Reactivity thresholds in peanut allergic adults and the influence of stress and exercise: a randomised controlled trial

Shelley Dua[1], Monica Ruiz Garcia[2], Simon Bond[1], Stephen Durham[2], Ian Kimber[3], Clare Mills[3], Graham Roberts[4], Isabel Skypala[6], Jaes Wason[1], Pamela Ewan[5], Robert Boyle[2], Andrew Clark[5]
[1]Cambridge University, Cambridge, United Kingdom. [2]Imperial College, London, United Kingdom. [3]Manchester University, Manchester, United Kingdom. [4]University of Southampton, Southampton, United Kingdom. [5]Cambridge University Hospital NHS Foundation Trust, Cambridge, United Kingdom. [6]Royal Brompton and Harefield NHS Foundation Trust, London, United Kingdom.

Objectives

Peanut allergy is an important public health concern and can cause fatal allergic reactions upon accidental peanut consumption. Population reactivity thresholds to peanut are currently being defined to protect those with allergy and improve food labelling. It is unknown how common everyday factors such as stress or exercise impact such thresholds and clarification of this may have significant implications for allergen risk management.

Method

In a randomised cross-over trial we investigated whether sleep deprivation (mimicking stress) and exercise influence reaction thresholds in peanut-allergic adults. Following confirmation of peanut allergy by double-blind placebo-controlled challenge, participants underwent three further open challenges in a randomly assigned order: one with exercise following each dose, one with sleep deprivation on the night preceding challenge, and one with neither co-factor. The primary endpoint was threshold eliciting dose at each challenge. We estimated the difference in mean threshold (logged) between challenges with and without a cofactor using a linear mixed effects model. Primary analysis estimated effect of challenge type (i.e. the difference between non-intervention challenge and each intervention challenge expressed as percentage change) from the model along with confidence interval and p-value. Dose distributions were modelled using interval-censored survival analysis and eliciting doses were derived.

Results

One hundred subjects were randomized, with 64 subjects (mean age 25y) completing a further three challenges under different conditions. The mean (95% confidence interval) eliciting doses for 1%, 5% and 10% of the population during no-intervention challenge were 1.5mg (0.8,2.5), 4mg (2.4,6.4) and 6.7mg (4.1,10.5) peanut protein, respectively. The estimated % change in threshold for exercise and sleep compared to the non-intervention challenge, corresponded to reductions of 45% (21-61 p=0.0013) and 45% (22-62 p=0.0011) respectively.

Conclusions

Exercise and sleep deprivation significantly reduce reaction thresholds to peanut. Accounting for this variation is critical in population threshold modelling for enhanced protection of peanut allergic consumers.

OP.019

Lanadelumab Improves Health-related Quality of Life in Patients with Hereditary Angioedema (HAE): Findings from the HELP Study

Hilary Longhurst[1], William Lumry[2], Karsten Weller[3], Markus Magerl[3], Peng Lu[4], Gagan Jain[4], Hannah Lewis[5], Marcus Maurer[3]

[1]Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom. [2]Allergy and Asthma Research Associates Research Center, Dallas, USA. [3]Department of Dermatology and Allergy, Allergie-Centrum-Charité, Charité–Universitätsmedizin Berlin, Berlin, Germany. [4]Shire, Lexington, USA. [5]ICON plc, London, United Kingdom

Objectives

Efficacy of lanadelumab in significantly reducing the rate of HAE attacks was demonstrated in the phase 3 HELP Study. HAE negatively impacts patients' daily lives. Effect of lanadelumab on health-related quality-of-life (HRQoL) was assessed in the HELP Study.

Method

Patients with HAE were randomized to treatment for 26 weeks as follows: 150mg q4wks (n=28), lanadelumab 300mg every 4 weeks (q4wks) (n=29), 300mg q2wks (n=27), or placebo (n=41). HRQoL was assessed using the Angiodema Quality of Life (AE-QoL) questionnaire. A total score and 4 domain scores (functioning, fatigue/mood, fear/shame, and nutrition) were calculated; lower scores reflect less HRQoL impairment. Changes in AE-QoL scores from Day 0 to Day182 for each lanadelumab arm, and the pooled lanadelumab arm, were compared with placebo using ANCOVAs. Logistic regression models assessed the effect of treatment group on responder rates, which were calculated based on minimal clinically important difference (MCID) of 6 points. Changes in scores were also assessed for pre-specified subgroups.

Results

AE-QoL total score and all domain scores were significantly lower in the pooled lanadelumab arm vs placebo ($P<0.04$). More patients receiving lanadelumab achieved MCID=6 in AE-QoL total score vs the placebo arm: 65%, 63%, and 81% for the lanadelumab 150mg q4wks, 300mg q4wks, and 300mg q2wks arms, respectively, compared with 37% for placebo. Lanadelumab-treated patients were 3.2 (150mg q4wks), 2.9 (300mg q4wks), and 7.2 (300mg q2wks) times more likely to achieve MCID=6 for AE-QoL total score vs placebo ($p<0.05$ for all dosing groups). No differences were observed for change in AE-QoL total scores for the pre-specified subgroups, including age, race, sex, body mass index, HAE type, run-in period attack rate, type of prior long-term prophylactic therapy, and geographic region.

Conclusions

Clinically meaningful and statistically significant improvements in HRQoL were shown with lanadelumab prophylactic treatment vs placebo in patients with HAE.

OP.030

Penicillin allergy de-labelling in the elective surgical population (PADLES)

Louise Savic[1], Vikas Kaura[2], Lucy Gurr[3], John Toolan[4], Nicola Glover[5], Philip Hopkins[6], Jonathan Sandoe[7], Sinisa Savic[8]

[1]Anaesthetic Dept, Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom. [2]Leeds Institute of Biomedical and Clinical Sciences, Leeds, United Kingdom. [3]Leeds University Medical School, Leeds, United Kingdom. [4]Immunology Dept, Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom. [5]Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom. [6]Anaesthetic Dept, Leeds Teaching Hospitals, Leeds, United Kingdom. [7]Microbiology Dept Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom. [8]Immunology Dept, Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom

Objectives

An estimated 3 million people in the UK carry the penicillin allergy (PenA) label, and incidence in the inpatient population appears to be even higher. The label is associated with higher rates of *infections*, and longer hospital stays, and around 95- 98% of labels are incorrect when tested. Current testing guidelines are time-consuming and expensive, requiring skin tests prior to oral challenge. An increasing body of evidence demonstrates that patients can be risk stratified on the basis of history, and 'low risk' patients can safely proceed to direct oral challenge. We aimed to establish the feasibility of an abbreviated de-labelling pathway for 'low risk' PenA patients, ahead of planned surgery.

Method

Patients attending for pre-operative assessment with self-reported PenA, were screened and risk stratified by the pre-assessment nurse. Eligible patients received a graded oral amoxicillin challenge, with a further 3-day course. The outcome of testing was confirmed in writing to patient and GP, and electronic hospital records updated.

Results

Of 200 patients screened, 68 were eligible, 132 ineligible. To date, 49 patients have been de-labelled, and (where known), received appropriate penicillin prophylaxis uneventfully. 18/66 patients failed to attend/awaiting testing. One patient developed urticaria and was not de-labelled. In the de-labelled group, 89% (24/27) stated they would not have accepted de-labelling without 'some form of formal testing'.

In the ineligible group, 29% were 'high risk'; the remainder were ineligible for logistical reasons or because they refused testing (23%, 46/200).

At least 77% of all patients wanted to be tested, including around 30% of patients whose index reaction consisted of life-threatening symptoms.

Conclusions

Elective surgical patients at low risk for PenA can be identified and de-labelled pre-operatively, as part of their existing surgical care pathway. There is high demand for testing, and clinicians appear reassured by the testing process.

OP.048

The development of a new Advanced Nurse Practitioner-led urticaria service at UHNM.

Deborah Hughes, Angela Cooper
UHNM, Stoke-on-Trent, United Kingdom

Objectives

To demand manage, a new service for Advanced Nurse Practitioner (ANP)-led urticaria clinics commenced on Choose and Book (C&B) since September 2017. The main objectives were to reduce waiting times, provide access to telephone clinics and prompt escalation onto Omalizumab (NICE, 2015). As part of demand management general allergy clinic appointments would become available.

Method

The criteria to the ANP-led clinic is the identification of urticaria +/- angioedema symptoms within the referral letter.
Weekly clinics commenced September 2017.

- 2 face to face clinics (7 New, 3 Follow-up).
- 1 telephone follow-up clinic (8-10 appointments).

Patients that comply with the local policy based upon BSACI guidelines (Powell et al, 2015) and meet USA7 criteria (>28) (NICE, 2015) are seen in next Omalizumab clinic.

Results

The number of attended appointments (September 2017 - March 2018).
New appointments: 68
Waiting time for new appointment currently reduced to 30 days
Follow-up appointments: 49
Telephone appointments: 64
Suitable patients from both follow-up clinics seen in Omalizumab clinic.

Increased new and follow-up slots available in general allergy clinics.

Conclusions

The main objectives of the service have been met, reduction of waiting times, access to telephone clinics and prompt escalation onto Omalizumab (NICE, 2015). Freed up general allergy appointments. However, the service established at a slower than expected rate. One reason identified is G.P's incorrectly refer on C and B, therefore, an audit will identify G.P's requiring further information. To work alongside ANP's, a role for a pharmacist with prescribing has been identified as part of service development.

ORAL PRESENTATIONS: ALLIED HEALTH

OP.051

Perceptions of food allergies and intolerances in a non-clinical sample from within the hospitality and food-service industry

Rebecca Knibb, Ellen Hughes
Aston University, Birmingham, United Kingdom

Objectives

Objective: Changes in EU legislation mean that retailers of non-prepacked foods must provide information related to the content of 14 specified food allergens within their foods. Little is known about the perceptions or knowledge of catering staff towards food allergies and intolerances in the light of these changes. This study explored the attitudes, perceptions and knowledge of food allergies and intolerances by individuals working in the hospitality and food service industry.

Method

Methods: Eight face-to-face semi-structured interviews were conducted with food service industry staff from Birmingham, UK, recruited via leaflets and through social media. Participants were excluded if they had been diagnosed with a food allergy. Interviews were transcribed verbatim and analysed using thematic analysis.

Results

Results: Participants (3 men and 5 women) held positions within the food service industry; all were required to speak to customers directly as part of their role. Three themes emerged from the data: responsibility; communication; food allergy and intolerance beliefs. Participants felt responsible for their business, customer care and customer safety, for knowing their legal responsibilities and providing information to customers with food allergies or intolerances. Communication between staff and customers was felt to be extremely important and a simple yet effective way to improve safety for individuals with allergies and intolerances. However, misperceptions existed, and participants felt that food intolerances were a lifestyle choice or did not cause much harm and only allergies were a serious health issue.

Conclusions

Conclusions: Participants working in the food service industry provided a unique insight into how they viewed their responsibilities towards those with food allergies and intolerances. Further education is needed to ensure misperceptions regarding these conditions do not affect quality of service or the health of customers. Future research needs to build on these findings with a wider sample from the food service industry.

OP.054

Nonadherence to carrying and using adrenaline pens in adults with anaphylaxis: the impact of a psychologically informed training intervention on staff knowledge and beliefs.

Béré Mahoney[1], Elaine Walklet[1], Eleanor Bradley[1], Steve O'Hickey[2]
[1]University of Worcester, Worcester, United Kingdom. [2]Worcestershire Acute Hospitals NHS Trust, Worcester, United Kingdom

Objectives

Nonadherence to carrying adrenaline pens and using them appropriately are problematic in anaphylaxis patients and associated with increased fatalities. This study evaluated the impact of a staff training intervention designed to enhance patient adherence. The health psychology informed intervention was predicted to produce sustained improvements in staff knowledge, confidence and intention to use adherence-focused strategies with patients.

Method

A longitudinal mixed-method design was used to evaluate the training impact. Thirty one health professionals (general and specialist nurses, GPs, pharmacists) working with anaphylaxis patients in UK hospitals and general practice attended a 90 minute workshop training staff in psychologically informed strategies to enhance patient adherence. Attendees completed an online survey measuring their knowledge, confidence and intention to use adherence enhancing strategies one week before, and 1–3 and 6–8 weeks after the workshop. Staff were also invited to complete a telephone interview after attending to explore further the workshop impact.

Results

Chi-square goodness of fit tests were significant in most cases ($p < .05$). The workshop produced sustained (6 – 8 weeks) improvements in staff knowledge, confidence and intention to use strategies enhancing patient adherence. Staff certainty about the clinical importance of adherence also increased. Thematic analysis of the qualitative interview data identified four themes:

- Altered understanding of anaphylaxis patients' experiences from primarily physical to also psychological
- Changed staff communication with other patient groups
- Contextual barriers impeded use of adherence enhancing strategies with patients
- Conflict around 'risks' when promoting adherence amongst anaphylaxis patients

Conclusions

Although a small study, the workshops had positive impacts on attendees' ability and willingness to address patients' nonadherence, and understanding of the complex psychological factors associated with patient adherence. Self-reported benefits to clinical practice with other patient groups suggest psychologically underpinned interventions do impact on staff behaviour within clinical practice.

ORAL PRESENTATIONS: BASIC SCIENCE

OP.062

Changes in IgE and IgG4 to peanut and Arah1-3,-8 and-9 during peanut oral immunotherapy (POIT)

Sabita Islam[1], Katherine Anagnostou[2], Yvonne King[1], Sally Houghton[3], Graham Wood[3], John Deighton[4], Andrew Clark[1,4], Pamela Ewan[4]

[1]Department of Medicine, University of Cambridge Clinical School, Addenbrooke's Hospital, Cambridge, United Kingdom. [2]Department of Pediatrics, Section of Immunology, Allergy and Rheumatology, Texas Children's Hospital, Houston, USA. [3]Department of Clinical Immunology, Addenbrooke's Hospital, Cambridge, United Kingdom. [4]Department of Allergy, Addenbrooke's Hospital, Cambridge, United Kingdom

Objectives

Peanut oral immunotherapy (POIT) is immunologically effective in inducing oral desensitisation in most children with peanut allergy. We aim to evaluate the effect of POIT on specific IgE and IgG4 to whole peanut, Ara h 1-3, 8, 9 levels in children with peanut allergy.

Method

Serum samples from 21 subjects were available. Peanut, Arah1-3, 8 & 9 component-specific IgE and IgG4 were quantified using ImmunoCAP®. Samples at baseline 0m (n=21) and after 12m (n=15), 24m (n=11), 30m (n=13) and 42m (n=9) POIT were assayed.

Results

A significant reduction in peanut specific IgE was observed after 30m (median: 5.73, range 0.39-98.10, p=0.0385*) of POIT compared to baseline (median: 35.85, 0.51-100.1). A similar pattern was seen for Arah2-IgE (p=<0.0281*) and Arah3-IgE (P<0.0007***) after 24m immunotherapy. Arah1-IgE levels were unaffected by POIT overtime. At baseline only 4/21 subjects were positive for Arah8-IgE and none for Arah9-IgE. Conversely, peanut specific IgG4 increased significantly after 12m POIT (median: 8.14, range: 0.45-30; p=0.0001***) compared to baseline (median: 0.58, range: 0.03-6.5).and remained elevated at 24m (p=0.0009***), 30m (p=0.0099*) and 42m (p=0.0264*). Similarly, after 12m POIT Arah2-IgG4 (p<0.0001***) and Arah3-IgG4 (p=0.0013**) showed significantly higher expression levels than at baseline and also after 30m of immunotherapy. Arah1-IgG4 was raised after 12m POIT (median: 0.54, range 0-30; p=0.392*) compared to baseline levels (median 0.06, range 0.01-0.74). IgG4 Arah8 and Arah9 expression levels remain unchanged during immunotherapy.

Conclusions

Among desensitised children, more than 24m of peanut OIT causes a significant decrease in IgE to whole peanut, Arah2 and Arah3 but not to Arah1. A significant rise in IgG4 levels to whole peanut, Arah1, Arah2 and Arah3 is detected earlier after 12m POIT and remains elevated. POIT had little or no effect on IgE and IgG4 to Arah8 and Arah9.

OP.063

An *in vitro* assay to screen Toll-like Receptor agonists as potential adjuvants in allergen immunotherapy

Max Kirtland, Daphne Tsitoura, Stephen Durham, Mohamed Shamji
Imperial College London, London, Middlesex, United Kingdom

Objectives

A Toll-like receptor 4 (TLR4) agonist has been shown to enhance tolerance induction in allergen immunotherapy (AIT) through promotion of Th1 mediated immunity in response to allergens. We hypothesised that synthetic agonists targeting TLR2/1 and TLR7 can modulate type II allergic inflammation to a more favourable type I immune response. To test this, we developed a model for screening TLR agonists *in vitro*.

Method

PBMCs were obtained from grass pollen induced seasonal allergic rhinitis (SAR) patients or non-atopic (NA) volunteers. Effects of TLR7 agonist Resiquimod were assessed in PBMCs using Luminex MagPix assay for IFNα production. Levels of IL-10 production from PBMCs stimulated with TLR2/1 agonist Pam3CSK4 were assessed via ELISA. Effects of Pam3CSK4 and *Phleum pratense* (Phlp) on PBMC proliferation were measured using ^{3}H-Thymidine incorporation assay. Levels of Th1, Th2 and Tregs cytokines were measured using Luminex MagPix.

Results

Resiquimod induced IFNα in a dose-dependent manner in freshly isolated, but not cryopreserved PBMCs. Resiquimod induced IFNα production in NA PBMCs peaking at 1μM ($p=0.031$) with a pEC50 of 7.25 at 24 hours, which was unaffected by Phlp. Pam3CSK4 induced IL-10 production in NA PBMCs peaked at 0.66μM ($p=0.031$) with a pEC50 of 8.46 at 24 hours, which was unaffected by Phlp. Proliferation induced by Phlp in SAR PBMCs was suppressed by co-culture with Pam3CSK4, with the drug alone also inducing proliferation. Pam3CSK4 promoted IL-27 and IL-10 production in SAR and NA patients, while reducing Phlp induced IL-5 production in SAR PBMCs by 75%.

Conclusions

We have established an *in vitro* assay that is capable of screening TLR agonists for efficacy in altering PBMC responses from grass-pollen SAR patients to Phlp. We report for the first time that TLR2/1 agonist Pam3CSK4 can reduce Phlp induced IL-5 *in vitro* and highlights TLR2/1 agonists as potential adjuvants for AIT.

OP.066

Group 2 Innate Lymphoid Cells (ILC2s) contribute to the pathophysiology of Peanut Allergy

Elisavet Ntavli[1,2], Umit Murat Sahiner[1,3], Janice Layhadi[1,2], Abigail O Robb[1,2], Monica Ruiz-Garcia[4,2], Isabel Skypala[1,5], Clare Mills[6], Stephen R Durham[1,2], Paul J Turner[4,2], Mohamed H Shamji[1,2]
[1]Immunomodulation and Tolerance Group, Allergy & Clinical Immunology Inflammation, Repair and Development, National Heart & Lung Institute, Imperial College, London, United Kingdom. [2]MRC & Asthma UK Centre in Allergic Mechanisms of Asthma, London, United Kingdom. [3]Hacettepe University School of Medicine, Pediatric Allergy Department, Ankara, Turkey. [4]Paediatric Allergy & Immunology, Imperial College, London, United Kingdom. [5]Department of Allergy, Royal Brompton & Harefield NHS Foundation Trust, London, United Kingdom. [6]Division of Infection, Immunity and Respiratory Medicine, School of Biological Sciences, University of Manchester, Manchester, United Kingdom

Objectives
Innate lymphoid cells (ILCs) are recently defined as a new subset of lymphoid cells that lack antigen-specific receptors, and can be classified into ILC1, ILC2 and ILC3 according to differential cytokine production and transcriptional profiles. Recently, the role of ILC2s has been defined in diseases such as allergic rhinitis and atopic dermatitis. We hypothesized that ILC2s may also be implicated in peanut allergy.

Method
Peripheral blood mononuclear cells were collected from peanut allergic (PA, n=16), and non-atopic adult controls (NA, n=16). PA underwent double-blind placebo-controlled food challenges (DBPCFC) to peanut. ILC2s, IL-5$^+$, IL-13$^+$ and IL-5$^+$IL-13$^+$ ILC2s were immunophenotyped by flow cytometry.

Results
The proportion of ILC2s in peripheral blood was higher in PA, compared to NA (3 fold, $P<0.05$). IL-5$^+$ ILC2s and IL-5$^+$IL-13$^+$ ILC2s were elevated in PA compared to NA (4 fold, $P<0.05$; 29 fold, $P<0.05$). ILC2s were increased following a positive peanut challenge in PA (1.2 fold, $P<0.05$). However, no changes were observed after a placebo challenge. IL-5$^+$, IL-13$^+$ and IL-5$^+$IL-13$^+$ ILC2s showed no significance difference in the non-active challenges, whereas in response to peanut there was a substantial change in the IL-13$^+$ ILC2s (2 fold, $P<0.05$).

Conclusions
For the first time, we showed that the frequency of ILC2s is higher in peanut allergic patients and peanut-induced food challenge results in increased numbers of ILC2s in peripheral blood of peanut allergic subjects. ILC2 may contribute to the pathophysiology of peanut allergy.

OP.068

Clinical and Immunologic Effects of a Single Dose of Anti-Fel d 1-IgG4 monoclonal antibodies in Cat Allergic Individuals: A Double Blind Randomized Placebo-Controlled Study

Jiaqian Tang[1], Iesha Singh[1], Rebecca Parkin[1], Claire Wang[2], Ana Kostic[2], Stephen Durham[1], Allen Radin[2], Mohamed Shamji[1]

[1]Allergy and Clinical Immunology, Section Inflammation, Repair and Development, National Heart and Lung Institute, Imperial College, London, UK, London, United Kingdom. [2]Regeneron Pharmaceuticals, Inc., Tarrytown, NY, USA, New York, USA

Objectives

Cat allergy is a prominent contributor to allergic rhinitis and asthma globally, with Fel d1 being the major cat allergen that provokes IgE-mediated allergic responses. Allergen specific Immunotherapy (AIT) results in the production of blocking IgG4 antibodies. We hypothesised that anti-Fel d1-IgG4 monoclonal antibodies (mAb1/2) inhibit FceRI-mediated basophil activation and FceRII (CD23)-mediated pro-allergic responses.

Method

In a double-blind placebo-controlled proof of concept study, participants were randomized to receive a single dose of anti-Fel d1-IgG4 mAb1/2 (600 mg) (n=34) or placebo (n=36) injections. Total Nasal Symptom Score (TNSS) was measured after nasal allergen challenge at baseline (-day14), day 8,29,57 and 85. Fel d1-induced basophil response was measured by flow cytometry. Effects of anti-Fel d1-IgG4 mAb1/2 on allergen-IgE complexes in serum and nasal fluid samples were assessed by IgE-FAB assay.

Results

Percentage change from baseline of TNSS $AUC_{0\text{-}1h}$ was significantly reduced in anti-Fel d1-IgG4 mAb1/2-treated compared to placebo at day 8, 29 and 85 (all,$P<0.05$). Proportion of $CD63^{+}CRTh2^{+}$ basophils was suppressed at day 8, 29 and 85 in anti-Fel d1-IgG4 mAb1/2 compared to placebo. Allergen-IgE complexes binding to CD23 on B cells was inhibited in serum (day 8, 29, 57 & 85) and nasal fluids (day 8, 29, 57) samples of anti-Fel d1-IgG4 mAb1/2 compared to placebo-treated individuals (all,$P<0.05$). Moreover, nasal Th2 cytokines (IL-4, IL-5, IL-13) and chemokines (RANTES and TARC) were reduced at 6 hours post nasal challenge in anti-Fel d 1-IgG4 mAb1/2 treated individuals compared to placebo.

Conclusions

For first time, we show a therapeutic role of anti-Fel d1-IgG4 mAb1/2 in inhibiting basophil activation, serum and nasal CD23-mediated allergen presentation, along with symptoms improvement for 12 weeks.

ORAL PRESENTATIONS: PAEDIATRIC CLINICAL

OP.088

Evaluation of intravenous antibiotic challenges in a paediatric allergy department

Erika Harnik, Lee Noimark, Anthony Aston, Luul Ali
Royal London Hospital, London, United Kingdom

Objectives

Although children may often be labeled with antibiotic allergy, studies performing drug provocation challenges in children with a history suggestive of antibiotic allergy found that most are in fact able to tolerate the antibiotic. An inaccurate label of antibiotic allergy can lead to the prescription of less effective and possibly more expensive alternatives and contribute to antibiotic resistance. An evaluation was performed to assess the outcomes from intravenous antibiotic challenges over a two year period in a paediatric allergy department.

Method

Patients admitted for intravenous antibiotic challenges over a 2 year period were identified using a departmental database. Patient case notes were reviewed and information including index drug, description of reaction and past medical history including atopy were collected.

Results

7 patients were identified and a total 12 IV antibiotic challenges were performed. The majority of patients (85%) had complex medical backgrounds – 4 patients had cystic fibrosis or non-CF bronchiectasis, there was one oncology patient and one patient with immunodeficiency. All patient had reported symptoms of an IgE-mediated reaction on exposure to the antibiotic, including immediate onset widespread urticaria, angioedema and wheeze. The most commonly tested antibiotics were third generation Cephalosporins (4/12) and Meropenem (4/12). All had negative skin prick and intradermal testing prior to challenge. 1 patient developed generalized erythema following Ciprofloxacin which was treated with antihistamines. The other challenges were all completed successfully.

Conclusions

The majority of patients tested had complex medical backgrounds such a cystic fibrosis, who are at a higher risk of reactions due to repeated antibiotic use and are more likely to requiring frequent intravenous antibiotic therapy. The intravenous drug challenges were successful in excluding antibiotic allergy in patients who may have otherwise avoided the antibiotic based on history alone.

OP.091

Efficacy and safety of AR101: results of the phase 3 peanut allergy oral immunotherapy study for desensitization (PALISADE) trial

Jonathan O'B Hourihane[1], Andrea Vereda[2], Stacie Jones[3], A. Wesley Burks[4], Rezi Zawadzki[5], Thomas Casale[6], Wayne Shreffler[7], John Matthews[5], Stuart McIntosh[2], Brian Vickery[8], Daniel Adelman[5,9], Kirsten Beyer[10], George du Toit[11]

[1]University College Cork, Cork, Ireland. [2]Aimmune Therapeutics, London, United Kingdom. [3]University of Arkansas for Medical Sciences and Arkansas Children's Hospital, Little Rock, AR, USA. [4]University of North Carolina, Chapel Hill, NC, USA. [5]Aimmune Therapeutics, Brisbane, CA, USA. [6]University of South Florida Morsani College of Medicine, Tampa, FL, USA. [7]Massachusetts General Hospital, Boston, MA, USA. [8]Emory University School of Medicine, Atlanta, GA, USA. [9]University of California San Francisco, Redwood City, CA, USA. [10]University Hospital Charité, Berlin, Germany. [11]King's College London, London, United Kingdom

Objectives

Peanut allergy is the most common cause of food-related anaphylaxis. AR101 is a novel, investigational oral drug designed to reduce the risk of allergic reactions following peanut exposures.

Method

PALISADE was a randomized, double-blind, placebo-controlled trial of AR101 in peanut-allergic participants aged 4-55 years conducted in the United States, Canada, and Europe. Eligible participants reacted at ≤100mg peanut protein during double-blind, placebo-controlled food challenge (DBPCFC) at screening. Participants completed up-dosing phases, approximately 6 months of 300mg/day treatment, and an exit DBPCFC. Participants aged 4-17 years were the primary analysis population.

Results

Of 750 screened participants aged 4-17, 496 were randomised (AR101 n=372, placebo n=124). Of these, 66% were aged 4-11 years, 34% 12-17 years; 57% male; 78% Caucasian; 72% had history of peanut anaphylaxis; 53% had history of asthma; and 66% reported multiple food allergies. At baseline, the median (IQR) peanut skin-prick wheal diameter was 11 mm (9, 15), median peanut-specific IgE was 71 (20, 202) kU_A/L, and median (range) maximum tolerated DBPCFC peanut protein dose was 10mg (3, 30). Overall, 296 (80%) AR101 and 116 (94%) placebo participants completed the study. Percentages of participants able to tolerate 300, 600 (primary endpoint), and 1000mg peanut protein at exit DBPCFC were 77%, 67%, and 50% for AR101 participants versus 8%, 4%, and 2% for placebo participants, respectively ($P<0.00001$ for all comparisons). No deaths, life-threatening adverse events, or unexpected serious adverse reactions (SAEs) were reported; 9 SAEs (4 study drug-related, 5 leading to discontinuation) occurred in 8 (2.2%) AR101 participants versus 1 SAE in 1 placebo subject. Study discontinuation due to systemic hypersensitivity and gastrointestinal-related adverse events occurred in 2.7% versus 0% and 6.7% versus 0% AR101 and placebo participants, respectively.

Conclusions

These data, from the largest peanut allergy trial ever conducted, suggest AR101 could be useful in a highly sensitive pediatric population.

OP.092

Taking a longer LEAP? A service evaluation of early peanut screening and outcomes in higher risk infants

Helen Howells, Kate Grimshaw, Emma Grainger-Allen, Graham Roberts, Mich Erlewyn-Lajeunesse
University Hospital of Southampton, Southampton, United Kingdom

Objectives

The Learning Early About Peanuts (LEAP) study showed that in high-risk infants (those with severe eczema and/ or egg allergy), regular ingestion of peanut between the ages of 4-11 months decreased the risk of peanut allergy. In consequence, some guidelines now recommend that these infants are screened for peanut allergy. We undertook a service evaluation of such screening and introduction offered to infants at risk of peanut allergy at Southampton Children's Hospital.

Method

We collected clinical data and outcomes from infants who had a hospital peanut challenge (HPC) and compared them to a sample who were advised to undertake home peanut introduction (HPI). Follow up of peanut exposure and reaction at home was carried out by questionnaire.

Results

80 children had a HPC and 22 had HPI. 11/80 (14%) reacted during HPC with two cases of anaphylaxis compared to 2/22 (9%) HPI reactors with no anaphylaxis. A further 7/80 children reacted at home having tolerated peanut at HPC (total HC reactors 18/80 (23%). 49/80 (61%) children were older than the 11month LEAP cut off and of these 5/11 (45%) reacted at HPI and all 7 subsequent home introduction reactors were over eleven months. 75% of those with SPT >4mm tolerated peanuts at HPC. 73% children waited >6 weeks for a HPC and proportionally more children reacted in this group.

Conclusions

Most children sensitised to peanut weren't reactive and extending HPC's outside of the LEAP criteria to older infants with larger SPT's reduced development of peanut allergy. Several children reacted at home despite tolerating HPC, showing allergy may develop despite regular intake. The two occurrences of anaphylaxis supports the need for high-risk infants to be referred to secondary care for screening. Longer waits were associated with increased reactions, highlighting the need for appropriate funding and capacity to undertake this important clinical service.

OP.124

School Survey to Aid Implementation of Generic Adrenaline Autoinjectors

Gary Stiefel, Kerrie Kirk, Ruth O'Dowd
University Hospitals of Leicester NHS Trust, Leicester, United Kingdom

Objectives

From October 2017 the Human Medicines (Amendment) Regulations allows schools to buy adrenaline auto-injectors (AAIs) without a prescription, for emergency use in children at risk of anaphylaxis. The Leicester Childrens' Allergy Service sought further information from schools including access and carriage of AAIs, use of AAIs in anaphylaxis and interest in funding a generic AAI in order to try implement generic AAI(s).

Method

A questionnaire was circulated to all schools under the auspices of two local authorities within Leicestershire in November 2017.

Results

91/335(27%) schools responded, of which 76% (69/91) were primary schools. All the schools that responded included a total of 36413 children 994 (2.7%) with a food allergy and of those 43% (42/994) had an AAI.

Carriage of AAIs by pupils is requested by schools at all times in 19/91 (21%, 10% in primary schools vs 67% in secondary schools). Access to AAIs within 5 minutes was 77/84 (92%), access within 10 minutes was 100%. 7 schools did not answer or wrote N/A. No school had>1 episode of anaphylaxis in one day. 64/86 (74%) of schools were prepared to spend £30/year for a generic AAI, with 9/86 (12%) would consider it.

Conclusions

- Carriage of AAIs is significantly different amongst primary and secondary school children. MHRA recommendation to carry 2AAIs at all times is not adhered to in the majority of primary schools as they are stored centrally. This may present an opportunity to utilise the generic AAI(s) as the second device ensuring all children have access to 2AAIs
- Access to AAIs within schools in a timely manner is very good.
- The majority of schools are prepared/would consider buying generic AAIs and the responses suggest that one AAI may be sufficient.
- A coordinated approach is required to support schools implement generic AAIs within the region.

ORAL PRESENTATIONS: PRIMARY CARE

OP.132

Diagnosis, investigation and treatment of urticaria and angioedema in a UK primary care centre.

Thomas Fozard[1], Natasha Gunawardana[2], Thaven Chetty[1,3,4]
[1]Leyton Healthcare, London, United Kingdom. [2]Royal Brompton Hospital, London, United Kingdom.
[3]Living Care Health Services, London, United Kingdom. [4]Waltham Forest CCG, London, United Kingdom

Objectives

Urticaria and angioedema are prevalent conditions often seen in primary care. It is unknown how recent guidelines on diagnosis and management have been assimilated into primary care practice in the UK.

Method

Retrospective review of over 13,500 registered patients at a UK primary care practice identified patients coded with a diagnosis of urticaria (specific type or unspecified), angioedema or both. Their demographics, co-morbidities, investigations and treatment were reviewed.

Results

245 patients were identified; 90 male (37%), 155 female (63%). 45 (18%) had a concurrent diagnosis of allergic rhinitis, 23 (9%) asthma, 41 (17%) drug allergy and 16 (7%) food allergy. 183 (75%) had a single entry acute episode of urticaria or angioedema. 62 patients (25%) had chronic episodes (>6 weeks). 6 (2%) had a diagnosis of chronic spontaneous urticaria (CSU) but, on review, a further 50 patients (20%) were identified as likely CSU which had been un-diagnosed. 20 patients (8%) had blood test investigation. None had documented skin biopsies. Of those patients with chronic episodes but no CSU diagnosis, 35 (70%) were started on standard dose H1 antihistamines. 6 (12%) were started on high dose H1 antihistamines. 6 (12%) were started on second line agents. 9 (18%) had no documented treatments. 12 (24%) were referred to secondary care, only 4 (8%) were referred to allergy specialists. It is unclear how many patients achieved adequate control.

Conclusions

To our knowledge, this is the first evaluation of primary care adherence to urticaria and angioedema guidelines in the UK. Guidance was poorly followed and documentation was limited. This may result in significant morbidity that is underestimated. Reasons for this may include poor knowledge of guidelines and the condition. Similar reviews should be conducted on a larger scale to evaluate practice and an assessment tool may improve awareness and change practice.

POSTER PRESENTATIONS: ADULT CLINICAL

P.002

Using Analysis of Electronic Records and Stakeholder Participation to Improve the General Anaesthetic Allergy Testing Pathway at a UK Tertiary Allergy Centre

Sameer Bahal, Emily Zinser, Cynthia Morrison, Angela Msonthi, Prathap Pillai, Runa Ali
St Bartholomew's Hospital, London, United Kingdom

Objectives

We undertook a quality improvement project in general anaesthetic allergy testing, in a large inner-city teaching hospital, in order to make the pathway more effective.

Method

The record of allergy challenge tests carried out between 2014 and 17 was searched for general anaesthetic cases. The electronic notes were then accessed to examine waiting times, quality of referral documents, contents of outcome letters, and accuracy of allergy records. We compared against standards derived from BSACI guidelines, NHS secondary referrals guidelines and NICE drug allergy guidelines. We then presented the findings to stakeholders at local and regional meetings.

Results

A total of 42 patients (22 males and 20 females) were identified. The average age was 52.9 years.
31% of patients had a completed referral form scanned into the Electronic Patient Record (EPR) system.
39% of outcome letters were addressed to the correct referrer.
We found that documentation of results could be inconsistent and advice about medic alert bracelets was given via handwritten discharge letters and often not stated electronically.
Subsequently we presented findings at the Regional Allergy Network meeting and the Trust Anaesthetic Audit meeting. As a result, we clarified the correct referral procedure to referrers; altered the challenge booking document to highlight the correct referrer; and created a template to standardise the way results were documented and relayed to patients and referrers.

Conclusions

Referral pathways in general anaesthetic allergy testing are complicated by confusion regarding the process by referrers and lack of standardisation of documentation. Simple changes can improve the communication process. We believe this may improve the chance of a causative agent being identified and we plan to re-audit to demonstrate this.

P.003

Occupational Anaphylaxis to Octenidine: A Case Report of a Novel Allergy

Stephen Boag, Suzanne Elcombe, Manisha Ahuja, Dinusha Chandratilleke, Helen Bourne, Catherine Stroud, Gavin Spickett
Department of Immunology and Allergy, Royal Victoria Infirmary, Newcastle upon Tyne, United Kingdom

Background

Octenidine is a relatively new broad-spectrum antiseptic agent, use of which is becoming increasingly widespread. Currently, little is known regarding its allergenicity. Whilst contact hypersensitivity has been reported, to date immediate-type hypersensitivity has not. We report a case of anaphylaxis from occupational exposure, occurring on two occasions in a staff nurse on a surgical ward.

Case Presentation

This usually fit and well 52 year old lady had previously used Octenisan (Octenidine preparation, Shulke) once for hand washing. Her next exposure occurred washing a patient in a shower. Approximately 20 minutes later she developed an itchy erythematous rash, lip swelling, abdominal pain and hypotension. She only received Cetirizine 10 mg, as anaphylaxis was not recognised. She then had a collapse, but received no further treatment and gradually improved over an hour. She was referred to the allergy clinic following occupational health assessment. Skin prick tests and topical challenges to Octenisan and Octenisept (both Octenidine preparations) were negative and she was cleared to recommence occupational use. However, on her next exposure, again washing a patient in the shower, she had a further anaphylactic reaction, requiring treatment with adrenaline, chlorphenamine and hydrocortisone. Upon detailed review of the history, no other potential culprits were identified. Further testing was not felt necessary, and a clinical diagnosis of Octenidine allergy was made.

Discussion

Unusually, this patient had reproducible reactions following Octenidine use, despite a negative challenge. We postulate that the circumstances of exposure (in a shower, probably resulting in aerosolisation and inhalation of Octenidine) were critical, but were not replicated during the challenge, explaining the negative result.

Conclusions

This is the first reported case of immediate-type hypersensitivity to Octenidine. With rising use and increased awareness of it as a potential allergen it is likely more cases will be seen.

P.005

A case of Methyl prednisolone allergy

Shalini Chandel
University Hospital Southampton, Southampton, United Kingdom

Background

Corticosteroids are prescribed for their immunosuppressive, anti-inflammatory, and antiallergenic effects. The prevalence of allergic reactions attributable to corticosteroids administered systemically is rare, approximately 0.3%. Positive skin tests with different corticosteroids have been reported suggesting an IgE-mediated mechanism.

Case presentation

A 40 yr old was seen in May 2018 by the Neurology team at SGH for suspected Multiple Sclerosis. She had a history of loss of vision in the right eye of 2 weeks duration. Treatment was commenced with a course of oral Methyl prednisolone (Medrone). After taking Methyl prednisolone 500mg (first dose) , she developed symptoms of intense itching and burning sensation behind both ears within 15 to 20 minutes .This was followed immediately by a generalised urticarial rash all over the body , except face .There were no reported systemic symptoms during this episode. Patient took Piriton tablets and her symptoms resolved after 2 hours. She was referred to Allergy Day Case unit, SGH, in May 2018 for investigating steroid allergy.

PMH -hypothyroidism and eczema (outgrown), no h/o asthma or hay fever, or previous allergies.

Allergy testing was done for a panel of steroids – Triamcinolone (Kenalog) , Methylprednisolone acetate (Depomedrone), Methylprednisolone succinate (Solumedrone) , Dexamethasone and Hydrocortisone succinate (Solucorte).SPT was negative for all the above .IDT (with immediate reading) was positive at 1:10 dilution for Methylprednisolone succinate (Solumedrone) and Hydrocortisone succinate (Solu-corte) . Oral challenge with 8mg Dexamethasone did not show any reaction.

Discussion

This lady had an allergic reaction following oral Methyl prednisolone. IDT was positive for Methylprednisolone succinate (Solumedrone), and Hydrocortisone succinate (Solucorte). She had good tolerance to Dexamethasone.

Conclusions

This case demonstrates the existence of immediate allergic reactions to Methylprednisolone mediated by specific IgE antibodies. Skin testing is useful confirm the diagnosis. The in vitro IgE response can be evaluated by the basophil activation test (BAT) and ImmunoCAP.

P.006

A case of severe Eosinophilic Asthma with SMAD4 variant

Deepanjali Choudhury
Addenbrooke's Hospital, Cambridge, United Kingdom

Background

Transforming growth factor-beta (TGF-b) is one of the cytokines involved in mediating airway inflammation and remodelling in Asthma. The extent of its expression correlates with symptom severity. SMAD proteins are central mediators for TGF-beta signalling, in human eosinophils. Genetic variations in the SMAD proteins may play a role in severe clinical phenotype of Eosinophilic Asthma

Case presentation

A 25 yr. old Painter (non-smoker) was seen frequently in the severe asthma clinic since his childhood; phenotyped as Eosinophilic asthmatic aged 22 yrs. His mother and sister attended severe asthma clinic too. This was reflective of strong atopic family history. When his 49 yr. old father got diagnosed with an Aortic aneurysm and underwent root repair, the family underwent genetic screening for Aortopathy. The patient, his father and sister were all carriers of the SMAD4 variant gene .Both, his father and sister had colonic polyposis. His CT chest revealed no aortopathy / other vascular malformations. He had ongoing fluctuating poor lung function as reflected by an FEV1 usually between 40-50% and an elevated ENO in the high 50's.Being a severely asthmatic patient despite maximal treatment ;Eosinophil counts were >2 and he was put forward for treatment with Mepolizumab and subsequently assessed by Gastroenterology.

Discussion

The SMAD4 gene alteration is inherited in an autosomal dominant manner. Up to 38% of carriers of pathogenic SMAD4 gene changes had aortic aneurysms according to Heald et al 2015. Other associations include Juvenile Polyposis syndrome, Hereditary haemorrhagic telangiectasia and pancreatic cancer. Our patient had severe eosinophilic asthma, Right Colonic Adenoma and a high susceptibility to develop Aortopathy as per Geneticist review.

Conclusions

This highlights the interesting role of epigenetics in severe asthma. Proactive multidisciplinary management of disease severity and associated co-morbidities is vital in certain genotypes like SMAD4 variant patients with gastrointestinal or vascular complications.

P.007

De-labelling childhood Penicillin allergy in a tertiary centre

Deepanjali Choudhury, Annette Wagner
Addenbrooke's Hospital, Cambridge, United Kingdom

Objectives

A majority of Penicillin allergy labelled patients aren't actually allergic to Penicillin. Often with a childhood history of a reaction, there is inadequate information causing diagnostic uncertainty. This study was aimed to assess the outcome of childhood labelled Penicillin allergic patients.

Method

We carried out a retrospective study looking at 100 patients labelled Penicillin allergic in childhood referred to our Outpatient clinic from Aug 2012 to Aug 2017. We obtained demographics, skin test results and outcome of oral challenge. Patients underwent skin prick testing and intradermal testing with Benzylpenicilloyl octa-L-lysine (PPL), Sodium Benzylpenilloate (MD), Benzyl penicillin, Amoxicillin and the index penicillin. Patients with negative Skin tests underwent an oral challenge with Phenoxymethyl Penicillin. Those with negative challenges were offered a 3 day course of Pen V and followed up with delayed skin test photographs.

Results

Of the 100 referrals, 4 (4%) patients were confirmed to have Penicillin allergy. 67 % were females. 3(75 %) had a history of type 1 IgE mediated allergy with 1 (20%) reporting delayed type allergy. Of the 2 who tested positive through skin tests, 1(20%) was through a large SPT positive to BP, Amoxicillin and PPL with a systemic reaction after skin tests and congruent history and the other had large positive intradermal tests to BP and Amoxicillin. Only 1 (25%) of them with classical history and negative skin tests had a positive oral challenge. Of the remaining 96% patients, all (100%) had negative skin tests (SPT and IDT), negative oral challenge and tolerated the delayed antibiotic course successfully.

Conclusions

This study re-iterates that majority of penicillin allergy labelled patients are not actually allergic; however it highlights the need for larger studies to identify whether childhood allergy to penicillin is gradually outgrown as suggested by a negative allergy work up despite a congruent history.

P.008

Omalizumab for chronic spontaneous angioedema and urticaria (CSU), are we following NICE guidelines? Yes and no

Angela Cooper, Deborah Hughes
University Hospital of North Midlands, Stoke on Trent, United Kingdom

Objectives

To assess our adherence to NICE Guidance (TA339) June 2015 – recommending Omalizumab as add on therapy for treating CSU in adults and young people aged 12 years and over.

Method

We looked at an existing group of CSU patients already established on maximal conventional treatment who remained symptomatic. Since June 2015, in line with NICE guidance we have commenced 41 patients on Omalizumab 300mg subcutaneously on a regular basis. We collated patient demographic details, UAS7 scores at baseline and at every clinic visit and their response to treatment. Treatment was stopped after each course of 6 injections as per NICE guidance.

Results

Patient demographics: 11 male and 30 female, aged between 19 and 70 years
Baseline UAS7 score: 21 to 42 (mean 33.79)
Omalizumab was stopped in 3 patients who failed to respond after 4 injections with a further 1 patient choosing to stop after 2 injections due to illness.
29 patients have managed longer than 4 weeks between doses of Omalizumab.
20 (48%) patients have gone on to require a 2nd course of Omalizumab of those, 7 (35%) have gone on to have a 3rd course.

Conclusions

Overall, we are following the NICE guidance, with a couple of exceptions:-

- in one case the baseline UAS7 score was not 28 but the consultant used DQLQ score as a guide
- if a patient's symptoms are being controlled we extend the period of time between injections from 4 to 6 weeks with no detrimental effects to the patient.

P.010

Omalizumab updosing in patients with chronic spontaneous urticaria and angioedema

Sarah Denman, Helin Smith, John Toolan, Kate Ford, Phil Wood, Gururaj Arumugakani, Sinisa Savic
The Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom

Objectives

The licensed dose for omalizumab in chronic spontaneous urticaria and angioedema (CSU) is 300mg 4-weekly. However, some patients demonstrate only a partial response at this dose and updosing is required. We reviewed our omalizumab cohort to determine how many patients required up dosing and what their response was.

Method

The medical records of patients who had received omalizumab for CSU at the Leeds Teaching Hospitals NHS Trust from August 2010-April 2018 were retrospectively reviewed

Results

Of the 227 patients who had received omalizumab for CSU, 32 patients (f=23, m=9; age 23-70 years) required updosing; increased dose n=20, increased frequency n=9, increased dose plus frequency n=3. 24 patients responded to updosing (75%) and 8 patients did not respond (25%). All patients who had an increased dose and frequency responded, 89% of the increased frequency patients responded and 65% of the increased dose patients responded.

Dose changes occurred from doses 3-22 (average 10; median 9). No increase in adverse effects were noted following updosing.

Of the updosed patients, 75% had received previous immunosuppression and 38% had other co-morbidities. Baseline CRP (n=28) was >5 in 43% patients. Average baseline UAS7 was 31 (n=21). Weight ranged from 59-126kg (n=13; average 93kg, median 86kg). Angioedema was present in 15 patients (47%); 13 (54%) responders, 2 (25%) non-responders. Baseline total IgE (n=26) was higher in responders compared to non-responders (average 485 vs 254 ku/L; median 241 vs 36 ku/L).

Conclusions

Updosing of omalizumab is safe and should be considered in patients who fail to respond to standard doses. Increasing frequency in patients who have a return of symptoms <4-weeks post omalizumab may be of most benefit. Updosing may be more effective in patients with associated angioedema and who have a higher baseline total IgE.

P.011

The Challenges of Adult Food Challenges – What do we see and how can we improve service efficiency?

Sally-Ann Denton, Shalini Chandel
University Hospital Southampton NHS Trust, Southampton, United Kingdom

Objectives

Food allergy affects approximately 5% of adults. Food challenges are often needed to confirm or exclude food allergy. Challenges are time-consuming, expensive and waiting times are long. Missed appointments waste clinician time, resources and contribute to waiting times. We sought to determine attendance rates and the number and type of foods challenged.

Method

Retrospective analysis of food challenges planned for May 2017 to May 2018 using information recorded on an excel database.

Results

108 patients (mean age 34.1 years; range 16-75 years) had planned appointments for food challenges.67 patients attended but two then declined challenge on the day. Twenty-six patients failed to attend their appointment and a further 15 cancelled on the day.
Challenges were limited to one food for most patients, but some, particularly those having nut challenges, undertook more than one challenge on the day. A total of 79 challenges were performed.
The majority (45; 57%) were to tree nuts; either as mixed tree nut or single nut challenges.42 (93.3%) were negative, 3 (6.67%) were positive (2 objective and 1 subjective symptoms).
Sixteen (20.3%) were performed to fish, shellfish and seafood. Fifteen (93.8%) were negative and one (6.25%) was positive with delayed symptoms of vomiting.
The remaining challenges were to peanut (5; 6.3%), grains and seeds (4; 5.1%), sesame (2; 2.5%), soy (2; 2.5%), milk (2; 2.5%), baked egg (1; 1.3%), avocado (1; 1.3%) and baked beans (1; 1.3%). Only baked egg was positive, with a delayed reaction occurring.

Conclusions

Thirty-eight percent of patients did not attend their food challenge. Further investigation is needed to ascertain why patients do not attend and to make changes to address these issues. The majority of challenges performed were to tree nuts, peanuts, fish, shellfish and sea-food; correlating with data from other centres. Immediate or delayed reactions were seen in a minority of patients.

P.013

Food allergy challenge –Can patients be asked to take the initiative?

Sarah Goddard, Lavanya Diwakar, Angela Cooper, Deborah Hughes
University Hospital North Midlands, Stoke-on-Trent, United Kingdom

Objectives

Often patients do not attend food challenges as they are anxious about reactions or do not want to reintroduce the food anyway, even at the end of a negative challenge. Sometimes patients attend who have already accidentally or intentionally consumed the food at home. Alternatively, patients who are anxious to reintroduce foods wait months for a challenge appointment. A food challenge is time-consuming and requires highly trained, expensive staff in specialised centres.

Method

All patients for food challenge have a discussion in clinic and are sent a letter offering them an appointment with a patient information leaflet about the procedure. **They are not however booked into the clinic unless they phone back** and arrange this appointment with the secretary. All patients offered a challenge appointment were identified from the clinic database from January 2016. The food, advice about possible home challenge or avoidance, hospital challenges and outcome data were collected.

Results

54 patients were offered a food challenge by our service in the last 2 years and asked to phone back to book an appointment. Of those 20 (37%) did phone back and of those 4 (20%) subsequently cancelled or failed to attend. 7 low risk patients were told that they could reintroduce foods at home, and none of these patients opted for hospital based-challenge.

Conclusions

Keeping challenge waiting times acceptable is difficult with restricted staffing. Whilst for drug allergy challenges we control the pathway, for food challenges we have simply asked patients to make a phone call to indicate their commitment to attending and making use of the challenge. Only just over a third of patients phoned, allowing us to shorten our waiting times for those keen to use this service. We plan to contact patients to assess outcomes for patients who did not phone back.

P.014

IgE-mediated cofactor-dependent wheat allergy in adults: a case series

John Guly[1], Anjali Ekbote[2], Susan Tadros[3], Amolak Bansal[1], Vasantha Nagendran[1], Grant Hayman[1]
[1]Epsom and St Helier University Hospitals NHS Trust, Surrey, United Kingdom. [2]Heart of England NHS Foundation Trust, Birmingham, United Kingdom. [3]Barts Health NHS Trust, London, United Kingdom

Objectives

Wheat-dependent exercise-induced anaphylaxis (WDEIA) is the term most frequently used to describe an IgE-mediated wheat allergy associated with one or more cofactors. This condition has been linked with the presence of specific IgE antibodies to wheat, omega-5-gliadin and/or gluten. However, many patients have cofactors other than exercise, and have symptoms that are less severe than anaphylaxis. The aims of this case series were to determine which symptoms and cofactors were found in our patient population, and to determine the value of specific IgE testing to wheat, gluten and omega-5-gliadin.

Method

Data were collected by retrospective review of clinical and laboratory records. Diagnosis was based on a suggestive clinical history with evidence of IgE sensitisation to wheat, omega-5-gliadin and/or gluten. Anaphylaxis was defined as allergic symptoms with respiratory and/or cardiovascular compromise.

Results

74 patients were included in the study (40 males, 34 females). 53 (72%) patients had a history of anaphylaxis. 21 patients (28%) had never experienced anaphylaxis. 55 out of 74 (74%) patients had at some stage experienced allergic symptoms without anaphylaxis. Physical activity was the most frequently reported cofactor (66 of 74 patients, 89%). Other commonly identified cofactors were alcohol (19 of 74 patients, 26%), non-steroidal anti-inflammatory drugs (11 of 74 patients, 15%) and cold environment (5 of 74 patients, 7%). Specific IgE results were positive to gluten, wheat and omega-5-gliadin in 94% (62/66), 82% (42/51) and 81% (60/74) respectively of the patients tested.

Conclusions

We propose that “cofactor-dependent wheat allergy” is a more appropriate name to describe this condition, as many patients do not have anaphylaxis, and cofactors other than exercise are frequently implicated. In our study, more patients had a positive specific IgE result to gluten than to omega-5-gliadin or wheat.

P.015

Peri-operative Anaphylaxis to Ranitidine: A Case Report

Verah Harper, Shuaib Nasser, Annette Wagner
Cambridge University Hospital, Cambridge, United Kingdom

Background

Ranitidine is a competitive histamine-2 receptor antagonist with a furan ring nucleus that is well tolerated and widely used for gastrointestinal disorders. Anaphylaxis to ranitidine is seldom reported. We report a case of peri-operative ranitidine-induced anaphylaxis.

Case presentation

A 40 year old male, presented following severe anaphylaxis with hypotension (55/30mmHg) during general anaesthetic for epididymal cyst excision.
Drug administered included propofol, alfentanil, flucloxacillin, paracetamol, ondansetron, dexamethasone and ranitidine. Chlorhexidine was used for skin preparation. Tryptase rose from 5 to 24 ng/mL. The anaphylaxis was managed and the operation completed.
Skin prick (SPT) and immediate intradermals (IDT) testing were undertaken to all drugs given. SPT to ranitidine 25mg/ml was positive (4mm weal) and IDT at 0.025mg/ml was positive (12mm weal). IDT to chlorhexidine gluconate was equivocal. Skin tests to all other drugs were negative.
He tolerated chlorhexidine gluconate topical challenge, flucloxacillin and ondansetron oral challenge to cumulative dose of 275mg and 7mg, respectively. This confirmed a diagnosis of ranitidine-induced anaphylaxis

Discussion

Adverse reactions to ranitidine, especially cutaneous reactions have been reported. Cross-reactivity with other H2-receptor antagonist (cimetidine, famotidine) has been shown. The mainstay investigation for ranitidine allergy is skin tests and provocation test. Specific IgE to ranitidine is reported in the literature, but as yet, there is no commercially available assay.
Therefore in ranitidine allergy, all H2-receptor antagonists should be avoided and PPI used as alternative in gastric-peptic ulcer related disorders.

Conclusions

Investigation of the culprit drug in peri-operative anaphylaxis is complex as multiple drugs are administered within a short space of time. As ranitidine is widely used and well tolerated, it can easily be overlooked. This case highlights the need for systematic allergy testing of all the drugs administered peri-operatively, in order to reduce future re-occurrence of anaphylaxis. Ranitidine should always be considered as a cause of anaphylaxis.

P.016

Increased reactivity to cow's milk after elimination diets in adults with atopic dermatitis: a case series of 3 patients

Hannah Hunter[1,2], Claire Hanson[1], Kok Loong UE[1,2], Stephen James Till[2,1]
[1]Guy's & St Thomas' NHS Foundation Trust, London, United Kingdom. [2]King's College London, London, United Kingdom

Background

Previous case series have identified new-onset of IgE-mediated food allergy after elimination diets for atopic dermatitis (AD) in children.

Case presentation

Case 1: a 23-year-old female experienced four systemic reactions, twice requiring adrenaline. All were attributable to accidental milk ingestion. Progressive elimination of cow's milk over 3 years had improved her AD. Milk sIgE measured after anaphylaxis was 54.3 kUA/L, compared to 0.41 kUA/L one year previously. Skin prick test (SPT) to milk extract was positive at 7mm (previously 0mm).
Case 2: a 25-year-old male with AD developed anaphylaxis requiring adrenaline after accidental milk ingestion. He had been avoiding milk for 2 years after a positive test in primary care. Milk sIgE measured after anaphylaxis was 97.0 kUA/L (previously 36.7 kUA/L). SPT was positive to fresh milk at 13mm and milk extract at 4mm.
Case 3: a 37-year-old female reported hoarseness after milk ingestion. She had eliminated milk 2 years previously after positive IgE testing with associated improvement in AD. Milk sIgE was measured at 6.77 kUA/L (increased from 0.36 kUA/L prior to reaction). SPT was positive to fresh milk at 15mm (previously 4mm) and milk solution at 10mm (previously 0mm).

Discussion

Prior to elimination no patient reported IgE-mediated symptoms associated with milk ingestion. After prolonged avoidance, these 3 patients developed systemic or immediate onset symptoms and demonstrated increased sensitisation on testing. All were subsequently advised on strict avoidance and provided with adrenaline auto-injectors.

Conclusions

Although the causality of milk elimination cannot be proven in these cases, caution is advised when recommending milk elimination diets for AD in sensitised adult patients. Long term monitoring is advisable, and eventual oral food challenge might be considered to assess clinical reactivity to milk.

P.017

Diclofenac allergy: a retrospective analysis of 28 patients

Lucinda Kennard[1], Krzysztof Rutkowski[2], Alla Nakonechna[3,4], Dr Rita Mirakian[1], Annette Wagner[1]
[1]Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom. [2]Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom. [3]Broadgreen Hospital, Liverpool, United Kingdom. [4]Liverpool Hope University, Liverpool, United Kingdom

Objectives

Non-steroidal anti inflammatories drugs (NSAID) are a common cause of drug hypersensitivity reactions (DHR) and Diclofenac, a 2-arylacetic acid derivative non-selective cyclo-oxygenase (COX) inhibitor is one of them.
We report the results of a retrospective analysis of patients who presented to the allergy department with a suspected hypersensitivity reaction to diclofenac.

Method

All patients underwent skin prick testing with diclofenac, ibuprofen, aspirin and paracetamol. Oral drug provocation tests (DPT) were performed with either diclofenac, a COX-I inhibitor or the COX-2 inhibitor etoricoxib.

Results

28 patients (17 Female, 11 Male, age range 6 – 72 years) presented with mild (8), moderate (9) or severe (11) reactions to diclofenac. 12 had received the drug intravenously, 15 orally and 1 per rectum.
Mast cell tryptase was available in 12 patients and rose during the acute event in 4 patients.
In 22 patients a diagnosis of allergy was made. 2 positive intradermal test, 3 positive (DPT), 17 history alone.
Tolerance to alternative NSAIDs was established:
14 patients tolerated paracetamol after the index reaction.
In 19 patients tolerance to other more cox 1 selective inhibitors was established.
4 patients passed etoricoxib DPT.
1 patient failed ibuprofen, but passed etoricoxib DPT.
In 6 patients allergy was excluded (5 negative DPT, 1 history).

Conclusions

Although adverse reactions to diclofenac frequently show characteristics of an IgE mediated allergic reaction, including raised tryptase, skin tests show a very low sensitivity. Clinicians rely on DPT to confirm diagnosis, which carries substantial risks and is therefore not always performed. Cross reactivity with more selective COX-1 inhibitors is the exception. Only one patient with a history of chronic spontaneous urticaria failed ibuprofen DPT. We would therefore propose to consider performing DPT with an alternative COX-1 inhibitor in all patients with a confirmed diagnosis of diclofenac allergy.

P.021

Delayed hypersensitivity to Lignocaine with adrenaline: a case report

Ing Ni Lu, Shelley Dua, Lucinda Kennard
Cambridge University Hospital, Cambridge, United Kingdom

Background

True allergic reactions to local anaesthetic are rare with the incidence, including both immediate and delayed reactions being estimated to be <1%.

Case Presentation

A 37 year old female was referred for suspected reactions to local anaesthetic. She described pruritus, localised angioedema and erythema occurring several hours after local anaesthetic injection including extensive angioedema of the perineum and buttocks after episiotomy and significant gingival oedema 24 hours after dental work. She reported that lignocaine was used for the first episode. Skin prick and intradermal tests were performed to lignocaine 2% and also lignocaine 2% adrenaline 1:80000 and were negative on immediate reading. Delayed intradermal reading to lignocaine with adrenaline was positive at 48 hours with swelling of the original bleb. Intradermal to lignocaine 2% 0.5ml was negative however challenge to lignocaine 2% adrenaline 1:80000 0.5ml although negative immediately was positive after 24hours with swelling and induration at the injection site.

Discussion

We identify a case of delayed hypersensitivity to lignocaine 2% adrenaline 1:80000 in an individual who is able to tolerate lignocaine 2% singly. We postulate that the preservatives in the drug may be the potential allergen, as allergy testing to anaesthetic agent alone is negative. The excipients present in lignocaine 2% adrenaline 1:80000 but not in lignocaine 2% alone include potassium metabisulphite and disodium edetate. Delayed hypersensitivity to metabisulphite in anaesthetic solution has previously been reported, diagnosed by patch testing. Both immediate and delayed hypersensitivity has been reported to disodium edetate.

Conclusions

We identify a rare case of delayed hypersensitivity to lignocaine 2% adrenaline 1:80000 possibly due to underlying hypersensitivity to the excipients in the preparation. We demonstrate delayed reading of intradermals as an effective way to test for delayed reactions. Patch testing may further elucidate allergy to specific preservatives.

P.022

Gadolinium contrast agent hypersensitivity reactions

Joanna Lukawska[1,2], Jennifer Harvey[1], Lisa Stycharczuk[1], Amy Foggitt[1], Therese Bidder[1], Magdalena Dziadzio[1], Sotirios Bisdas[1]

[1]UCLH, London, United Kingdom. [2]KCL, London, United Kingdom

Objectives

The most commonly used magnetic resonance imaging (MRI) contrast agents are gadolinium (GdA) based. They are generally considered to be safe. However, anaphylactic reactions have been reported and occur in between 0,01 to 0.0003% of cases. The rate of hypersensitivity between different GdA agents is likely to vary. Reasons for this may be related to different types of: GdA, chelation and excipients contained in the product. Here, we looked at possible reasons for hypersensitivity reactions and cross reactivity between 3 macrocyclic GdA agents.

Method

We reviewed clinical history and performed skin testing with Prohance, Dotarem and Gadovist in all consecutive patients referred with possible GdA (Prohance index agent) hypersensitivity to our department over one year.

Skin prick tests were performed and when negative, were followed by intradermal tests at 10^{-3} to the 10^{-1} dilution.

Whenever a patient tested positive to Prohance and Gadovist, further testing was performed with Tromethamine (excipient contained in both GdAs).

Results

Total of 12 patients underwent allergological assessment. Five tested positive to Prohance. Of these 1 tested positive to all 3 gadolinium agents, 3 tested positive to Prohance only and one tested positive to Prohance and Gadovist. The latter patient also underwent skin testing with Tromethamine and tested positive to it.

Of the 7 patients testing negative: 3 were unlikely to suffer from Prohance hypersensitivity, 2 were likely to suffer from non IgE mediated hypersensitivity, and 2 displayed likely non-specific histamine release. One of these patients underwent successful GdA enhanced examination following negative skin testing.

Conclusions

Allergological work-up is vital in assessment of patients with GdA hypersensitivity reactions as it may not only enable patients' future contrast enhanced MRI investigations with alternative agents but also reveal allergy to common excipients such as Tromethamine.

P.024

Allergy to breast clip: unexpected allergen

Alla Nakonechna, Melanie York, Ravi Sargur
Sheffield Teaching Hospitals Foundation NHS Trust, Sheffield, United Kingdom

Objectives

Polyethylene glycols (PEGs) are compounds used in a wide variety of often unrelated medical and commercial household products. They are generally considered to be safe with low toxicity, however cases of mild to severe IgE mediated allergy due to PEG have been reported.

Method

A 53 year old female patient developed immediate anaphylaxis after consuming Klean Prep. She was referred to the Allergy clinic and skin prick testing to Macrogol (PEG) produced a positive 5x5 mm weal. She was diagnosed with PEG allergy and counselled to strictly avoid all PEG containing products. Shortly after her Allergy clinic appointment, she was diagnosed with breast cancer. Treatment for this required insertion a titanium and hydrogel marker breast clip. The product literature of the clip was reviewed (prior to insertion) and PEG was not listed as a constituent. She was asymptomatic for 30 minutes following the clip insertion and then discharged home. However, she subsequently developed generalised urticaria, breathing difficulty and hypotension. She was re-admitted to hospital and required treatment with four injections of intramuscular adrenaline. The manufacturer of the breast clip was contacted, and they later confirmed that the commercial 'lung sealant' polymer used in the breast marker contained PEG.

Results

This case highlights the ubiquitous use of PEG in medical products and how the labelling of excipients may be misleading.

Regulatory agencies need to include PEG (ingredient/sub-ingredient) as a potential allergen and ensure appropriate PEG labelling in different products (medications, cleaning products, cosmetics, sealants) where they can be a hidden allergen

Conclusions

Labelling of products containing PEG can be poor and insufficient. It is essential that both healthcare professionals and patients have an increased awareness of this to prevent inadvertent re-exposure to PEG.

Potential exposure to PEG should be considered in health and safety assessment of patients in hospital settings and by prescription.

P.025

The prevalence of pollen food syndrome in adults with irritable bowel syndrome

Kirtika Patel[1], Gemma Vila-Nadal[2], Jasmit Shah[3], Mohammed Shamji[4], Lorna Swan[2], Stephen Durham[4], Kinesh Patel[5,2], Isabel Skypala[2]

[1]MOI University, Eldoret, Kenya. [2]Royal Brompton & Harefield NHS Foundation Trust, London, United Kingdom. [3]Diabetes and Obesity Center, Louisville, USA. [4]Imperial College, London, United Kingdom. [5]The Chelsea & Westminster Hospital, London, United Kingdom

Objectives

Both Irritable bowel syndrome (IBS) and pollen food syndrome (PFS) are common conditions, the UK prevalence being 10% for IBS and 2% for PFS. A retrospective case note analysis suggested IBS patients have a high level of reported seasonal allergic rhinitis (SAR) and that up to 33% could have PFS. The aim of our prospective study was to evaluate the prevalence of PFS in IBS subjects, and compare the result to a matched hospital population without IBS.

Method

Subjects with IBS diagnosed using the Rome IV criteria were prospectively recruited. They completed a validated PFS diagnostic questionnaire and the results were compared to a control group of age and sex matched patients with congenital heart disease, selected from consecutive outpatient clinics. The IBS group also completed further validated questionnaires to determine the severity of IBS and the presence and severity of SAR, and underwent skin prick tests (SPT) to aeroallergens and foods.

Results

Of the 35 adults with IBS (30 female, mean age 34), 29% (10) had PFS, compared to 0% in a group of 35 age and sex-matched controls ($p<0.001$). In the IBS group, there was a significant correlation between PFS and SAR severity ($p<0.05$) and between PFS and IBS symptom severity ($p<0.05$). Those with PFS were also significantly more likely to have positive SPT to potato (raw and cooked), semolina (wheat), hazelnut, tomato, grass and Silver birch ($p<0.05$). In the IBS group as a whole, 57% (20/35) had a diagnosis of SAR, with a mean symptom severity score of 6.9/10.

Conclusions

These data confirm previous findings that those with IBS have a greater prevalence of SAR, which might explain why their level of PFS is well above the population average. Those with PFS were also more likely to have more severe SAR and IBS symptom scores.

P.028

Cold induced urticaria as a consequence of haematopoietic stem cell transplant

Arthur Price, Nasreen Khan, Alexander Martin
University Hospitals Leicester, Leicester, United Kingdom

Background

Cold urticaria is an uncommon presentation even in allergy clinics, in some patients it can cause a severe life threatening presentation. We report on a patient who developed cold induced urticaria post allogenic stem cell transplant.

Case presentation

The patient is male now aged 23 who was transplanted in August 2010 due to severe aplastic anaemia with a sibling allograft. Post-transplant he was commenced on ciclosporin as prophylaxis against graft versus host disease as per protocol and engrafted well with no immediate complications beyond pyrexias over 6 months post-transplant and shingles at 18 months. In September 2016 he reported to haematology episodes of urticaria relating to cold exposure, the first episode could be traced to 2012 when swimming in Devon with generalised urticaria and loss of consciousness. He had multiple further episodes of urticaria with dizziness while cycling in the cold. He eats a full diet with no effect from diet on his symptoms. Skin prick testing to aeroallergens and nuts was negative, mast cell tryptase, immunoglobulins, complement/C1 inhibitor and cryoglobulins were all normal. He was given a diagnosis of cold induced urticaria and commenced on cetirizine and given an adrenaline auto injector. Notably the donor has no similar diagnosis.

Discussion

Although there are many reports of transplant induced food allergy and atopic disease, cold induced urticaria as a consequence is not described in the literature. The mechanism of transfer remains complex. Theories from food allergy transfer include the possible effect of the immunomodulatory regimen of the transplant or direct transfer of antibody producing cells. In aplastic anaemia high rates of poor chimerism could theoretically have an impact.

Conclusions

This is a novel presentation of a rare disease, the underlying reason for development of the syndrome is unclear however there is adequate control from standard therapies.

P.029

Drug allergy labels in elective surgical patients (DALES)

Louise Savic[1], Caroline Thomas[1], David Fallaha[2], Beverley Parker[1], Elizabeth Horncastle[3], Lydia Radley[1], v Vikas Kaura[4], Sam Clark[5]

[1]Anaesthetic Dept, Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom. [2]Anaesthetic Dept, Golden Jubilee National Hospital, Glasgow, United Kingdom. [3]Anaesthetic Dept, Leeds Teaching Hospitals NHS Trust, Leeds, Qatar. [4]Leeds Institute of Biomedical and Clinical Sciences, Leeds, United Kingdom. [5]Anaesthetic Dept University College London Hospitals NHS Foundation Trust, London, United Kingdom

Objectives

Drug allergy labels are common but rarely substantiated. We aim to determine prevalence and nature of allergy labels in elective surgical patients and explore anaesthetists' knowledge and attitudes to these labels. This work is performed by the Research and Audit Federation of Trainees (RAFT)

Method

We conducted a single-centred pilot of a multi-centred prospective cohort study. Adult elective surgical patients were surveyed using an online questionnaire to assess and stratify their allergy labels. Anaesthetists were surveyed to assess knowledge and attitudes to perioperative prescribing, including risk-stratification in opioid and penicillin allergy labels.

Results

26/81 patients reported one or more drug allergy label: 15% (12/81) reported penicillin allergy; 7% (6/81) reported opioid allergy; 10% (8/81) reported non-drug problems e.g. needle phobia. Within the penicillin allergy label group: 75% (9/12) described 'low-risk' symptoms; 58% (7/12) wished label to be removed if possible (potentially on the basis of history alone). All patients reporting opioid allergy described low-risk symptoms. 75% of anaesthetists considered gastrointestinal upset was 'low-risk', 95% and 90% felt that swelling/urticarial and non-urticarial rash respectively were 'high risk'. Confronted with labels they consider 'low-risk', the majority (79%, 34/43) would not prescribe penicillin in the perioperative setting. In patients with 'low-risk' opioid allergy labels, 42% (20/43) would administer or prescribe other opioids.

46% of anaesthetists avoid propofol in egg +/- soya allergy and 60% (27/45) do not routinely use antibiotic test doses.

Conclusions

Drug allergy labels are common with only a minority likely to represent true allergy. Penicillin and opioid allergy labels occur most frequently. Anaesthetists demonstrate reluctance to administer penicillin even when they consider an allergy label low-risk; this contrasts to their practice with opioid allergy labels. This study will be extended nationally May 2018.

With thanks to AARMY, the Audit and Research Matrix of Yorkshire.

P.031

Macadamia sensitisation and not allergy is common in peanut allergic, tree nut allergic and pollen food syndrome

Leonard Quok Chean Siew[1,2], Iason Thomas[1,2], Hannah Hunter[1], Kok Loong Ue[1,2], Phillip Hei Li[1,3], Timothy Watts[1], Prathap Pillai[1,2], Rosa Caballero[1], Krzysztof Rutkowski[1], Rubaiyat Haque[1], Stephen J Till[1,2]
[1]Department of Adult Allergy, Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom. [2]Peter Gorer Department of Immunobiology, King's College London, London, United Kingdom. [3]Division of Rheumatology and Clinical Immunology, Department of Medicine, Queen Mary Hospital, University of Hong Kong, Hong Kong, China

Objectives

To determine the clinical significance of low grade positive skin prick test (SPT) and specific IgE test results to macadamia in patients under investigation for peanut allergy, tree nut allergy and pollen food syndrome.

Method

A retrospective study of all patients who had oral food challenges (OFC) with Macadamia at the Department of Adult Allergy at Guy's Hospital between December 2011 and March 2018. Patients who had a clear history of a reaction to peanut or a tree nut and a high grade positive SPT (≥ 8 mm) and/or specific IgE test (≥ 15.0 kUA/L) for macadamia were excluded.

Results

47 patients with either a positive SPT or IgE test underwent OFC with macadamia. Within this group mean size of SPT was 2.7 mm (range 0 - 7 mm) and IgE 1.07 kUA/L (range 0.02 - 5.79 kUA/L). 68% were co-sensitised to silver birch pollen. In the majority of these patients macadamia sensitisation was noted as an incidental finding during investigation for nut allergy. Two patients reported possible local reactions to macadamia but in the majority there was no clear history of exposure. 46 patients passed the OFC, with no local or systemic reaction. The single positive challenge (red/watery eyes, periorbital swelling and generalised erythema) was in a patient who reported a systemic reaction to a mixed nut bar of unknown composition (SPT 5 mm; IgE 0.41; birch SPT 16 mm): OFC were negative to all other tree nuts.

Conclusions

Amongst our patients with a SPT < 8mm and sIgE < 15kUA/L to macadamia most were clinically tolerant. We speculate that in many cases sensitisation arose from birch pollen cross-reactivity. However, a small proportion of patients with this profile may exhibit systemic reactions: OFC to macadamia should be considered, particularly when there is a suggestive clinical history.

P.032

Characterisation of "low risk" beta-lactam allergic cohort of patients: Direct to oral provocation challenge without skin testing in adults with suspected beta-lactam allergy

Leonard Quok Chean Siew[1,2], Philip Hei Li[1,3], Timothy Watts[1], Iason Thomas[1,2], Kok Loong Ue[1,2], Rosa Caballero[1], Krzysztof Rutkowski[1], Stephen Till[1,2], Prathap Pillai[1,2], Rubaiyat Haque[1]

[1]Department of Adult Allergy, Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom. [2]Peter Gorer Department of Immunobiology, King's College London, London, United Kingdom. [3]Division of Rheumatology and Clinical Immunology, Department of Medicine, Queen Mary Hospital, University of Hong Kong, Hong Kong, China

Objectives

To identify a cohort of patients in whom skin testing could be omitted from beta-lactam testing in adults.

Method

Retrospective study of all patients referred to the drug allergy clinic at Guy's Hospital for investigations of suspected penicillin allergy between July 2010 and December 2016. Multivariate binary logistic regression analysis was performed with allergic status as the dependent variable, and age, male gender, white ethnicity, <1 year since reaction, anaphylaxis, urticaria/angioedema, non-specific rash, and known index drug as independent variables.

Results

1096 patients were tested for beta-lactam allergy (July 2010 and December 2016). 884 patients had completed beta-lactam testing (212 patients had negative skin test but did not attend for challenge). Beta-lactam allergy was independently and significantly associated with a history of anaphylaxis (OR 21.57, $p < 0.001$), known index drug (OR 3.73, $p < 0.001$) and < 1 year duration since index reaction (OR 1.76, $p = 0.038$). A "low risk" cohort was defined as having the following characteristics from history: "No history of anaphylaxis to a beta-lactam", "A reaction to a beta-lactam more than 1 year prior to referral" and "Patients who could not recall the identity of the index drug", which accounted for 55.8% of patients. In the "low risk" cohort, the negative predictive value of the history at presentation with these 3 characteristic traits was 94.7% for beta-lactam allergy (immediate and delayed type) while 98.3% for immediate type beta-lactam allergy. Negative predictive value for skin testing of the whole cohort for beta-lactam allergy was 96.6%.

Conclusions

We have identified a "low risk" cohort where the negative predictive value of history is similar to that of skin testing, which supports the omission of skin testing in these patients prior to drug provocation challenge. A prospective study is therefore required to confirm these findings.

P.034

Investigating the profile and treatment pathway of patients receiving venom immunotherapy in the UK

Lisa Smith[1], Paul Radford[2]
[1]Southmead Hospital, Bristol, United Kingdom. [2]ALK-Abello Ltd, Reading, United Kingdom

Objectives

- Investigate the profile of patients receiving venom immunotherapy (VIT)
- Describe the patient treatment pathway
- Identify potential areas for improved patient management

Method

Questionnaires completed by 45 patients receiving VIT in 5 UK treatment centres.

Results

Patients were aged between 11-81 (median 56); 42% were 60 years or older. Percentages of patients reporting wasp or bee sting allergy were 52% and 38% respectively. 65% were retrospectively assessed as severe, based on BASCI criteria.

53% of patients either had other allergies (e.g. hay fever, 18%) or reported relatives with allergies (35%). 80% reported outdoor activities that increase risk, including 13% involved with bee-keeping. 58% of patients reported previously being stung on numerous occasions or at least 4 times.
49% of patients were referred by GPs, 22% from hospital or hospital consultants. Most patents were diagnosed between 2015 and 2017 (69%); diagnosis peaked in 2016 (36%). 55% of patients started VIT < 1 year after diagnosis, 18% waited >1 year between diagnosis and immunotherapy.
93% of patients stated they had received enough information about their condition. 89% of patients were carrying an adrenaline pen but 56% did not carry medic alert information.

Conclusions

Patients referred for VIT were of an older age group (42% > 60), possibly influenced by many of this demographic participating in activities that increase risk (80%). Many patients reported additional risk factors such as multiple previous stings or other allergic conditions (self or family). Reviewing patients for similar profiles should enable GPs to refer those most at risk.
Diagnosis peaked in 2016 (36%), possibly influenced by publication of NICE quality standards in March 2016. However, many (18%) of patients waited >1 year between diagnosis and starting immunotherapy. Patients were well informed although it is concerning that only 42% were carrying medic alert information.

P.035

The therapeutic benefit of omalizumab in four patients at Leeds Teaching Hospitals with chronic rhinosinusitis in whom standard therapeutic approaches have failed

Claire Stockdale, Sarah Denman, John Toolan, Kate Ford, Gururaj Arumugakani, Phil Wood, Sinisa Savic
Leeds Teaching Hospitals, Leeds, United Kingdom

Background

There appears to be a set of patients with chronic rhinosinusitis with and without nasal polyps who respond to omalizumab. Given that there is a higher proportion of IgE and B cells in the nasal mucosa compared to serum, therapeutic strategies to antagonise IgE antibodies could be of relevance. Evidence for the role of the anti-IgE therapy omalizumab is limited but promising in patients with chronic rhinosinusitis.

We present 4 patients with treatment resistant chronic rhinosinusitis with distinct phenotypes who improved following omalizumab therapy.

Case presentation

Four female patients aged 38-64 years old had treatment resistant chronic rhinitis. All had tried high dose antihistamines, steroid nasal sprays and surgery. All were steroid responsive and 3 patients had become steroid dependent. Two patients tried steroid sparing agents without adequate response. Omalizumab therapy was granted on individual application bases. Each patient had a distinct phenotype of chronic rhinosinusitis. Patient (P) 1 has Samter's triad (nasal polyps, asthma and aspirin hypersensitivity) and improved after 5 omalizumab doses. P2 had severe asthma and chronic perennial nasal congestion with pollen sensitivity. She reported improvement after 2 doses and was able to completely stop steroids. P3 had previous hypereosinophilia, sinusitis and asthma. She improved after 2 doses and reduced her steroid dose. P4 had chronic fungal sinusitis and improved following 6 doses of omalizumab.

Discussion

Our cases follow previous case reports that have indicated benefit from omalizumab therapy in chronic rhinosinusitis with polyps and in fungal sinusitis. Expanding omalizumab use to an off-licence trial for patients with treatment resistant chronic rhinitis, especially if steroid dependent, may be of benefit and would enable accumulation of data on a larger scale to provide evidence of efficacy.

Conclusions

Omalizumab appears to be beneficial in patients with chronic rhinosinusitis with variable phenotypes who have failed conventional treatment approaches and can help reduce steroid dependence.

P.036

Chlorhexidine anaphylaxis in urological practice

Samih Taktak, James Dyer
Stepping Hill Hospital, Stockport, United Kingdom

Objectives

The authors were prompted to conduct a review into chlorhexidine anaphylaxis following a case of profound anaphylactic reaction to Cathejell for catheter insertion for laparoscopic nephrectomy. The patient lost output and was resuscitated. Allergy testing confirmed chlorhexidine allergy. The authors felt that a review was warranted to prompt discussion amongst urologists changing practice to avoid this risk. NICE recommend using lubricating gel for catheter insertion but falls short of specifying active ingredient for either LA/antiseptic purposes. Data is lacking regarding the ability of intraurethral chlorhexidine to mitigate/reduce the risk of CAUTI.

Method

Anaphylaxis, chlorhexidine were searched in Pubmed and Medline which yielded 128 citations. 36 relevant case reports were reviewed. Case-reports/case-series were included if they involved any urological surgery/placement of catheter in other surgical specialties.

Results

53% were for GA procedures
94% were for intraurethral exposure
42% were confirmed with rise of mast-cell tryptase, however, all included confirmation on subsequent allergy testing.

Hypotension 92%
Skin changes 89%
Respiratory changes 67%
Hypoxia 50%
Periorbital oedema 25%
Oral/tongue swelling 25%

Only 4/36 required CPR
No deaths recorded

Conclusions

As chlorhexidine anaphylaxis doesn't require a specific set of symptoms, it should be included in the differential of patients suffering deterioration following exposure to chlorhexidine.

Most cases of chlorhexidine-related anaphylaxis have been patients undergoing urological intervention. In many reports, the trigger for anaphylaxis appears to be urethral exposure during the process of urethral catheterisation. Another frequent cause of non-urethral chlorhexidine anaphylaxis reports is exposure to chlorhexidine-impregnated CVCs.

The use of chlorhexidine is rising and perioperative anaphylaxis is likely to rise also. This is secondary to lack of evidence that chlorhexidine-containing intraurethral gels mitigate the risk of urinary infection. Given that alternative lubricants exist, we advocate strong consideration to abandoning chlorhexidine-based gels or trials evaluating the effect of chlorhexidine on CAUTI.

P.037

Moringa oleifera (drumstick) allergy

Tyng Hwey Tan[1], Hana Alachkar[1], Ivonette Jones[1], Lucy Common[1], Victoria Blakeley[1], Melanie Fernandez[1], Mariam Mohammad[2], Archana Herwadkar[1]
[1]Salford Royal NHS Foundation Trust, Salford, United Kingdom. [2]Manchester University, Manchester, United Kingdom

Background

Moringa oleifa is a tropical tree native to the south of Himalayan Mountains and widely distributed throughout tropical and subtropical countries. It is reported to have considerable nutritional and pharmacological value. The seed pods are commonly used as culinary vegetable in Indian curry or soup.

Case presentation

A 34-year-old female reported 4 episodes of allergic reactions, with lips swelling and generalised urticarial rash, which happened when she visited India. History reported suggested that the homemade Moringa soup was the most suspicious culprit. Prick to prick tests with fresh and cooked Moringa were negative. Open challenge with homemade Moringa soup was positive, 10 minutes after second dose (15ml in total). She developed lip swelling, itchiness and widespread urticarial rash, which were resolving 30 minutes after antihistamine treatment.
A 45-year-old atopic lady reported 3 episodes of allergic reactions, with urticarial rash, angioedema, colicky abdominal pain and collapse, after eating Indian meals. They were different Indian dishes. There was no obvious allergen identified. She was labelled with idiopathic anaphylaxis until her third reaction when Moringa stood out as the potential allergen. Prick to prick test with Moringa was positive.

Discussion

Raw Moringa is not widely available in UK, except Indian grocery shops. However, Moringa could be made into healthcare supplements, which are available in different health food stores. Interestingly, there was also research suggested potential anti-anaphylactic effect of ethanolic extract from Moringa seeds.

Conclusions

Moringa allergy is a rare food allergy to be aware of. This is important especially when Moringa could be an ingredient in healthcare products. Commonly used food ingredients might be dismissed in reported history. Awareness of different food culture would be beneficial.

P.038

Lidocaine allergy and cross-reactivity with other amide local anaesthetics

Iason Thomas, David Thursfield, Leonard Siew, Keyna Bintcliffe, Krzysztof Rutkowski
Department of Adult Allergy, Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom

Background

Local anaesthetics (LAs) are widely used in health care. True IgE-mediated allergy to LAs is considered extremely rare and the incidence is estimated to be less than 1%.

Case presentation

We report a case of a 72-year-old woman who received 5 injections of lidocaine for surgical extraction of a residual tooth root. No other drugs were administered. Within 30 minutes she felt hot and lightheaded. The dental work was discontinued and within the next one hour she experienced intense body pruritus accompanied by generalised urticaria. Her symptoms settled with oral antihistamines. She had known previous exposure to LAs with good tolerance. The patient has a history of allergic rhinitis, asthma and kiwi allergy.

Skin prick testing was positive to lidocaine (5 mm) and negative to prilocaine, ropivacaine, mepivacaine, bupivacaine and levobupivacaine. Intradermal testing showed positive results to lidocaine (1:10 and 1:100 dilutions), ropivacaine and mepivacaine. Intradermal tests to prilocaine, bupivacaine and levobupivacaine were negative.

Subsequently, the patient underwent graded-dose subcutaneous challenges to prilocaine, bupivacaine and levobupivacaine without any reaction.

Discussion

Although immediate-type allergic reactions, particularly to amide type LAs, are uncommon, when hypersensitivity is suspected, the nature of the adverse reaction should be thoroughly investigated before other LAs of the same group are considered safe, as cross-reaction can occur. Skin prick and intradermal testing are important diagnostic tools when clinical history is suggestive of an IgE-mediated reaction. Provocation tests to LAs after negative skin testing are vital to identify safe alternatives.

Conclusions

Our case demonstrates that allergy to one amide LA does not preclude the use of other LAs of the same group as cross-reactivity may be limited to a small number of amide LAs allowing the use of others within the same group. More in-depth studies on why this might be the case are required.

P.039

Improving the beta-lactam allergy testing service for inpatients in Guy's and St Thomas' NHS Foundation Trust

Iason Thomas[1], Timothy Watts[1], Horiyo Nur[2], Anna Goodman[2], Rubaiyat Haque[1]
[1]Department of Adult Allergy, Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom.
[2]Department of Infectious Diseases, Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom

Objectives
To improve the delivery of beta-lactam allergy testing service for inpatients, we reviewed the referral and testing process, and outcomes.

Method
We performed a retrospective analysis of 52 referrals (identified by the Infectious Diseases team) for inpatient beta-lactam allergy testing during a 5-month period. Adherence to local Trust standards regarding suitability and content has been assessed. We also assessed whether patients were seen appropriately and in timely fashion with correct testing completed.

Results
Only 25% of the referrals were meeting the criteria for inpatient beta-lactam testing. 71% of the referrals contained appropriate clinical information. 85% of the patients deemed appropriate for inpatient review had been offered inpatient testing (15% not available) and 91% were seen in 5 days (median: 1 day). 95% of these patients had the correct testing performed; only 1 patient was diagnosed with penicillin allergy. All patients with inpatient allergy testing completed had their medical records updated. From the patients not suitable for inpatient testing 69% were offered outpatient testing and 21% had inpatient testing anyway. Clinical outcome was affected in 79% of the patients tested.

Conclusions
All available patients suitable for inpatient review in Guy's and St Thomas' NHS Foundation Trust received beta-lactam allergy testing; clinical outcome was affected in most patients. Referring teams should be educated in terms of adherence to Trust guidelines for inpatient testing and referral content.

P.040

Patch testing for the evaluation of allergic contact dermatitis in a UK adult allergy practice

Timothy Watts, David Thursfield, Rubaiyat Haque
Guy's Hospital, London, United Kingdom

Objectives

Allergic contact dermatitis is a delayed type IV hypersensitivity reaction. Patch testing remains the primary diagnostic tool in evaluating contact allergy and identifying the responsible allergen, however, there are limited studies on patch testing in allergy practices. Here we provide a novel report on a patch testing initiative in a UK adult allergy practice.

Method

We undertook a retrospective analysis of patients referred for patch testing from October 2016 to April 2018.

Results

156 patients (mean age 36 years) underwent patch testing for contact dermatitis. 88% were female and an atopic history was reported in 69%. All patients underwent testing with our extended British standard series, 60% to supplementary panels and 46% to own materials. 56% patients were positive on patch testing to at least one allergen. Allergic contact dermatitis, according to clinical relevance, was diagnosed in 49% of patients. 87% of patients with allergic contact dermatitis had the culprit allergen identified from the extended British standard series alone, 6.5% from the supplementary panels and 6.5% from their own materials. Most frequent relevant contact sensitizers include nickel (20%), *p-Phenylenediamine (8%), cobalt (6%), methylisothiazolinone (5%) & hydroperoxides of linalool (4%).* Skin prick testing for IgE-mediated allergy was performed in 46% of patients and relevant positive results were diagnosed in 26%. Significant associations were noted between allergist predicted contact allergy and a clinically relevant patch test result ($p<0.05$). History of upper limb dermatitis and occupationally related skin eruptions were also independently significantly associated with a clinically relevant positive patch test result ($p<0.05$).

Conclusions

Clinically relevant contact allergy was detected in nearly half of assessed patients. The reported contact sensitisation frequencies here are comparable to previous allergy and dermatology literature. Allergists (with appropriate training) may benefit from incorporating patch testing into their practice to provide a more holistic approach to allergy care.

POSTER PRESENTATIONS: ALLIED HEALTH

P.042

Quality of life in adults with atopic dermatitis: A thematic analysis

Gurkiran Birdi
Aston University, Birmingham, United Kingdom

Objectives

Atopic Dermatitis (AD) has been related to poorer health-related quality of life (HRQoL) in adults, but no qualitative research has been published to explore in any depth how this long-term condition affects the lives of adults. The purpose of this study was to explore the impact of AD on HRQoL through interviews with adults.

Method

Adults with a clinical diagnosis of AD were recruited by advertising on a University campus and through social media sites. All completed a screening questionnaire on AD diagnosis, treatment, duration and severity. Semi-structured interviews were conducted, audio-taped, transcribed verbatim and analysed using thematic analysis.

Results

Participants (n=21) consisted of 11 white and 11 black and ethnic minority (BME) participants, aged eighteen to fifty-six, with varying disease duration and self-assessed severity; 19 were female. Six over-arching themes emerged from the data; lack of support from health care professionals, frustration and misery, coping mechanisms, impact on self-esteem and confidence, support from others and relativity to others . There were also notable differences between BME and white participants on issues surrounding relationships, support, and body image.

Conclusions

The impact of AD on QoL of adults is profound. Men were under-represented in this study, however issues emerged that have not been reported in quantitative research, particularly potential deficits in patient care, coping mechanisms, and stigma attached to AD. Consideration of these factors may enhance disease management and improve HRQoL.

P.043

Preparedness of patients/families attending for an oral food challenge or supervised feed.

Katie Butterworth, Roisin Fitzsimmons, Launa Benjamin, Prabalini Thaventhiran, Hayley Cranston
Children's allergy, St Thomas Hospital, London, United Kingdom

Objectives

In our day case unit, where we see patients coming for food challenges or supervised feeds, we were seeing many patients who appeared to be unprepared for their appointment. There were a variety of issues which led to the challenge or supervised feed not being able to go ahead. As a service we needed to explore the ways in which we give information to service users in order to maintain an efficient service with patients feeling prepared.

Method

Questionnaires were given to all patients/families on attendance for their oral food challenge or supervised feed. 45 questionnaires were completed and given on arrival to the day case unit. Patients/families were asked to complete a questionnaire based on previous arising factors associated with preparedness within the day case unit.

Results

95.5% of patients/families bought the correct food on the day with 91.1% knowing to stop administration of antihistamines before attending. 75.5% of patients/families knew that their child's asthma needed to be well controlled before attending. There was remarkable variation with regards to how often patients/families intended to include the challenged food in their diet following a negative challenge, for example once a week. 60% of patients/families reported that they felt very prepared for their food challenge or supervised feed and none felt unprepared. There was vast range of reasons given as to why they wanted to attend for their food challenge/supervised feed.

Conclusions

With increased knowledge of how prepared patients/families are before attending their appointment and what information they require will allow the service to become more efficient. Since the completion of the questionnaires a new booking system has come into place where patients/families can find a link to an improved website. Also a text message with relevant information.

P.044

Sensory Characteristics of EHF Hypoallergenic Formulas for CMPA in the UK

Jacqui Cotton[1], Marleen Chabault[2]

[1]Danone Nutricia Early Life Nutrition, London, United Kingdom. [2]Campden BRI, Chipping Campden, United Kingdom

Objectives

Infants with cows' milk protein allergy (CMPA), the most common food allergy in infants in the UK, who are not exclusively breast fed, require a hypoallergenic formula. Guidelines recommend an extensively hydrolysed formula (EHF) for the majority of children with CMPA. These formula are generally perceived as having poor palatability, which may have an impact on their acceptance. Using an experienced independent sensory panel, this novel study aimed to explore and define the sensory characteristics of EHFs available in the UK.

Method

Two whey-based EHFs, Aptamil Pepti 1 (Nutricia Ltd) and Althera (Nestle Health Science), and two casein-based EHFs, Similac Alimentum (Abbott) and Nutramigen LGG (Mead Johnson) were included in the study. The sensory assessment followed the Quantitative Descriptive Analysis approach, where a panel of eleven trained assessors evaluated the products in duplicate, using twenty attributes covering all sensory modalities, i.e. odour, flavour, texture, mouthfeel and aftertaste. 2-way ANOVA and Tukey's multiple comparison tests were used for the analysis.

Results

The four EHFs had different sensory profiles and all assessed attributes were significantly different between the samples at the 5% significance level. Compared to the other samples, one of the whey based EHF's (Aptamil Pepti 1) scored higher for all desirable notes such as sweet, malty and milky, and lower for the less desirable characteristics such as sourness, bitterness, astringency and fattiness, but also for vegetable water, burnt cheese and yeast extract notes. Differences between whey and casein based EHFs included lower intensities of burnt cheese and yeast extract odour, flavour and aftertaste for the whey based EHFs.

Conclusions

Clear differences were found in the sensory profiles of the EHF formula available for infants with CMPA. These differences are likely to contribute to the overall palatability of the product and acceptability for these infants.

P.045

The Development of the Allergy Transition Clinic

Hayley Cranston, Prabalini Thaventhiran, Katherine Knight, Roisin Fitzsimons
Guys and St Thomas's Hospital, London, United Kingdom

Objectives

Prior to the commencement of the Transition Clinic, young people had appointments in the children's allergy clinic alongside infants and young children. As they entered adult hood, they were booked into the adult allergy clinic with little or no preparation.

Method

It is a dedicated service which runs monthly from 5pm -8pm. Appointment times are extended, enabling adequate time to focus on each individual young person and their needs. Young people and their parents are informed of the transition service from the age of 13-14 years old, the move to adult services occurs from 16—18 years.

The clinic commenced in 2015, the nursing team were instrumental in developing the patient pathway through clinic, following the Ready, Steady, Go framework (RCN 2004).

The aims of the Allergy Transition clinic include preparing, planning and moving to adult services, gauging the level of understanding and level of autonomy the young person has over their allergic condition. The nursing team have an informal conversation with the young person and completion of a patient focused questionnaire covering 6 key areas, self-advocacy, independent health care behaviour, psychosocial support, educational and vocational planning and health and lifestyle (RCN 2004). The allergy nurse also performs diagnostic SPT for the young person and gives them the opportunity to be seen without their carer.

Results

There are approximately 144 patients seen in the transition clinic on an annual basis and verbal feedback from patients and families and patient experience questionnaires confirms patient satisfaction with the service.

Conclusions

The allergy Transition Clinic is a valuable part of the Service. Developed by the adult and children's allergy teams showed collaboration providing a much needed service for young people transitioning into adult care. The nurse's role is central in the Transition clinic, empowering the young person to take control of their own health needs.

P.047

Can the Lateral Flow Device Be Used By Retailers or Consumers to Identify Food Allergen Cross Contamination? A Pilot Study

Victoria Holdstock[1], Monisha Joukani[1], Shazia Motiwala[1], Konstantinos Gerasimidis[1], George Raptis[2,1]
[1]University of Glasgow, Glasgow, United Kingdom. [2]NHS Greater Glasgow and Clyde, Glasgow, United Kingdom

Objectives
The aim was to evaluate the incidence of accidental allergen cross contamination in non-prepacked foods from retailers' salad-bars and determine the effectiveness of Lateral Flow Devices (LFD) as a quick and reliable method for allergen detection in foods.

Method
Fifty-three food samples were collected from salad-bars in five supermarkets in the UK. These samples were tested for the presence of five allergens (milk, egg, peanut, mustard and gliadin) using Enzyme Linked Immunosorbent Assay (ELISA). ELISA results were compared to allergen advice and salad descriptions to determine the rate of accidental allergen cross contamination in each sample. Each sample was then tested using LFDs, the results of which were compared to those from ELISA to assess LFD accuracy by calculating inter-rater agreement using Minitab. Agreement was considered "very good" for values 0.81–1.00 and "good" for 0.61–0.80.

Results
Three supermarkets followed Food Standards Agency (FSA) and own allergen cross contamination guidelines for prepacked food, one followed FSA guidelines only and the fifth one used only own guidelines. Accidental exposure detected by ELISA was highest for mustard (54%, n=15), followed by egg (19%, n=7), milk (18%, n=6), gliadin (15%, n=4), and peanut (4%, n=2). Inter-rater agreement between ELISA and LFD was highest for milk (k=1), followed by gliadin (k=0.81), mustard (k=0.79), egg (k=0.71) and finally, peanut (k=0.66).

Conclusions
Allergen cross contamination in non-prepacked food is common in supermarkets and this could have consequences for food allergic individuals. The ongoing research on the minimum eliciting dose of allergen needed to trigger an allergic reaction and the Food Standards Agency advice on allergen labelling on non-prepacked food have contributed to improving patients safety and experience while eating out. Using a portable, inexpensive technique such as the LFD by the food industry or consumers to identify allergen cross contamination could contribute further to allergic patients' safety.

P.049

Audit results of patient satisfaction survey in both Medical and Nurse-led allergy clinics at Bristol Royal Children's Hospital

Myriam Kanchanatheera
Bristol Royal Hospital for Children, Bristol, United Kingdom

Objectives

To re-evaluate patient/parent satisfaction and the quality of care in the Medical and Nurse-led allergy clinics. This was a re-audit of our service originally conducted in 2010 to re-evaluate the service which has now increased in size, and to identify areas for further improvement.

Method

The original audit questionnaire was utilised to facilitate comparison of the results. Questionnaires were given to patients and their parents and collected over a 2-month period between December to February 2017/2018 in the allergy clinics.

Results

84 questionnaires were returned in this audit compared with 80 in the original audit in 2010. The audit examined patient satisfaction, provision of adrenaline auto injector training and allergy action plans, the administration of written patient information leaflets, patient waiting times and the duration of the clinic appointment. Results showed that overall there had been some improvements, and that the nurse led clinics continued to demonstrate slightly better results in a number of areas.

Conclusions

Increased patient/clinic numbers has not affected over all patient satisfaction. There are areas were improvements need to be addressed, especially in relation to patients receiving supplementary written information about their condition. Nurse-led clinics are as effective in delivering care as the medical allergy clinics and this has been shown to be the case on 2 successive audits. Nurse led allergy clinics are effective and value for money and should be considered as an integral part to delivering allergy services nationwide.

P.050

'It's not an illness, it's just bad luck'*:* The impact of anaphylaxis on health-related quality of life of newly diagnosed adult patients

Rebecca Knibb[1], Aarnoud Huisoon[2], Richard Baretto[2], Anjeli Ekbote[2], Shamin Onyango-Odera[2], Cassandra Screti[1], Kristina Newman[1], Thirumala Krishna[2,3]

[1]Aston University, Birmingham, United Kingdom. [2]University Hospitals Birmingham (UHB) NHS Foundation Trust, Birmingham, United Kingdom. [3]University of Birmingham, Birmingham, United Kingdom

Objectives

Objective. Anaphylaxis is a severe and potentially life threatening allergic reaction to allergens such as food, latex, drugs and venom and has a detrimental impact on quality of life (QoL). An increasing number of adults are currently being diagnosed with anaphylaxis. However, the extent to which anaphylaxis impacts on their lives is not known. The aim of this study was to explore the impact of anaphylaxis on health-related quality of life of newly diagnosed adult patients.

Method

Methods. Interviews were conducted with 13 participants with anaphylaxis to drugs, food, venom or idiopathic anaphylaxis, recruited using purposive sampling from allergy clinics in Birmingham, UK. Data was transcribed verbatim and analysed using thematic analysis.

Results

Results. Four over-arching themes were generated from the analysis: the need to maintain a healthy identity; the journey from fear to frustration; control over uncertainty; the support of others. Participants expressed their refusal to consider their allergy as an illness and a need to retain an identity as a healthy person. They described their first experiences of an anaphylactic reaction as frightening, but this often turned to frustration and anxiety. In part this was due to uncertainty regarding when anaphylactic reactions might occur and due to the loss of things they once enjoyed. Participants felt a strong need to have control over their anaphylaxis so that it did not take over their lives. The support from others was extremely important, but a lack of understanding of anaphylaxis sometimes hindered that support.

Conclusions

Conclusions. Anaphylaxis has an adverse impact on the health-related QoL of adults irrespective of the trigger allergen. More information about anaphylaxis and its management from health care professionals may help patients gain a sense of control over their condition and reduce the worry and anxiety associated with it.

P.052

Removing the burden of 'penicillin allergic' label in children through a nurse-led service

Katherine Knight, Alia Boardman, Patricia Kane, Gemma Schnitzer, Roisin Fitzsimons
Evelina, Guys and St Thomas' Hospital, London, United Kingdom

Objectives

Adverse reactions to medicines are common; however, very few arise due to allergy. Up to 20% of families report their child has a 'penicillin allergy' but less than 10% have an allergy confirmed by allergy testing.
We sought to establish a nurse led rapid access drug allergy pathway for children reporting suspected beta-lactam allergy in the emergency department (ED).

Method

The rapid access drug allergy pathway sought to assess the child, challenge and remove the label of allergy in one appointment. There were stringent inclusion and exclusion criteria for this service; any child who had received penicillin via the IV route or who had experienced a systemic reaction was excluded. The pathway was audited in 2016, there was found to be a high DNA rate for the service (41%). Despite having an information leaflet for parents and ED staff many families were either not suitable (56%) or unprepared for the appointment and could not be challenged on the day (52%).

Results

We amended the initial rapid access drug allergy pathway, replacing the face to face initial consultation with a telephone consultation to take an allergy focused drug history. Introducing a telephone consultation increased initial attendance to 69%. This enabled us to select those children who needed a provocation challenge and explain the procedure to the family. Unsuitable referrals reduced to 10%, however less patients (19%) attended for the subsequent oral provocation challenge.

Conclusions

The pathway is valued by the ED, who refer approximately 100 children per year. Allergy nurse specialists have the knowledge and skills to expertly manage these children, removing the label of 'penicillin allergic', which has a positive impact on child and health care system. Amending the pathway to include a telephone consultation has improved patient experience and more families attend this appointment.

P.053

Improving the allergy knowledge and confidence of community clinicians through a nurse led educational intervention

Katherine Knight, Roisin Fitzsimons
Evelina London, Guys and St Thomas' NHS Trust, London, United Kingdom

Objectives

The children's allergy nursing team are always seeking new and innovative ways in which to improve our service and patient care. Our aim was to improve the knowledge and confidence of community clinicians providing care to children with allergies.

Method

Community clinicians working in Lambeth and Southwark were invited to an allergy fact finding meeting in order to establish areas of allergy they felt they lacked training in, what guidelines they used in practice and who they sought allergy advice from.
Key areas to be improved upon were identified as; management of the child with a delayed milk allergy, eczema care and the recognition and management of acute allergic reactions.
A community focused allergy training day was carried out with a questionnaire administered pre and post study day to assess whether the intervention had led to an improvement in allergy knowledge and confidence.

Results

41 community clinicians attended the study day including Health visitors, dieticians and school nurses.
The mean average confidence level of health visitors and dieticians (those caring for children <5 years) as indicated on a Likert scale pre study day was self-rated at 4.7/10, increasing to 7.5/10 after the study day.
The mean average confidence level of school nurses (providing care for children >5 years) was self-rated at 5.5 pre study and 8.1 after. Community clinicians showed a greater awareness of the identification and management of non IgE milk allergy and eczema and demonstrated improved recognition and management of anaphylaxis.

Conclusions

There was an improvement in both allergy knowledge and confidence across all clinician groups attending the study day.
Nurses have a valuable role in leading educational interventions. Sharing knowledge and skills with colleagues improves not only nursing confidence, knowledge and promotes extended roles, but also improves the patient experience which is at the heart of all we do.

P.055

An exploration of beliefs and attitudes towards food allergy in adolescents with no history of food allergy to inform development of a peer-supported school-based intervention

Kristina Newman[1], Rebecca Knibb[1], Richard Cooke[2], Helen Pattinson[1]
[1]Aston University, Birmingham, United Kingdom. [2]The University of Liverpool, Liverpool, United Kingdom

Objectives
Adolescents with food allergy (FA) are in an age group that is associated with higher rates of allergic and fatal allergic reactions due to increased risk-taking behaviour. In previous studies, adolescents with FA have expressed a desire for more education in schools about FA and that peer-support may be beneficial. In order to inform the development of a school-based intervention, this study aimed to explore the beliefs and attitudes of adolescents without FA.

Method
Participants (n=16) aged 11 to 16 years, without food allergy, living in the Midlands, UK were invited to attend semi-structured interviews to explore their beliefs and attitudes regarding food allergies. Interviews were transcribed verbatim and analysed using thematic analysis.

Results
Three main themes emerged from the data: i) concerns about food allergies and adrenaline auto-injectors (AAIs), 2) navigating ingredients in safe and unsafe spaces, 3) striving for improvement. Adolescents without FA felt they lacked knowledge about how to manage FA or an allergic reaction and that constantly checking ingredients would be frustrating. AAIs were felt to be scary as they contained a needle and were considered inconvenient to carry. Those without FA wanted to support their peers and learn more about FA.

Conclusions
Adolescents without a FA showed compassion and empathy for those with FA and expressed a willingness to learn and support those with FA. Information from this study will be used to develop a peer support school-based intervention to help adolescents with FA cope more effectively.

P.056

Do patients feel that nasal spray administration instructions improves the effectiveness of the treatment?

Kelly Parker, Neha Khanna, Than Soe
Princess Alexandra NHS Trust, Harlow, United Kingdom

Objectives

To determine whether patients feel that their prescribed nasal spray is more effective following administration instructions.

Method

12 patients who were using a nasal spray yet reported no improvement in symptoms were asked to demonstrate their administration technique. All patients reported they had received no formal training when spray prescribed and dispensed, so verbally questioned on who prescribed and how long they had been using it for. Correct administration demonstrated and written instructions (BSACI SOP) given. Patients followed up with a telephone review 3-5 weeks later to ascertain any improvements in symptoms.

Results

7 patients were prescribed nasal spray by the GP, 4 by ENT and 1 by an A&E Doctor. All of these had received no administration instructions. They all displayed an incorrect technique. 9 tipped their head back and 3 laid down to administer the spray, and all patients sniffed. Following training at point of telephone review 1 patient felt there was no improvement, 3 felt there was slight improvement and 8 felt moderate/significant improvement in symptom management. They all felt both verbal and written instructions were greatly beneficial.

Conclusions

Training patients appropriately in the use of a nasal spray greatly improves efficacy.

P.057

Can component resolved diagnosis predict the outcome of oral food challenge to hazelnut?

Helena Rey Garcia[1], Natasha Gunawardana[1], Kaye Wheeler[1], Guy Scadding[2], Stephen Durham[2], Isabel Skypala[1]

[1]Royal Brompton & Harefield Hospital, London, United Kingdom. [2]Imperial College, London, United Kingdom

Objectives

To determine whether using component-resolved diagnosis (CRD) for hazelnut is sufficiently predictive to eliminate the need for oral food challenge.

Method

Adult patients seen in the allergy clinic, with a reported history of allergic reactions after the consumption of hazelnuts, or foods containing hazelnuts, were included in the study. A detailed clinical history was taken, skin prick test (SPT) and specific immunoglobulin E (sIgE) to hazelnut were undertaken and CRD to the hazelnut allergens Cor a 1, Cor a 9 and Cor a 14 were measured. Patients who had negative or very low levels of SPT and sIgE underwent an oral food challenge (OFC) to hazelnuts, with doses given according to the PRACTAL guidelines.

Results

Twenty-three patients (12 Female, mean age 27 years) were challenged with hazelnuts. The majority (91%) had a negative challenge (n=21); the remaining 2 patients (9%) experienced mild oropharyngeal symptoms. One of these had negative SPT, sIgE and CRD for hazelnuts and the other had a negative SPT to hazelnut, but was not tested to CRD or hazelnut IgE. In those subjects with a negative challenge, hazelnut SPT was undertaken in 16/21, 44% (7) of tests were positive. Specific IgE to whole hazelnut was also tested in 16/21, and positive in 56% (9). One or more component hazelnut allergens were measured in 20/21; Cor a 1 was positive in 10/20 (50%), 28% (5/18) had a positive Cor a9 and 5% (1/19) had a positive Cor a14.

Conclusions

In this sample of patients, SPT, hazelnut IgE and Cor a 1 were a poor predictors of the outcome of OFC; Cor a14 had the best negative predictive value and could be useful in determining the need for oral food challenge.

P.059

The role of regular Nurse led follow-up in the compliance and treatment outcomes of paediatric eczema

Kelly Tonge[1], Kelly Parker[2]
[1]East & North Herts NHS Trust, Stevenage, United Kingdom. [2]Princess Alexandra NHS Trust, Harlow, United Kingdom

Objectives

To determine whether compliance to eczema treatment plans reduces when there is not a regular nurse led review in place.

Method

10 patients who had a gap in their nurse led eczema clinics were reviewed to ascertain whether compliance had reduced. These Paediatric patients all had moderate to severe eczema and had previously achieved good compliance and effective treatment through attending a regular nurse led eczema clinic. They were reviewed after a gap of approximately six months, at which time their eczema was assessed and families were asked to complete a questionnaire.

Results

The findings showed that 100% of patients had strayed from the treatment plan and on assessment were displaying a deterioration in their eczema. 30% had failed to request repeat prescriptions from GPs, 80% were using insufficient amounts of emollient, 80% reported skin infections and had attended the GP for treatment and one had visited a herbalist who had changed treatment.

Conclusions

Regular nurse led eczema reviews are crucial in maintaining treatment compliance and continuous good control of eczema.

P.060

Evaluation of gastrointestinal symptoms in the adult food allergy clinic

Kaye Wheeler, Helena Rey-Garcia, Kinesh Patel, Isabel Skypala
Royal Brompton & Harefield Hospital, London, United Kingdom

Objectives

An increasing number of patients attending the adult food allergy clinic present with gastroenterological symptoms. Although many are managed with dietary interventions, a hydrogen breath test service was established in July 2017, so that targeted advice could be given.

Method

Patients followed an exclusion diet for 24 hours before the test, and fasted for 12 hours before the test. On the day of the test, the patients provided a breath sample by blowing into the Gastrolyser™ machine. They then consumed a solution of lactose, glucose or fructose and gave subsequent breath samples for a period of up to 2 hours. A rise of 20ppm above the baseline sample was considered diagnostic.

Results

25 patients (15 female, mean age 39 years -range 24-63) underwent one or more breath tests from July 2017 to January 2018. Their presenting symptoms included bloating (58%), diarrhoea (46%), abdominal pain (35%), nausea/vomiting (19%), constipation (19%), flatulence (15%) and burping (3%). Forty-two breath tests were performed (12 Fructose, 16 Glucose, 14 Lactose), of these 7 were positive (5 fructose, 2 lactose). No one person had more than one positive test. The majority (86%) of those with a positive test reported diarrhoea and abdominal pain, 2/7 also reported nausea/vomiting but none reported burping, constipation or flatulence.

Conclusions

Over one quarter of patients tested had a positive breath test which enabled targeted dietary advice to be given. All patients appreciated the opportunity to undergo a test, especially for lactose intolerance which is popularly considered, often erroneously, to be causing symptoms. The negative tests enabled dietary recommendations to be given, often including an increase the variety of foods eaten, which helped to liberate the diet and improve nutritional status.

POSTER PRESENTATIONS: BASIC SCIENCE

P.061

IL-35 induces IL-10 producing Regulatory B cells in immunotherapy treated patients

Oliver Hug, Iesha Singh, Abigail Robb, Omurson Yildirim, Stephen Durham, Mohammed Shamji
Allergy and Clinical Immunology, Section Inflammation, Repair and Development, National Heart and Lung Institute, Imperial College, London, UK, London, United Kingdom

Objectives

Allergen Immunotherapy involves repeated administration of high dosage allergen extracts to allergic individuals to provide symptom relief and increased quality of life. Recent data highlights the importance of IL-10-producing allergen-specific regulatory B cells (Bregs) in contributing to allergen tolerance. We hypothesized that IL-10^{+} allergen-specific B regulatory cells (Bregs) are dysregulated in grass pollen allergic (SAR) compared to Non-Atopic (NA) individuals and are restored following grass pollen allergen immunotherapy (AIT). We further hypothesized that rhIL-35 induces IL-10 production in SAR, NA and AIT individuals.

Method

PBMCs were obtained from SAR, NA and AIT individuals (n=12; each). Grass pollen allergen was APC-labelled using column resins assay. IL-10 producing allergen specific Bregs were assessed using flow cytometry. mRNA expression levels of IgE, IgG4 and IL-10 were determined using qPCR. Levels of IgG4 and IgE production were measured by ImmunoCAP.

Results

Proportion of allergen-specific $CD19^{+}$ B cell was higher in SAR compared to NA and AIT individuals (P=0.0018, P=0.0182). However, IL-10-production by allergen-specific Bregs was higher in NA and AIT compared to SAR (P=0.0006,P=0.0013). $CD19^{+}$ B cells stimulated with IL-35/TLR9 agonist induced more IL-10-production in AIT compared to SAR. Furthermore, IL-10 and IgG4 mRNA gene expression was increased in AIT compared to SAR. Levels of IgG4 were increased in AIT patients in presence of IL-35 whereas levels of IgE were suppressed in NA and AIT in comparison to SAR.

Conclusions

We show that IL-35 has ability to induce more IL-10-production from allergen-specific Bregs and also produce IgG4 blocking antibodies in immunotherapy treated patients.

P.064

Interleukin-35 regulates type II-mediated responses elicited by innate lymphoid cells in allergic diseases

Janice Anastasia Layhadi[1,2], Daniela Achkova[2,1], Lobna Kouser[1,2], Alan Perera-Webb[1,2], Natalia Couto Francisco[1,2], Rebecca Parkin[1,2], Tomokasu Matsuoka[2,1], Guy Scadding[1,2], Philip Ashton-Rickardt[1], Steve R Durham[1,2], Mohamed H Shamji[1,2]

[1]Immunomodulation and Tolerance Group, Allergy and Clinical Immunology, Section of Inflammation Repair and Development, National Heart and Lung Institute, Imperial College, London, United Kingdom. [2]Medical Research Council and Asthma UK Centre for Allergic Mechanisms of Asthma, London, United Kingdom

Objectives

A novel subset of regulatory T cells with immunomodulatory capacity known as inducible IL-35 producing T cells (iTR35) have been identified. We investigated the underlying mechanism responsible for eliciting immunological tolerance following sublingual immunotherapy by IL-35.

Method

Flow cytometry and qRT-PCR were utilized to assess the biological effect of IL-35 on group II innate lymphoid cells (ILCs), T helper(Th2) cells, dendritic cells (DCs) and B cells. The suppressive capacity of IL-35 and iTR35 cells on proliferation of grass pollen-driven Th2 cells and cytokine production was measured using [3H]-thymidine incorporation and Luminex system, respectively. Non-atopic controls (NAC, n=16), grass pollen allergics (SAR, n=16) and sublingual immunotherapy-treated patients (SLIT, n=16) were recruited and the proportion of iTR35 cells were quantified.

Results

During the grass pollen season, proportion of ILC2s (P=0.002), IL-5+ (P=0.042), IL-13+ (P=0.042) and dual IL-5+IL-13+ ILC2s (P=0.003) were found to be elevated in SAR compared to NAC participants. Production of IL-5 and IL-13 cytokines by IL-25- or IL-33-primed ILC2s were suppressed by IL-35 (both, P=0.031). IL-35 was also able to suppress grass pollen-driven Th2 cytokine production by T effector, CD40L/IL-4/IL-21-driven IgE production by B cells (P=0.001) and TSLP-driven DC priming of naïve T cells into Th2 cells. The culture of effector T cells with IL-35 resulted in the generation of iTR35 cells with capacity to suppress Th2 cell proliferation and cytokine production. Finally, allergen-driven IL-35 levels and iTR35 cells were found to be elevated in SLIT (both, P<0.001) and NAC (both, P<0.001) when compared to SAR.

Conclusions

SLIT treatment resulted in the induction of IL-35 and iTR35. Both IL-35 and iTR35 are immunomodulatory and capable of controlling type II mediated immune responses.

P.065

SATB1 expression and methylation reflect FOXP3+ regulatory T cell activity during grass pollen immunotherapy

Janice Layhadi[1], Jiasi Hu[1], Amos van Dijck[2], Guy Scadding[2], Paul Lavender[3], Stephen R Durham[4], Mohamed H Shamji[4]

[1]Allergy and Clinical Immunology, Section Inflammation, Repair and Development, National Heart and Lung Institute, Imperial College, London, UK;, London, United Kingdom. [2]Imperial College London, London, United Kingdom. [3]Kings College London, London, United Kingdom. [4]Immunomodulation and Tolerance Group, Allergy and Clinical Immunology, Section of Inflammation Repair and Development, National Heart and Lung Institute, Imperial College London, London, United Kingdom,, London, United Kingdom

Objectives

Allergen immunotherapy (AIT) for seasonal allergic rhinitis results in induction of regulatory T cells (Tregs). Despite extensive study on Tregs, specific markers to identify functional Tregs have yet to be identified. One such potential marker is the special AT-rich sequence binding protein-1 (SATB1). Here, we studied SATB1 as a potential biomarker to predict clinical outcome of AIT.

Method

Grass pollen allergic (SAR, n=24), non-atopic control (NA, n=24), subcutaneous (SCIT, n=12) or sublingual (SLIT, n=12) immunotherapy-treated, and SLIT-discontinued (SLIT-TOL, n=6) patients were recruited. mRNA expression of *FOXP3* and *SATB1* genes were quantified by qRT-PCR and the proportion of $FOXP3^+$ and $SATB1^+FOXP3^+$ Tregs were confirmed at the protein level by flow cytometry.

Results

Proportion of $FOXP3^+$ Tregs was reduced in SAR ($P<0.001$) compared to NA. No significant differences between SAR and AIT-treated patients were observed. On the contrary, a higher proportion of $SATB1^+FOXP3^+$ Tregs ($P<0.001$) and upregulation in *SATB1* mRNA expression ($P<0.001$) was observed in SAR compared to NA or AIT-treated patients. A positive correlation of SATB1 expression, but not FOXP3, with clinical symptoms was observed. Functional study illustrated a reduction in suppressive capacity of Tregs in SAR compared to AIT-treated groups. Genome-wide DNA methylation study demonstrated no significant changes in the methylation status of FOXP3 between patient groups, though SATB1 methylation was found to be decreased in SAR and increased in AIT-treated groups (both, $P<0.05$) when compared to NA.

Conclusions

Our study illustrated for the first time, that SATB1 expression is reduced in $FOXP3^+$ Tregs following AIT treatment. In addition, we illustrated that a differential in methylation status can be observed in SAR when compared to AIT-treated groups. The use of SATB1 as a potential biomarker of AIT efficacy in patient suffering from seasonal allergic rhinitis is highlighted through its correlation with clinical symptoms.

POSTER PRESENTATIONS: PAEDIATRIC CLINICAL

P.069

Prenatal illness and stress and the development of childhood food allergy: a pilot retrospective questionnaire based study

Cherry Alviani[1], Soo Oh[1], Susan Leech[2]
[1]King's College London, London, United Kingdom. [2]King's College Hospital NHS Foundation Trust, London, United Kingdom

Objectives

Prenatal maternal stress is associated with the development of asthma, but its role in food allergies has not been clarified. We designed a retrospective case-control study to investigate whether mothers of food allergic (FA) children experienced greater prenatal stress compared to mothers of children without food allergy.

Method

Mothers from allergy and general paediatric clinics of two hospitals were asked to complete questionnaires. 11 stressful life events from the Sarason's Life Experience Survey assessed prenatal stressful events with two additional free-text entries. Perceived stress was assessed using a modified Cohen's Perceived Stress Scale and Prenatal Distress Questionnaire. Differences in stress scores were analyzed using unpaired T-test or Mann-Whitney U tests in SPSS. Regional ethical approval was obtained.

Results

Questionnaires were completed by 32 mothers of FA children and 40 controls. FA children were older (2.89 years vs 1.96 years p=0.019). There was a non statistically significant trend towards a higher number of pre-natal stressful events within the FA group- 1.94 (SD 2.11) events compared to 1.58 (SD 1.85) events in the control group (p= 0.478). Higher rates of medical illness during pregnancy were reported by mothers of FA children (32% versus 18% of controls, p= 0.181). There was no difference in maternal perceived stress, with average score 82.6 (SD.31.9) in the FA group vs 88.3 (SD 40.1) (p=0.514, 95% CI -11.70 to 23.18).

Conclusions

This study demonstrates a trend towards a higher number of pre-natal negative events, particularly medical illness, in mothers of FA children compared to mothers of children without food allergy. This difference did not reach statistical significance, but study numbers were small. FA children were older and the control group had higher rates of atopy than expected. These factors may have confounded the results. Further exploration of the link between pre-natal maternal illness and food allergy is needed.

P.070

The use of amino-acid formulas in the dietary management of infants with food protein enterocolitis syndrome: a literature review

Kiranjit Atwal, Gary Hubbard, Rebecca Stratton
Medical Affairs, Nutricia Ltd, Trowbridge, United Kingdom

Objectives

Recommendations in formula choice for the dietary management of food protein enterocolitis syndrome (FPIES) are not synonymous, although international FPIES guidelines recommend use of amino-acid formula (AAF) in those not responding to extensively hydrolysed formula (EHF) and faltering growth. This literature review was undertaken to summarise existing evidence for AAF use in the dietary management of infants with FPIES.

Method

Literature searches were performed (up to Mar 2018) on electronic databases (e.g. PubMed) to identify articles using relevant search terms including: 'elemental', 'amino-acid', all brand names of AAF. Studies describing outcomes (e.g. symptom resolution, growth) with AAF in infants with confirmed FPIES were included.

Results

Whilst a number of studies described use of AAF in FPIES, no suitable trials with relevant outcomes were found. Five case studies were identified (mean age 42 days; all had poor weight gain at presentation) by four authors (Kelso et al 1993, Anand et al 2006, Mane et al. 2014, Joshi et al. 2018). Intervention with AAF led to symptom resolution (including vomiting, methemoglobinemia and bloody diarrhoea) in all cases, after failure with other formulas (including soya and EHF). Symptom resolution with AAF was reported rapidly (48-72 hours) by Kelso et al 1993 and Anand et al 2006. Improvements in mean weight gain by 51-97g/day were observed in two infants over 6-9 days (Anand et al. 2006) and after 5 months continuation with AAF, growth increased in one infant by 2 centiles (who had initially declined 4 centiles at presentation) (Joshi et al 2018).

Conclusions

This limited number of case studies show symptom resolution and growth in infants with FPIES on AAF who failed to respond to other formulas. However, stronger research is required to assess the role of AAF in aiding symptom management, nutrient provision and growth in FPIES so clearer evidence-based guidelines can be developed.

P.071

Peanut allergy with negative specific IgE tests

Adam Balogh[1], Baneera Shreastha[1], Susan Leech[2]
[1]Amersham Hospital, Amersham, United Kingdom. [2]Kings College Hospital, London, United Kingdom

Background

Peanut allergy is characterised by IgE mediated reactions to peanut proteins. Clinical diagnosis is usually made by a combination of typical clinical history and evidence of peanut specific IgE by skin prick test (SPT) or specific IgE blood test. Diagnostic food challenges are not usually necessary.

Case presentation

Two similar cases have been seen in two different UK centres.
1st case: A boy who had a mild reaction to peanut butter at 9 months of age. His SPTs were negative to all nuts. He was advised to introduce peanuts at home and had a further reaction. Specific IgE for all nuts were negative. A peanut challenge in hospital was positive and negative to tree nuts. Following the challenge he tested positive to Ara h2.
2nd case A 6 year old girl with asthma and hay fever, previously able to tolerate peanuts and peanut butter, reacted to peanut containing food on multiple occasions. Her SPT and specific IgE to nuts were negative. She had a positive peanut challenge with a cough and an itchy throat at the second stage. Her Ara h9 was positive following the challenge.

Discussion

The negative predictive value of SPT for IgE-mediated food allergy is greater than 95%, suggesting that a small percentage (less than 5 %) of patients with negative SPT may still have IgE-mediated food allergy. Specific IgE for nuts are falsely reassuring in 22%, according to one study. Patients with peanut allergy may have negative SPT and specific IgE tests.

Conclusions

These two patients had positive peanut challenges following negative tests for specific IgE. Oral food challenges remain the gold standard for the diagnosis of IgE mediated food allergy.

P.072

Factors associated with reintroduction failure after a negative food challenge in a British secondary care setting

Adam BALOGH[1], Ola Smith[1], Paul Bassett[2]
[1]William Harvey Hospital, Ashford, United Kingdom. [2]NHS, Ashford, United Kingdom

Objective

A proportion of children with food allergy will eventually outgrow their allergy and that allows them to reintroduce the affected food. Even though a negative food challenge (FC) should normally be followed by the reintroduction of the food, reintroduction fails in a subset of children. As oral FCs are resource intensive procedures, therefore reintroduction failure is a significant burden to healthcare systems. This study analyses the frequency, causes and the risk factors for reintroduction failure in children with food allergies after a negative FC in a British secondary care setting.

Method

Children who successfully passed an open FC to any food have been included to this retrospective, cross-sectional study in East Kent over a 12-year period. A validated questionnaire was sent out by post to patients who met the inclusion criteria and used to obtain information regarding the reintroduction failure.

Results

Reintroduction failure was 28% in our study, which is in similar range to most previously reported studies (20-33%). The most common reasons for reintroduction failure were the habit of avoiding the food (44%) and that the child disliked the food (43%).
The results suggest that gender, type of FC and having multiple dietary restriction of a household member are significantly associated with failure and that reintroduction was more successful in patients with eczema. Other atopic illnesses, age, type of the first reactions, length of avoidance or dietary restrictions of a family member were not found to be associated with reintroduction failure.

Conclusion

Identifying the reasons for reintroduction failure and identifying the patients who more likely to result in reintroduction failure could potentially change patient routes and follow ups. There might be patients who would need reassurance and encouragement after the passed oral FC, which could be done in a form of follow up appointment along with dietary advice.

P.073

Over the Wall presents Camp Anaphylaxis!!

Christopher Beaves[1], Natalie Marshall[2]
[1]Sheffield Children's Hospital, Sheffield, United Kingdom. [2]Over the Wall - Charity, Havant, United Kingdom

Background

The 'Over the Wall' (OTW) serious fun network run free, therapeutic recreation camps to help to develop the confidence, self-esteem, coping strategies and relationships of our campers with serious health challenges.
OTW was immensely proud to run the first of its kind Anaphylaxis summer camp for the children.

Case Presentation

A swarm of excited kids and anxious parents arrive to be confronted by brightly clothed volunteers with even brighter smiles. The children are taken to their allocated medical team for an informal clerking. Most conversations are dominated by the dreaded meal times. The on-site medical team provide reassurance their child can be safely cared for. The parents leave for a period of relative respite.
For most children at Over the Wall their anaphylaxis would mean limitations especially at feeding time. The camp demonstrated that in the right environment, there are no limits. This enabled the campers to have amazing experiences. The camp encourages confidence and allows self-esteem to flourish.

Discussion

The medical team or 'Beach Patrol' is made up of volunteers. Healthcare professionals are assigned to camper groups. The campers are split into age groups identified by coloured t-shirts. All campers carry an 'emergency' pack containing 2 adrenaline pens and an easy to use guide for administering.
Feeding time was the most challenging aspect of camp. PGL isolated a kitchen, and staff to prep food only to be served from a specific canteen. 38 food allergens were banned from camp. Food was eaten in a side room away from potential contaminants.

Conclusions

Providing a safe and fun environment for these children allowed an unprecedented opportunity for personal growth. The sight of children running up to the canteen for seconds, completely fear free alone justified the amazing effort and time given by the OTW volunteers.

P.074

How does the ImmunoCAP ISAC influence outcomes in a Paediatric Clinic?

Elspeth Brooker, Nicola Brathwaite, Susan Leech
King's College Hospital, London, United Kingdom

Objectives

The ImmunoCAP ISAC test is a micro-array chip which measures 112 allergen components from 51 sources using 20 microlitres serum. It provides a detailed overview of primary and cross-reactive allergic sensitisations. The ImmunoCAP ISAC has been used in our paediatric clinic for the last 9 years. We aimed to audit the use of this test and see how it influenced patient outcomes.

Method

50 children who had had ISAC tests performed over 1 year ago were randomly selected from our patient population. Their electronic records before and after ISAC testing were reviewed. Prior investigations and reasons for performing the test were recorded. Outcomes of performing the test were assessed.

Results

53 ISAC tests were performed on 50 children aged 7 months to 16 years. The most common indications for performing the test were food allergy, eczema and rhinoconjunctivitis. 37 patients had multiple atopic comorbidities. It was also used for children with other conditions such as recurrent vomiting, severe gastroesophageal reflux and vasculitis. It was used on one occasion to alleviate parental anxiety. In 39 patients skin prick tests or specific IgE had been performed prior to ISAC testing. ISAC testing was the first line investigation in one patient. 28 patients had ISAC tests at their first appointment, usually following skin prick testing.

Outcomes were:

1. Explanation of symptoms / confirmed diagnosis (n=22)
2. Referral to another service (n=2)
3. Food challenge / introduction (n=11)
4. Medication changed / added (n=4)
5. Referral for immunotherapy (n=5)
6. New diagnosis (n=2)
7. Additional food exclusion (n=2)

There was no comment for 11 patients, 6 patients had 2 outcomes.

Conclusions

The majority of the children had multiple atopic comorbidities. Other than confirming diagnoses the results guided food (re)introduction, referral to other services (including immunotherapy), medication changes or new food exclusions.

P.075

Adrenaline Autoinjectors: Are we doing it right?

Sharon Chan, Sobia Bilal
Harrogate District Hospital, Harrogate, United Kingdom

Objectives

Our cohort study evaluated if children were being prescribed the correct number of Adrenaline Auto injector (AAI) according to the Medicines and Healthcare Regulatory Agency (MHRA) 2017 safety update. We also evaluated the confidence and competence of children or their parents on the use of their AAI and associated their confidence levels with the type and duration of last AAI training. We also analysed if the AAIs were prescribed for the appropriate indications.

Method

24 children up to the age of 16 years with an AAI prescribed or their parents for younger children, who attended the Harrogate District Hospital Paediatric Allergy outpatient clinic between January and April 2018 were asked for written consent to participate in this retrospective cohort observational study. We assessed their confidence level on using the AAI in anaphylaxis based on a score of 1 to 10, with 10 being the most confident.

Results

70% of participants were parents of the children with AAI prescribed. 100% of patients had 2 or more AAI prescribed. 100% had training on use of AAI. 66% had their last training more than 1 year ago and this ranged between 14 months to 3 years. About 63% used a training AAI in their training. More than 80% of patients were highly confident on using the AAI if they had to use it in anaphylaxis.

Conclusions

All the patients with AAI in Harrogate were prescribed 2 pens according to the MHRA 2017 update recommendations. Patients who had a confidence level of 8 or more were more likely to perform all the steps of administrating the AAI correctly. Based on results of our study, we will review the current training and interval times between training. We feel that a guideline on interval of AAI training should be developed.

P.076

Management, prevalence & outcomes of chronic idiopathic urticaria and angioedema in children

Nicole Chua

University of Manchester, Manchester, United Kingdom. Lancashire Teaching Hospital Trust, Preston, United Kingdom

Objectives

This paper aims to (1)examine the epidemiology of chronic idiopathic urticaria and/or angioedema (CIUA) in the paediatric population and (2)audit the management of children with CIUA attending the Paediatric Allergy Clinic at Royal Preston Hospital.

Method

All patients diagnosed with CIUA attending the Paediatric Allergy Clinic from April 2016 to March 2017 were selected for this study (n=51). For trending data, duration was extended from January 2014 to December 2016. Management of CIUA was audited against 2 guidelines; the "*Allergy Care Pathway for Children with Urticaria and Angioedema*" by the Royal College of Paediatrics and Child Health and "*EAACI/GA2LEN/EDF/WAO Guideline for the Definition, Classification, Diagnosis & Management of Urticaria: The 2013 Revision and Update*" by the European Academy of Allergy and Clinical Immunology (EEACI), the Global Allergy and Asthma European Network (GA2LEN), the European Dermatology Forum (EDF) and the World Allergy Organisation (WAO).

Results

This report shows that there is a statistically significant (p=0.0427) increase, with no seasonal variation (p=0.3349), of new patients with CIUA presenting at the clinic; although the reasons for this trend are unclear. There is a higher percentage of children presenting at a younger age with a downward trend as age increases. Around 70% of children have an associated allergic co-morbidity. Contrary to recommendations within guidelines, many children (53%) are still given sedating antihistamines prior to presenting at specialist clinics by parents or GPs.

Conclusions

In conclusion, there is an increasing trend of patients with CIUA presenting in specialist clinics. Further studies using a wider pool can be taken to confirm this trend and ascertain the reasons behind it. GPs and the public require more education on the risks of sedating histamines. In accordance with guidelines, activity scores monitoring disease severity quantitatively should be incorporated into the clinic to better the management of patients.

P.077

Compiling negative thresholds for oral food challenges

Andrew Collins[1], James Sewell[1], Sian Ludman[2]
[1]University of Exeter Medical School, Exeter, United Kingdom. [2]Royal Devon and Exeter NHS foundation trust, Exeter, United Kingdom

Objectives

As allergy services move towards active management of allergy, to include rather than exclude foods, the need to identify patients who would be safe for home introduction of foods increases.

We interrogated our food challenge data to ascertain if patients could be identified as suitable for home introduction based on Skin Prick Test (SPT) wheal size.

Method

A retrospective cohort study of unequivocal oral food challenges (OFC) at the Royal Devon and Exeter Hospital from January 2015 - September 2017. The positive OFC rate at each wheal size for specific allergens was investigated to identify a level at which a negative OFC could be predicted.

Results

Three hundred and eleven challenges had SPT data recorded; 108 (34.7%) were female, the mean age was 7.01 years (6 months-18 years 6 months) and 85.9% (267) of challenges were negative. Thirty four allergens were tested. Five allergens provided meaningful data.

Peanut: All 22 OFC with an SPT = 0mm were negative, SPT ≥ 1mm, 8/28 were positive (PPV 27.6%, NPV 100%, sensitivity 100%, specificity 51.2%).
Almond: SPT ≤ 2mm 17/17 were negative, >2mm, 50% were positive (PPV 50%, NPV 100%, sensitivity 100% and specificity 94.4%).
Cow's Milk: SPT ≤ 1mm all 11 OFC were negative, >1mm, 5/21 were positive (PPV 23.8%, NPV100%, sensitivity 100%, specificity 40.7%).
Baked Egg: SPT ≤ 2mm 9/9 negative OFC, >2mm, 9/35 were positive (PPV 25.7%, NPV 100%, sensitivity 100% and specificity 25.7%).
Whole egg: SPT ≤ 2mm had 5/23 positive OFC, > 2mm had 3/22 positives (PPV 13.6%, NPV 78.3%, sensitivity 37.5%, specificity 48.6%)

Conclusions

Suitable negative challenge cut-offs for home challenge can be established for almond (≤2mm), baked egg (≤2mm), cow's milk (≤1mm) and peanut (0mm).

The study cohort was small but will be used to guide safe challenges at home and reduce the burden of hospital based OFC.

P.078

Can Health Visitors support General Practitioners in the management of Cow's Milk Allergy in infants? A service evaluation

David Cremonesini[1,2], Paula Waddingham[1], Rebecca C Knibb[3], Elizabeth Miles[2], Carina Venter[4]
[1]Cambridgeshire Community Hospitals NHS Trust, Huntingdon, United Kingdom. [2]MSc Allergy, University of Southampton, Southampton, United Kingdom. [3]Dept of Psychology, Aston University, Birmingham, United Kingdom. [4]Section of Allergy and Immunology, University of Colorado, Denver, USA

Objectives
Cow's milk allergy (CMA) is the most common food allergy in infants and is an issue for primary care UK, where CMA normally first presents. Studies show that there is often a significant delay in diagnosing CMA and inappropriate prescribing of specialist milks. General Practitioners (GPs) find it difficult to implement guidelines on CMA management, highlighting the need to consider alternative healthcare professionals to take on this role. In the UK, Health Visitors (HVs) look after newborn babies and follow them up for the first 5 years of life. This study aimed to explore HV knowledge of CMA and their opinion on a possible role in CMA diagnostic and management pathways.

Method
A service evaluation was performed in a Community Trust responsible for 300 HVs. Firstly, a survey was emailed to all HVs comprising of questions relating to knowledge of NICE guidance on CMA management and training experience/needs. Secondly, three focus groups were run to explore HVs opinion on how CMA care might be improved locally and what the training needs are to support this.

Results
A total of 63 HVs completed the survey and 11 HVs attended focus groups. HV knowledge was found to be of a reasonable standard, especially for diagnosing CMA and appropriate milk choices. However, only 22% admitted to having had some recent training, 98% requested more. Focus group data showed unanimous support for HVs to take a more active role in CMA care and discussed ideas regarding how that might work.

Conclusions
There is clear support from HVs to be more involved in the management of CMA within primary care; however training in this role is needed. Ways in which collaborative working between HVs and GPs and parents can be improved need to be explored, to the benefit of children diagnosed with CMA.

P.079

Acute FPIES can lead to long term complications - lessons from two case studies

Stephanie Cross, Mark Alderton, Emma Grainger-Allen, Mich Erlewyn-Lajeunesse
Southampton Children's Hospital, Southampton, United Kingdom

Background

Food Protein Induced Enterocolitis Syndrome (FPIES) is a potentially severe non-IgE mediated food hypersensitivity syndrome. Cow's milk, soya, grains, chicken and fish are most commonly implicated. Acute FPIES presents with profuse vomiting and diarrhoea, leading to pallor, lethargy and hypotension. Symptoms appear within 4 hours of ingestion and can mimic other acute presentations. The diagnosis is often missed due to the non-specific nature of symptoms and delayed onset. The consequences can be severe and life threatening. Children with severe symptoms often undergo extensive investigation before the diagnosis is made. Allergy is often not considered. There is no diagnostic test however lymphocytosis and neutrophilia may be present, and in severe cases, metabolic acidosis and methemoglobinaemia.

Case Presentation

We report two cases of infants presenting with complications of cow's milk FPIES, requiring admission to the Paediatric Intensive Care Unit.

The first, a 3-week old girl, presented with severe dehydration secondary to diarrhoea and vomiting. She subsequently developed focal seizures due to a venous sinus thrombosis. Treatment included intravenous fluid resuscitation, anticonvulsant therapy and anticoagulation, amino acid formula and avoidance of cow's milk and soya. She made a good recovery although has ongoing neurological deficit and seizures.

The second, a 5-week old boy, presented with severe dehydration, acute kidney injury, profound metabolic acidosis and significant methemoglobinaemia (25%), and subsequently had a generalised seizure. After intensive fluid resuscitation he was intubated and ventilated, and treated with anticonvulsants, antibiotics, methylene blue and ascorbic acid. Extensive investigation for G6PD, sickle cell disease and inherited methemoglobinaemia, as well as CT Head, MRI/MRV and cardiac echo were normal.

Discussion

These cases highlight the potential severity of FPIES and demonstrate the importance of making a diagnosis early.

Conclusions

A greater awareness of FPIES is required by medical staff in infants presenting with profuse vomiting and diarrhoea.

P.080

ISAC testing in a District General Hospital: How helpful is it in children?

Amrit Dhesi, Tom Dawson, Michael Cornes
Worcestershire Acute Hospitals NHS Trust, Worcester, United Kingdom

Objectives

The ISAC test is a blood test that uses microchip technology to detect specific IgE antibodies to food and airborne allergens. It allows simultaneous measurement of specific antibodies to multiple allergen components (112) in a single test, using a small amount of serum or plasma. The allergens are pre-selected and include the most relevant species specific and cross-reactive markers.
The aim of this survey was to look at ISAC testing in our local population and how it affected subsequent management of allergic patients.

Method

We evaluated all children who had an ISAC test performed from January 2014 to end of December 2017 at Worcestershire Acute Hospitals NHS Trust. Outcomes included reasons for testing and subsequent management.

Results

136 ISAC tests were performed of which 48 were children aged 0-16 years. 24 tests (50%) were requested by the Allergy Specialist Nurse, 16 (33%) by Consultant Paediatrician with interest in Allergy and 17 (17%) by others. 32 patients (67%) had a diagnosis of eczema. Reasons for ISAC included unknown trigger (half of these patients had received treatment for anaphylaxis), to look at triggers for eczema, to understand cross-reactivity, to check specific components and children with complex allergy. Outcomes following ISAC included diagnosing or confirming diagnosis in patients with idiopathic anaphylaxis or urticaria/angioedema (10%), food challenges (31%), continual avoidance and/or given additional foods to avoid (27%), diagnosing oral allergy syndrome (10%) and improvement in eczema after exclusion diet in 31% patients who had ISAC done for this reason. Immunotherapy is being considered in 6%.

Conclusions

ISAC testing can help clinicians understand patient risk for allergic reactions, understand cross reactions between species, help with avoidance advice, identify allergy triggering components before starting immunotherapy, help to diagnose idiopathic anaphylaxis, urticaria and/or angioedema. It has a role to play in management of children with eczema.

P.081

A discrete choice experiment to ascertain parent preferences for paediatric allergy services in the West Midlands

Lavanya Diwakar[1,2], Carole Cummins[1], Tracy Roberts[1]
[1]University of Birmingham, Birmingham, United Kingdom. [2]Royal Stoke Hospital, Stoke on Trent, United Kingdom

Objectives
Paediatric allergy services in the UK are unable to meet the increasing service demands and need restructuring. A complex questionnaire study known as a discrete choice experiment (DCE) was designed to explore parent preferences for these services in the West Midlands (WM).

Method
Attributes were derived from a qualitative study. Three pilot studies were carried out to finalise the DCE questionnaire. The final questionnaire included five attributes including the clinician preferred, information source, additional help in clinic, waiting times and cost. Unselected parents of children aged under 16 years in the WM were asked to choose between two alternatives for a total of 18 choice sets. Analysis was done using conditional logit on Stata14.

Results
Of the 501 individuals who accessed the survey, 280 responded (55.9%). 84% of these were women, majority (44%) were aged between 35 and 44 years, most had children with eczema (49.6%) or allergies (51.8%).
Respondents were willing to pay £151.1(£163.3 to £138.9) to see a nurse specialist and £219.9 (£218.8 to £239) to see a trained allergy consultant rather than a paediatrician untrained in allergy. Improved web based information was preferred to written information from the specialist [WTP: £54.3 (£66.6 to £41.9)]. Clinics with additional support for eczema or food allergy were preferred to those with no support [WTP: £30 (£19.8 to £40.1)]. Respondents were willing to wait at least 10 additional weeks to see a trained allergy personnel in secondary care.

Conclusions
WM parents strongly preferred to consult trained specialists for their child's allergies and were willing to wait longer to see them if necessary. Web based information and dietician/ dermatologist support in clinic were preferred. DCEs have the potential to inform patient/ public preferences for health pathways.

P.082

A new multidisciplinary paediatric secondary care service one year on: what have we learned?

Sripriya Eachempati, Alexandra Brightwell
Norfolk and Norwich University Hospital, Norwich, United Kingdom

Objectives

To describe the caseload of a new paediatric multidisciplinary secondary care allergy service '1 year on' to inform service development and future planning.

Method

Retrospective analysis of patient data. Age at consultation, reason for referral, investigations, co-existent asthma, provision of an adrenaline auto-injector, whether or not the patient received dietician input and follow up arrangements were recorded.

Results

704 patients were seen in the 1 year period. 2% of patients were under 1 year of age, 16% 1-2years, 34% 2-5 y, 34% 5-12y and 14% were over the age of 12 years. The most common suspected allergens based on history and reason for referral were peanut (23%), egg (18%), milk (18%), tree nuts (17%) and soya (7%). 70% of patients underwent skin prick testing in clinic and 11% had specific IgE requested. 18% of patients required no investigations. 29% of patients had co-existent asthma. 38% required provision of an adrenaline autoinjector. 41% of patients received dietetic input. 39% percent of patients were discharged without follow up.

Conclusions

The data collected has informed our service development in that it has led to the establishment of nurse led follow up clinics and enabled planning of transition clinics due to commence in June 2018. Dietician clinic templates have been amended to enable dietician led cases to be booked alongside the MDT clinic thus increasing capacity of our dietetic pathway. Our follow up rate of 61% is high: follow up criteria will be developed to ensure that all follow ups are appropriate and timely. Nut allergy is over-represented in our cohort compared to population data: this likely due to some patients with single milk and egg allergy being seen in under 2s clinic.

P.083

Home introduction — the future of food challenges

Kathryn Ferris, Rachna Verma, Michaela McAuley, Lorraine Curran
Altnagelvin Hospital, Londonderry, United Kingdom

Objectives

Many children have a proven food allergy often to multiple foods. We found that parents were often anxious about introducing new foods that *may* cause allergy. As we know early exposure may be productive against food allergy.

In hospital food introductions are time consuming, labour intensive and expensive. There are *low risk* children who would be suitable for a home introduction of a new food. We already knew that other countries like Australia have protocols in place for home introduction of a new food.

Our overarching aims were to:

- Assess the feasibility of home introductions
- Assess if we can offer home introductions to more *low risk* children in our trust

Method

From February to August 2017 *low risk* patients were identified in outpatient's clinics. 21 patients were selected. There were given the 'home introduction of a new food' information leaflet from Royal Children's Hospital Melbourne. The information leaflet was discussed in clinic and the food to be introduced into their diet was identified. We then conducted a telephone follow up.

Results

- Ages ranged from 11 months to 10 years.
- Range of underlying allergies;
    - Most commonly milk, eggs and peanuts
- Range of foods to be introduced;
    - Most commonly treenuts, peanuts and eggs

- 18 (86%) patients responded to telephone consultation
- 16 (88%) had undertaken a home introduction
- 15 successful (94%)
- 1 unsuccessful – developed a rash

Conclusions

Home introductions of a new food are feasible and in our experience they were mostly successful. Parents and patients were willing to engage and the parents were very positive about the experience. Obviously these patients need to be carefully selected and must be *low risk.*

Future plans:

- Develop our own home introductions of a new food information leaflet
- Develop clear criteria to identify suitable children who are *low risk*
- Offer home introductions of a new food to more patients

P.084

Management of children with food allergies in schools

Charlotte Gilchrist, Kate O'Connell, Anna Burford, Antony Aston, Lee Noimark
Royal London Hospital, London, United Kingdom

Objectives

Food allergy is prevalent in the UK paediatric population and carries a risk of mortality and morbidity. Outside of the home, this also has a significant impact in the child's school environment. While the allergy clinic focuses on parental and patient education to ensure safety there may be no direct contact between the allergist and the school. Early recognition and management of anaphylaxis can be lifesaving and children are reliant on appropriately trained staff to come to their aid.

Our aim was to assess the level of confidence in local schools around recognition and management of allergic reactions.

Method

A 12 question survey was developed by our allergy team and sent to schools within Tower Hamlets borough of East London.

Results

Out of 36 respondents 54% identified themselves as teachers or teaching assistants. Over 66% of the respondents had greater than 5 years' experience in their current role. 83% had a child in their class with an allergy and 66.6% had been involved in managing a child with an allergic reaction.

Of the 36:

- 36% either reported that they did not have access to an allergy training course, or were not aware of being able to access one.
- 47% had attended a course within the last year.
- 34% described themselves as not confident in recognising symptoms of allergy/anaphylaxis
- 39% were not confident in recognising when an adrenaline pen was needed.
- 25% reported feeling very confident in administering an adrenaline pen.

Conclusions

Allergic children are required to attend school for their education. Yet our results indicate that the staff at our local schools who care for them have difficulties with a key aspect of allergy education - early recognition and treatment of severe allergic reactions. To ensure the safety of these pupils, appropriate training with regular updates should be mandatory for all staff.

P.085

How long should patients be observed after a food provocation test?

Ian Gregory[1,2], Roisin Fitzsimons[1]
[1]Guy's and St Thomas's NHS Foundation Trust, London, United Kingdom. [2]King's College University, London, London, United Kingdom

Objectives

To assess the appropriateness of our current observation period after food provocation testing (Two hours for food challenges, one hour for supervised feeds).

Method

Retrospective analysis of database containing 821 food challenges and 885 supervised feeds performed between May 2016 and February 2018.

Results

The mean time to reaction was 40.8 minutes for a challenge and 19.1 minutes for a supervised feed, likely reflecting the fact that a larger dose is given earlier in a supervised feed.

Challenges

93.7% of reactions occur within two hours of the start of the food challenge (approximately one hour after the final dose was scheduled to occur). None of the eight later reactions developed wheezing, laryngeal, gastrointestinal or objective cardiovascular symptoms. All were managed with antihistamine only. Only 37.5% (3/8) of the later reactions ingested the top dose suggesting that symptoms may have been starting to develop earlier leading to this being held. The median age in the later reaction group is six years suggesting later reactions affect slightly older children. The foods involved were baked egg (1), peanut (1), soya (2), wheat (1), popcorn (1), unknown (2).

Supervised feeds

97.9% of reactions occurred within one hour, with only one reaction occurring later. This was a mild reaction to almond treated with antihistamine.

Conclusions

This project provides some evidence that two hours of observation after a food challenge is overly cautious. Limitations were incomplete recording of information in the database, ambiguity about classification of start of a reaction and timing of the last dose before reaction, and the possibility that later reactions after patient leaves department go unrecorded. We recommend adjustment to the data collection method in the database to provide more evidence for the hypothesis that 1 hour of observation following a food provocation is sufficient.

P.086

Chinese whispers from challenge to clinic: Evaluation of Use of Antibiotics in Primary Care after Negative Antibiotic Challenge in Hospital

Anjum Grewal[1], Lynsey Perkins[2], Nicola Jay[2]
[1]Sheffield Children's Hospital, Sheffield, United Kingdom. [2]heffield Children's Hospital, Sheffield, United Kingdom

Objectives

- Service evaluation project with objectives:
  1. To evaluate the number of children with negative challenges that are appropriately labeled as non-allergic in primary care
  2. To evaluate if the index antibiotic is used in primary care after a negative antibiotic challenge
  3. To explore the reasons behind children with negative challenges not receiving the index antibiotic

Method

• A list of negative challenges 2011 to 2013 was made
• Letters were sent to GPs with a questionnaire.
Main questions asked:
1. Has the alert for that antibiotic been taken off your system?
i) if no, is this because you hadn't received the information to do so
2. Has the named patient received the challenged antibiotic?
i) if yes, then did they tolerate the medication
ii) if they didn't tolerate the antibiotic, what where the concerns
3. If no, have they received an antibiotic from the same class ?
4. If that antibiotic hasn't been used at all, have they received other antibiotics because you still have a concern over antibiotic allergy?

•Data was analyzed and presented

Results

The total number of negative antibiotic challenges over the 3 years period was 168. Responses were obtained from primary care in 97 patients (119 challenges). The antibiotic alert was removed in 71% post negative challenge. Amongst the cases with alerts still in place, GPs felt they had not received appropriate information to remove the alert.
35% children received the challenged antibiotic in primary care after the negative challenge and 30% received another antibiotic from the same class.

Conclusions

Between 1 in 5 to 1 in 10 children are still at risk of not being given appropriate first line antibiotics due to concerns about persistent allergy despite negative challenge. Primary care providers need clear communication about implications of a negative antibiotic challenge.

P.087

Relapse of allergic rhinoconjunctivitis after completion of 3 year course of grass pollen sublingual immunotherapy

Anjum Grewal, Nicola Jay
Sheffield Children's Hospital, Sheffield, United Kingdom

Background

Sublingual immunotherapy is established as an evidence based treatment for children with moderate to severe allergic rhinoconjunctivitis. It is postulated that grass immunotherapy has a disease modifying effect with some sustained desensitization response after the course as well as a reduction in new allergic sensitisations. We present a case that does not conform to this.

Case presentation

M presented at 5 years of age with recurrent viral urticaria which settled with antihistamines. Over the next year, her allergic rhinoconjunctivitis became more difficult with prominent eye symptoms and asthma flare ups. Skin prick testing and specific IgE tests pointed to Timothy grass as the major allergen with very little sensitisation to birch and none to house dust mite or moulds. She was started on Grazax in February 2015 and her quality of life improved dramatically. She was able to stop preventers for asthma, montelukast and nasal sprays. She only needed seasonal antihistamines and eye drops. She completed 3 years of Grazax and this was stopped in February 2018. By March 2018, she started having severe allergic rhinoconjunctivitis symptoms. Despite restarting antihistamines, quality of life and school performance deteriorated. Her bloods revealed that now she was sensitized to Birch pollen.

Discussion

This child had responded extremely well to immunotherapy to grass pollen. We had expected sustained improvement after 3 years of treatment. However she had an immediate relapse of symptoms with poor quality of life in the spring and summer.

Conclusions

It is not clear what is the underlying pathophysiology in this case. As this child is also anxious, could there have been a placebo effect in the first place? The management options include restarting immunotherapy and giving combination immunotherapy. Also this case raises questions about optimal duration of immunotherapy and the long term prognosis thereafter.

P.089

Service evaluation of food protein induced enterocolitis (FPIES) challenges in a paediatric allergy department

Erika Harnik, Lee Noimark, Anthony Aston, Luul Ali
Royal London Hospital, London, United Kingdom

Objectives

FPIES is a severe, non-IgE associated food hypersensitivity reaction characterized by severe protracted vomiting and diarrhea, lethargy and pallor. It can be initially misdiagnosed as gastroenteritis or sepsis and therefore there can be a delay in diagnosis. Many children achieve tolerance by 3 years of age and this is usually confirmed by undertaking a 'high-risk' food challenge. A service evaluation of patients with FPIES in a paediatric allergy department was performed to examine the characteristics of the patients and the outcomes from the challenges.

Method

Patients who underwent a FPIES challenge over a 4 year period were identified using the departmental database. Casenotes were reviewed to gather information including the eliciting food, age of first reaction, number of reactions to diagnosis and age and outcome of challenge.

Results

10 children underwent a FPIES challenge. Average age of initial reaction was 8.6 months with the most commonly eliciting foods including milk (3/10), rice (2/10) and fish (2/10). 4 of the patients had multiple reactions before the diagnosis was reached, although this information was not available for all patients. The average age at challenge was 2.2 years – 3 patients had challenges at 7 – 9 years due to a delay in referral. 3 failed the challenge – 2 patients challenged with fish and 1 patient with rice. The reactions required treatment with IV Ondansetron or a single fluid bolus.

Conclusions

The children in our cohort had FPIES reactions at a similar age and to similar foods as other studies. Many patients had multiple reactions before diagnosis. Most patients were able to tolerate the index food by 3 years of age, although this was not the case with some foods. As a result of the evaluation we have designed a new FPIES allergy action plan to help guide healthcare professionals in recognizing and managing this condition.

P.090

Does delay in initial treatment of non-IgE-mediated cow's milk allergy effect duration of gut symptoms

Katie Hickinbottom[1], Mich Erlewyn-Lajeunesse[2,3], Emma Grainger-Allen[2], Nadeen Afzal[4,3], Mark Alderton[2], Sarah Williams[2], Helen Wells[3], Sara Dawson[2,3], Joan Gavin[3], Kate Grimshaw[2,3,5]
[1]Faculty of Medicine, University of Southampton, Southampton, United Kingdom. [2]Paediatric Allergy Department, Southampton Children's Hospital, Southampton, United Kingdom. [3]Department of Dietetics and SLT, Southampton Children's Hospital, Southampton, United Kingdom. [4]Paediatric Gastroenterology Southampton Children's Hospital, Southampton, United Kingdom. [5]Clinical and Experimental Sciences and Human Development and Health Academic Units, Faculty of Medicine, University of Southampton, Southampton, United Kingdom

Objectives

We undertook a service evaluation of patients with Non-IgE mediated cow's milk allergy (CMA) referred to secondary and tertiary care at Southampton Children's Hospital (SCH) to establish whether delayed diagnosis and/or delayed cow's milk exclusion diet were associated with persistent gut symptoms (PGS).

Method

Infants who presented at SCH between May and October 2017 with non-IgE-mediated CMA associated gastro-intestinal symptoms were prospectively identified by general paediatricians, paediatric allergists, paediatric gastroenterologists and paediatric dietitians for inclusion in this study. Electronic records of these children were accessed for demographic and clinical data. PGS were determined by the presence of at least one of the following on the cow's milk exclusion diet: constipation, diarrhoea or laxative prescription.

Results

67 infants (mean age at treatment commencement: 14 weeks) had enough detail in their medical records to be included in the service evaluation. 54/67 **(**81%) of the infants were deemed to have PGS. These infants were referred to secondary and tertiary care more quickly (median: 7 weeks) compared to those without (10 weeks, p=0.009). They also required a longer duration of care (median: 25 weeks compared to 6 weeks, p=0.098) and more appointments at SCH (median: 4 compared to 2, p=0.003). The number of paediatrician appointments was significantly different between the groups, (p=<0.001) but there was no difference in number of dietetic appointments. PGS and the time between symptoms presentation and commencement of treatment was not significantly different (p=0.175).

Conclusions

In this cohort, severe gastro-intestinal symptoms associated with CMA started early. Infants with PGS were seen at SCH more quickly and required more specialist care than those without. This may be due to their severe symptoms being easier to spot by GPs. Investigation into the cause of PGS could mean quicker symptom resolution thus benefiting patients and also leading to shorter periods of care.

P.093

Could a 3 Step Beta Lactam Challenge Protocol be Safely Replaced by a Single Dose Challenge in Children?

Judith Hull, Nicola Brathwaite, Susan Leech
King's College Hospital, London, United Kingdom

Objectives

Beta lactam challenges are used to establish if a child who develops a rash during an antibiotic course is truly allergic and to de-label children from penicillin allergy. We aimed to establish if the three incremental doses at the start of the challenge could be safely replaced by a single dose, to reduce day ward time and staffing.

Our current challenge protocol recommends three incremental doses given in hospital. The first two doses are $^{1}/_{100}$ and $^{1}/_{10}$ of the normal dose, each followed by 60 minutes observation. The final full dose is followed by 2 hours observation. A 5 day course of antibiotics is then administered at home.

Method

Beta lactam challenges from January 2015 to December 2017 in Paediatric patients (aged 11 months to 15 years) with mild to moderate reactions to β-lactam antibiotics were identified. In patients with a positive challenge, the stage at which they reacted and the nature of the reaction were recorded.

Results

Seventy-four β-lactam challenges were performed. Seven (10%) were positive and four (5%) inconclusive. No patients reacted to the initial dose. Three (aged 1, 2 and 9) reacted after the second dose and one (aged 9) after the full dose. The remaining 7 reactions occurred during the 5 day course. Following the second dose reactions involved rashes and puritis. The reaction after the full dose involved sneezing, eye swelling and puritis. All reactions responded to antihistamine and none required adrenaline.

Conclusions

No severe reactions occurred in this group. In patients at low risk of a serious reaction, we are trialling a protocol with a single full dose of beta lactam antibiotic as an inpatient. Higher risk patients will follow the current 3 step graded protocol. Both protocols will be followed by 5 days of the antibiotic at home.

P.094

Oral food challenge dosing schedules for high protein foods

Mariyum Hyrapetian[1], Deborah Levene[1], Sophia Kallis[1], Jonathan Cohen[1], Sarah Eisen[1], Penny Salt[1], Leanne Goh[1,2]

[1]University College London Hospital, London, United Kingdom. [2]University College London, London, United Kingdom

Objectives

The PRACTALL consensus for oral food challenges (OFC) deems that a semilogarithmic dosing schedule between 3 - 3000mg of food protein (FP), at intervals of at least 20 minutes is usually appropriate. We aimed to determine for high protein foods (HPF), where this top dose is lower when compared to the age appropriate portion (AAP), was appropriate for our cohort of patients attending a central London teaching hospital paediatric allergy service.

Method

We reviewed the eliciting dose (ED) for positive (n=23) and inconclusive (n=23) OFC to HPF over a 3-year period using our current dosing schedule based on AAPs.
We surveyed parental confidence in and perceptions of the dosing schedules.

Results

43.4% (n=10) reacted at >3000mg of FP: loosely-cooked egg 50% (n=4, total 8); fish 44.4% (n=4, total 9); and prawn 33.3% (n=2, total 6).
100% of patients with inconclusive challenges were unable to complete the 3000mg of FP dose.
Parental confidence was high for the 3 - 3000mg doses: 92.3% for loosely-cooked egg, 100% for fish and 92.3% for shrimp respectively. None of the parents indicated that the doses were too small; 5 indicated the doses were too large: 1 loosely-cooked egg; 4 prawn. 76.9% of parents indicated the doses were appropriate. 1 parent indicated the 8000mg of FP (AAD for salmon) was too small.

Conclusions

In this small cohort, a significant proportion of patients had ED >3000mg of FP to HPF, calling into question the sensitivity of this top dose for HPF. It is possible these patients may have had lower ED, had there been longer intervals between doses. All patients with inconclusive challenges consumed <3000mg of FP, so would not have had falsely-negative challenges. Parent confidence in both the PRACTALL and AAP dosing schedules was high. More research is needed to determine safe and sensitive dosing schedules for HPF.

P.095

Oral Food Challenges and Supervised Feeds: Are the top doses realistic for children to consume?

Konstantinos Kakleas[1,2], Kiran Tiwana[1,2], Anna Harvey[3], Kate Swan[1,2]

[1]Evelina London Children's Hospital, London, United Kingdom. [2]Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom. [3]King's College London, London, United Kingdom

Objectives

A food challenge is the gold standard for the diagnosis of food allergy. The top dose, to avoid false-negative results, is estimated at a minimum of 2g of food protein. Based on clinical experience at the Children's Allergy Service at Evelina London Children's Hospital (ELCH), some children cannot consume this top dose which may cause anxiety, lack of confidence in the outcome, inconclusive results, wasted appointments and a negative financial impact on the Service. We reviewed our negative food introductions to determine what proportion of children were not consuming the top dose and which age group and which food was most problematic. Our objective was to assess whether we need to revise our top doses.

Method

We used Microsoft ACCESS Oral Food Challenges (OFC) and Supervised Feeds (SF) Database and Electronic Patient Record to retrospectively collect data on all children with negative oral food challenges between May 2016 to August 2016 and May 2017 to August 2017 and those with negative supervised feeds between July 2016 to November 2016 and July 2017 to November 2017.

Results

200 patients (8 months to 18 years) were included in the analysis (99 OFC and 101 SF). 21% of OFC and 28% of SF were described as negative but those children failed to consume the official top dose. Subsequent analysis combining data for OFC and SF found 0-2 year olds had the most difficulty, with 41% failing to consume the top dose. Mixed nuts proved most difficult for all ages to reach the top dose.

Conclusions

2-3g of food protein can result in large portions for OFC and SF. According to this audit, they are unrealistic for many 0-2 year olds. Revision of top doses for OFC and SF, to an age appropriate portion for those aged 0 to 2 years, will need to be considered.

P.096

Does having specialist paediatric allergy nurse input within the allergy clinic benefit parents of infants with CMPA?

Neha Khanna, Kelly Parker, Than Soe
The Princess Alexandra Hospital Trust, Harlow, United Kingdom

Objectives

To look at how beneficial parents / carers of infants with CMPA find seeing the paediatric allergy nurse specialist as part of the clinic visit.

Method

10 families of infants with CMPA were each given a 30min appointment with the paediatric allergy nurse specialist (following straight on from the consultant appointment)

All families were given a questionnaire at the end of the appointment.

The allergy nurse specialist also filled in a questionnaire to look at the types of questions asked and information requested by the families.

Results

100% of families stated that they all felt anxious with 90% feeling that the biggest anxiety / confusion was around weaning.

100% felt that having the appointment with the nurse was beneficial as they all felt that they had further questions that they wanted to ask

The nurse questionnaire correlated with the patients questionnaires showing that 90% of questions asked were around weaning and nutrition.

Conclusions

Families of infants with CMPA require further advice and support / reassurance primarily around the weaning process. All families felt that having extra time to discuss these issues was beneficial.

Highlights that there is a need for dietetic support within the allergy clinic.

P.097

Extensively Hydrolysed Formulas for the Management of Cow's Milk Protein Allergy in Infants: Is Extensive Hydrolysis Sufficient to Guarantee Success?

Martinas Kuslys[1], Sophie Nutten[2], Järvi Anette[1], Françoise Maynard[3], Michael Affolter[2], Peter Fryer[4]
[1]NestléHealthScience, Vevey, Switzerland. [2]Nestlé Research Center, Lausanne, Switzerland. [3]Nestlé Research Konolfingen, Konolfingen, Switzerland. [4]Nestlé Nutrition, Adelaide, Australia

Objectives

There are currently no aligned definitions to characterise extensively hydrolysed formulas (eHFs), despite the fact that eHFs should be well tolerated by infants with cow's milk protein allergy (CMPA). Recent publications have drawn attention to the chemical heterogeneity of eHFs. Surprisingly only a few eHFs have been proven in clinical trials to be efficient in terms of allergy and growth.
To better understand the range of eHFs, we analysed samples of commercially available eHFs from 11 countries and various manufacturers, with a focus on suitability for CMPA management.

Method

Samples were de-identified and coded for the analyses. Molecular weight (MW) distribution of hydrolysates; residual proteins and peptide profiling were assessed with SDS-PAGE gel and size exclusion-high-performance liquid chromatography (SE-HPLC), as this reflects the design of the formula and the quality management applied during production. β-lactoglobulin, and casein content were quantified. β-lactoglobulin residual allergenicity was assessed.

Results

Peptide MW distribution displayed significant variation, with the percentage of peptides with MW >1.2 kDa varying from 1% to 36%. MW distribution was shown to be positively correlated with β-lactoglobulin specific *in vitro* degranulation.
80% of samples had β-lactoglobulin content greater than the LoQ, with high variability from 0.020 mg/kg to 36 mg/kg. Surprisingly, even in samples featuring a high degree of hydrolysis, significant levels of residual β-lactoglobulin were quantified.

Conclusions

Lack of consensus over the definition of 'extensively hydrolysed' is reflected in the wide range of degree of hydrolysis in commercially available eHFs. Some products might be considered as unsuitable and even unsafe for the management of CMPA. Our results suggest that a degree of hydrolysis alone is not sensitive enough to characterise eHFs. Whilst a high degree of hydrolysis is desirable, further quality control measures are essential to ensure clinically safe products. Actionable guidelines to better define eHFs are desirable.

P.098

Use of Home Baked Milk Reintroduction in Children with Milk Allergy

Yunnan Li, Niten Makwana, Aneta Ivanova, Maria Atkinson, Surendra Karanam
Sandwell and West Birmingham Hospitals, Birmingham, United Kingdom

Objectives

Current guidelines have recommended that in young children with cow's milk protein allergy, re-introduction can be achieved by graded exposure using a milk ladder, starting from baked milk. This should be reviewed every 6-12 months, with repeat skin-prick testing if IgE-mediated. We wanted to look at the effectiveness and safety behind the use of home baked milk re-introduction in our local paediatric group of children with milk allergy.

Method

We carried out a retrospective study locally at Sandwell Hospital Children's Outpatient Department, looking at patients who underwent skin-prick testing (SPT) and had positive SPT reaction towards milk from January 2015 to January 2017. We identified 39 patients, for whom we looked to see if baked milk re-introduction had been commenced. We then looked at the stages of baked milk-containing foods which they have tolerated subsequently in the 6-12 monthly follow-ups.

Results

The median age of patients who had home baked milk re-introduction initiated was 18 months. Most had wheal size in SPT for milk (in mm) of less than 8. Out of the 39 patients, 7 had unknown outcomes due to being lost to follow-up or due to be followed-up again. Out of the remaining 32 patients, 5 patients did not tolerate baked milk re-introduction and reported adverse effects. 27 patients (84%) tolerated baked milk re-introduction, with 12 patients achieving stage 4-type foods (indicating full tolerance to milk) by the end of 12 months. Adverse effects which were reported were not severe (not requiring hospital admissions).

Conclusions

Home baked milk re-introduction is safe and effective as seen in our study results. Selection of patients according to their reactions towards milk is important. Dietician follow-up in the interim is useful for parents who have any questions about baked milk re-introduction in between allergy clinic follow-ups.

P.099

District General Hospital Experience with Oral Food and Drug Challenges

Klara Liddell, Anna Rucker, Paula McQueen
Royal Surrey County Hospital, Guildford, United Kingdom

Objectives

Oral food challenges form a gold standard in food allergy diagnosis and drug challenges are advocated in the diagnosis of paediatric drug allergy. We sought to assess the outcomes of these challenges within the setting of the Paediatric Allergy Department of our District General Hospital.

Method

All challenges were manually input onto a database within the department, allowing for identification of patients who underwent challenge testing between April 2015 and March 2018. The outcomes of these challenges were analysed from data available in the database.

Results

A total of 261 challenges were identified. Patients' age ranged from 6 months to 16 years (median 5.8 years) and 57% were male. 238/261 (92%) challenges were food challenges, the remainder were drug challenges. A variety of foods were tested, the commonest being single (33/238 (13.9%)) or combined nuts (40/238 (16.8%)), egg (64/238 (26.9%)) and peanut (54/238 (22.7%)). 2/238 food challenges were for food-protein induced enterecolitis syndrome. Drugs tested included beta-lactam and macrolide antibiotics, ibuprofen and prednisolone. No data were available for 39 challenges and these were excluded from further analysis. 50/222 (22.5%) challenges were positive, 170/222 (76.5%) were negative, the remainder were inconclusive or there was a mixed result in a mixed food challenge. Of oral food challenges, 48/202 (23.8%) were positive, while 2/20 (10%) of drug challenges were positive. One patient (1/222 (0.5%)) required adrenaline, cetirizine, prednisolone and salbutamol. A further patient required cetirizine and salbutamol. Cetirizine alone was given in 38/50 (76%) positive challenges, 3/50 (6%) patients received chlorphenamine, 1/50 (2%) received ondansetron and 6 /50 (12%) required no medications.

Conclusions

Our data demonstrates that both oral food and drug challenges are safe procedures with appropriate patient selection. The high proportion of negative results highlights the usefulness of these challenges in broadening a child's diet or enabling use of previously avoided medication.

P.100

A case of anaphylaxis to Oseltamivir

Sian Ludman[1], Nick Sargant[2]

[1]Royal Devon and Exeter Hospital, Exeter, United Kingdom. [2]Bristol Royal Hospital for Children, Bristol, United Kingdom

Background

Oseltamivir is an antiviral medication used to treat, under the advice of Public Health England, seasonal influenza. There have been very few recorded allergic reactions to Oseltamivir and none previously reported in children.

Case presentation

A fit and well, non-atopic, 13 year old boy was treated for anatypical chest infection and wheeze with inhalers, oral steroids and oral Azithromycin.

Four days later he became acutely short of breath was and was given Salbutamol, Ipratropium, Magnesium, Hydrocortisoneand Co-amoxiclav. He deteriorated, becoming clinically moribund.

He was intubated with Ketamine, Fentanyl and Rocuroniumand sedation was maintained with Propofol, Vecuronium and Alfentanyl. A dose of Oseltamivir (75mg) was given via anNGT prior to an abrupt drop in blood pressure requiring a fluid bolus. Concurrently, his ventilator had malfunctioned so this hypotensive episode was attributed to this mechanical fault as he stabilised once the fault had been resolved.

He was extubated the next day on ICU and within 30 minutes of receiving a second dose of Oseltamivir via an NGT became profoundly hypotensive. This hypotensive episode necessitated treatment with an adrenaline infusion. No other features of anaphylaxis were noted and no other drugs were given in the six hours preceding the hypotensive episode.

Skin prick testing to Oseltamivir demonstrated a wheal of 4mm

Discussion

Allergic reactions to Oseltamivir have previously been reported but are considered extremely rare and this is the first documented case of anaphylaxis to Oseltamivir in a child. It is important to note isolated hypotension around Oesltamivir ingestion.

Conclusions

Current Public Health England advice is for widespread use of Oseltamivir in the treatment of those with complications or at risk of complications of seasonal influenza. It is important that all adverse and allergic reactions are reported and thoroughly investigated especially in patients already unwell with possible complications related to influenza.

P.101

Diagnosis and risk stratification of patients referred with suspected nut allergy without access to oral food challenge

Lucy Mackie[1], Rita Mirakian[2], Lucinda Kennard[2], Annette Wagner[2]
[1]University of Cambridge Clinical School, Cambridge, United Kingdom. [2]Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom

Objectives

Stratification of patients into low or high risk of significant allergic reaction impacts on management, cost and quality of life. Gold standard for diagnosis is DBPC food challenge, but few patients have access to this. We looked at how the results of other diagnostic tools correlated with risk stratification in clinic.

Method

A clinical history (using WHO grading of the index reaction), SPT results and where possible, total specific IgE and specific molecular sensitisation to peanut, brazil nut, hazelnut, almond, walnut, cashew and pistachio nut were obtained in 80 patients, referred with suspected nut allergy to one Allergy clinic over 12 months.

Results

Four groups of patients were identified**.**

Group 1: No allergy - 17 patients (21%)
Group 2: Primary nut allergy at risk of systemic symptoms - 38 patients (47%)
Group 3: Pollen food allergy - 17 patients (21%)
Group 4: Mixed phenotype - 8 patients (10%)

There was no significant difference in the severity of index reaction between groups.
There was a significant difference between the mean age of those diagnosed with low and high-risk allergy (p=0.0001).
There were significant differences between the skin prick results of those diagnosed with low and high-risk allergy for peanut (p=0.0009), hazelnut (p=0.0008), cashew nut ((p=0.0225) and walnut (p=0.0415).
There was no significant difference in total specific IgE when it was positive, between groups. However more patients given low-risk diagnoses had negative results.
There were significant differences in specific molecular sensitisation patterns of those diagnosed with low and high-risk allergy for peanut and hazelnut.

Conclusions

The results of different diagnostic tools had varying correlation with diagnoses made in clinic. Overall we could be most confident in risk-stratifying patients with peanut and hazelnut allergy, and least confident with pistachio and almond. We acknowledge that there may be over-diagnosis without food challenge.

P.102

Rhinitis in Preschool children has a wider clinical spectrum: Results from Study of diagnosed rhinitis children from Leicester Paediatric Allergy Centre, UK

Asanka Mallawaarachchi[1], Gary Stiefel[2], David Luyt[2]
[1]Sherwood Forest Hospital, Mansfield, United Kingdom. [2]Leicester Royal Infirmary Hospital, Leicester, United Kingdom

Objectives

Rhinitis is very common amongst children less than 5 years old. Diagnostic criteria used in children across all age groups are the same, although symptoms may differ in different age groups. An improved understanding of the clinical picture of preschool children may improve diagnostic accuracy as well as management. We sought to explore the clinical features related to rhinitis in children less than 5 years of age.

Method

A questionnaire was sent to parents of children with a diagnosis of Rhinitis (<5yrs of age) made by the Children's' allergy service in Leicester between 01/01/2012 and 31/12/16.Data was collected over 3 months from 07/09/2017 to 07/12/2017.

Results

Results of 42 children were analysed. 29(69%) were <3 years of age. 22(52 %) had aeroallergen sensitisation. The commonest 10 reported features were [1] Runny nose (88%: 15vs 22 for sensitised vs non sensitised), [2] Nasal blockage (78%), [3] Snoring (76%), [4] Persistent, night or early morning cough (71%), [5] Sneezing (66%), [6] Mouth breathing (64%), [7] Difficulty in sleep (62%) [8] Bad breath (59%), [9] Itchy nose (57%) and [10] Impact on play or daily activity (48%).

Conclusions

Out of four rhinitis diagnostic criteria runny nose was the commonest clinical symptom in our study group. Itchy nose is one diagnostic criteria but it was ninth commonest clinical symptom. Number of symptoms related to sleep and breathing were quite common. A Broader clinical view is important in preschool rhinitis patient diagnosis and further evaluation is required to determine whether current diagnostic criteria are relevant for preschool children.

P.103

Peanut and tree nut allergies in children under 3 years of age presenting to a tertiary allergy clinic

Kathy Man[1], James Pigott[1], Helen A. Brough[2]

[1]King's College London, London, United Kingdom. [2]Children's Allergy Service, Guys and St Thomas' NHS Trust, London, United Kingdom

Objectives

We reviewed the proportion of nut allergies and sensitisations in children <3 years old presenting to a tertiary allergy centre. We also reviewed nut consumption in children with nut allergies.

Method

Clinic notes, skin prick tests (SPT), and specific IgE (sIgE) results of 199 children <3 years of age were reviewed throughout May 2018. 'Allergy/likely allergy' was defined as a convincing history of an immediate allergic reaction, SPT ≥5mm, or sIgE ≥15kUA/L. Sensitisation was defined as SPT ≥3mm or sIgE ≥0.35kUA/L without a history of reaction.

Results

Peanut allergy was most common (n=38;19.1%), followed by cashew nut (n=24;12.1%), pistachio (n=15;7.5%), walnut (n=12;6%), almond (n=8;4%), hazelnut (n=7;3.5%), brazil nut (n=5;2.5%), pecan (n=4;2%), macadamia (n=2;1%), and coconut allergy (n=1;0.5%).

25 children (12.5%) were allergic to peanut, 20 (10%) were allergic to tree nuts, and 13 (6.5%) were allergic to both.
33 children (16.6%) had a single nut allergy; 10 (5%) had 2 nut allergies; 7 (3.5%) had 3 nut allergies; and 8 (4%) had ≥4 nut allergies.
29 children (14.6%) were sensitised to one nut, 6 (3%) sensitised to 2 nuts, and 13 (6.5%) sensitised to ≥4 nuts.

Of the 24 patients with nut allergies, 11 (45.8%) included other nuts in their diet (in order of frequency; almond, hazelnut, pine nut, walnut, peanut, pistachio, pecan, cashew, macadamia, and Brazil nut). Similar results were found for patients <1 year.

Conclusions

Overall, peanut allergy was the most common and we found that the majority of the children had single nut allergy. These results are similar to the ProNut study (NCT01744990) which found 69% of children <3 years were allergic to only one nut and none were allergic to >3 nuts.
45.8% of children with nut allergies were eating other nuts; hinting that parents are already introducing nuts into their child's diet earlier.

P.104

Palatability of Hypoallergenic Formulas for Cow's Milk Protein Allergy and Healthcare Professional Recommendation

Kate Maslin[1], Adam Fox[2], Marleen Chambault[3], Rosan Meyer[4]
[1]University of Portsmouth, Portsmouth, United Kingdom. [2]Guy's & St Thomas' Hospitals NHS Foundation Trust, London, United Kingdom. [3]Campden BRI, Chipping Campden, United Kingdom. [4]Great Ormond Street Hospital, London, United Kingdom

Objectives
Cows' milk protein allergy (CMPA) is the most common food allergy in infants in the United Kingdom. Infants with CMPA who are not exclusively breastfed require a substitute hypoallergenic formula, which are perceived as having a poor palatability. This study compares the palatability of different extensively hydrolysed formulas (EHFs) and explores healthcare professional (HCP) expectations of how palatability impacts infants and their families.

Method
HCPs with experience of CMPA were recruited to take part in a home palatability test of four EHFs [Aptamil Pepti 1,Nutricia Ltd. (EHF W1), Althera, Nestle Health Science (EHF W2), Similac Alimentum, Abbott (EHF C1), Nutramigen LGG 1, Mead Johnson (EHF C2)] using a blind taste procedure. A randomised, complete block design was used to minimise order and carry-over biases. Participants completed a questionnaire about the impact of formula palatability on infants and their families.

Results
100 HCPs took part (51 dietitians and 49 general practitioners). Overall whey-based lactose-containing EHFs were ranked the most palatable: EHF W1 by 77% of participants, EHF W2 by 20%. EHF W1 was liked significantly more ($p < 0.0001$) than the other formulas. The vast majority of participants agreed that better palatability would result in an increased chance of non-rejection (96%), more content families (92%) and decreased healthcare costs (90%).

Conclusions
Amongst HCPs who manage infants with CMPA, whey-based lactose-containing EHFs were ranked the most palatable. HCPs expected that good palatability would result in better acceptance, more content infants and families, alongside decreased wastage and health care costs.

P.105

A clinical audit assessing the competency of staff to discharge patients with adrenaline auto-injectors (AAIs) following anaphylaxis in Children's Emergency Department (CED)

Cara Morgan, Helena Painter, Deepan Vyas
Watford General Hospital, Watford, United Kingdom

Objectives

AAIs are essential in the management of early anaphylaxis in the community. Their effective use relies upon proper training for patients and their carers by health-care professionals. This audit aims to assess knowledge about AAIs among health-care professionals in the Childrens Emergency Department (CED) and therefore assess their competency to advise patients regarding safe use of AAI's according to the BSACI and Resus Council quality standards.

Method

A two-stage approach was used to assess health care professionals:

1. A questionnaire to assess knowledge of use and storage of AAIs;
2. Observation of staff demonstrating the use of AAIs assessed against a local clinical competency check-list.

Both were based on the BSACI guidelines and the children's outpatient department nursing competency checklist.

Results

Twenty-four health care professionals including doctors, nurses, and pharmacists involved in prescribing and dispensing AAIs in CED were assessed. Participants were able to identify clinical scenarios requiring the use of AAIs however many were not aware that cardiovascular compromise without signs of respiratory distress was also an indication. Notably, knowledge of correct dosing of adrenaline for children was poor and many participants were not aware that an AAI can be used again after five minutes. Only three participants were able to correctly use all three AAIs according to the competency checklist. Our results showed there was no correlation between experience and knowledge and knowledge was similar between job roles.

Conclusions

Health care professionals that work in CED are insufficiently trained in the use of AAIs and also in giving advice to patients and carers with regards to the safe and effective use of AAIs. Focused face-to-face training sessions and information leaflets were implemented in CED, which resulted in an increase in knowledge and competency in the use of AAIs among staff. Thus, improving the quality of information given to patients and carers upon discharge.

P.106

Hospital referrals for primary childhood immunisation-experience of a busy district general hospital

Samudra Mukherjee, Ananya Mohan, Kilali Ominu-Evbota, Kay Playle
Basildon & Thurrock University Hospital NHS Foundation Trust, Basildon, United Kingdom

Objectives

The green book for immunisation recommends that almost all children can be safely vaccinated with all vaccines in primary care unless a confirmed anaphylactic reaction is documented. Immune suppression due to a variety of reasons also needs specialised management beyond primary care. We assessed the children about the indications of referrals for hospital immunisation, any adverse reaction and whether this resulted in any delay in immunisation.

Method

Our advanced nurse practitioner kept a database of patients who are referred from primary care for routine childhood immunisations from 2013-2015. Electronic medical records were used to access the indications for referral and compared with national guideline. We also assessed incidence of adverse events and any delay in vaccination arising during hospital immunisation.

Results

40 vaccinations were carried out at in Basildon hospital. 21(52.5%) is MMR vaccination mainly due to Egg allergy or multiple food allergies. 4(10%) had first immunisation due to parental anxiety. A total of 11 children had either second set (7/11-17.5%) or 3rdset (4/11--10%) of immunisation in hospital. As per history of previous immunisation out of hospital, 9/11(82%) had rash and 2 had reflex anoxic seizure. None of the children had any adverse reaction during hospital immunisation. Unfortunately, due to hospital referral 24/40(62%) immunisations were delayed.

Conclusions

The study confirms the ongoing practice of un-necessary referrals for routine childhood vaccinations. In-spite of clear BSACI guideline, a substantial number is still referred for MMR vaccination in hospital. Non-specific rash and general parental and GP anxiety regarding the safety of routine vaccination is causing un-necessary delay in immunisation and wastage of important resources. We also proved that none of these children had any significant reactions while receiving immunisation in hospital reiterating the green book recommendations about safety of childhood immunisation ion primary care.

P.107

Use and misuse of amino-acid based formula—tale from a District General hospital

Samudra Mukherjee, Md Badawy, Sophia Southgate, Kathikeyini Sujay-Manoharan, Elizabeth Daniels, Alex wan
Basildon & Thurrock University Hospital NHS Foundation Trust, Basildon, United Kingdom

Objectives

Cow's milk protein allergy (CMPA) is common (prevalence 1.9% -4.9%.) In absence of adequate breast milk either an extensively hydrolysed formula (EHF) (in 90%) or amino acid formula (AAF) (in 10%) is used. To assess the clinical use of AAF in a paediatric unit (decided by consultants or registrars) and compare its appropriateness against national (BSACI/NICE) or international (EAACI, AAACI, DRACMA) guideline. Indications of AAF is highly debated. Most guidelines agree that anaphylaxis to cow's milk, significant growth faltering (especially with multisystem involvement), eosinophilic esophagitis and failure of EHF after trial of 4 weeks is appropriate.

Method

Over 6 month, local pharmacy database identified 61 children with AAF prescription. Electronic medical records were assessed for mode of delivery, initial mode of feeding, neonatal antibiotic use, clinical presentation, hypoallergenic formula introduction sequence and follow up path and compared against the available guidelines. The deviation from guidelines were identified and rectifying methods were proposed.

Results

Male :Female is 1.38:1, Rate of caesarean delivery (35% vs 25%) and neonatal antibiotic use(30% vs 10%) are significantly higher. Indications were intractable colic/reflux (56%), mono-symptomatic blood in stool (23%) faltering growth and anaphylaxis (3.5% each). Only 1/3rd followed any guideline. AAF was introduced in 48% in first contact (bloody stool, faltering growth and colic),27%, 14% and 11% in 2nd, 3rd or 4th contact with initial trial of EHF on an average of 6 days. Follow up pattern-both dietician and doctor (10%), doctor only (48%), dietician only (5%) and none (37%).

Conclusions

Significant un-uniformity in AAF prescription in senior clinicians. Lack of appropriate follow up due to lack of uniform guidelines. A major quality improvement project is underway to educate health professionals along with development of local combined acute and community pathway about diagnosis, management, follow up and milk reintroduction plan.

P.108

A retrospective review of pea allergy in a tertiary paediatric allergy department

Stuart Neill, Eleanor Minshall
Sheffield Children's Hospital, Sheffield, United Kingdom

Objectives

We sought to determine the clinical characteristics of children with a pea allergy presenting to a paediatric tertiary allergy department. We also aimed to determine if the incidence of pea allergy has increased in our department over the past 20 years.

Method

Children (0 – 16 years of age; 66 % male) with a pea allergy (n = 88) or sensitized to green peas (n = 12) were identified from the Sheffield children's hospital's allergy database. Patient demographics, the type of initial reaction, skin prick test/specific IgE testing and associated atopic diseases and other food allergies were collated.

Results

The vast majority of children with a pea allergy had one or more associated atopic disorders (eczema 80%; asthma 66%; hay fever 53%; oral allergy syndrome 9%). Most children (54%) had their initial reaction in the first 2 years of life and usually presented with mild allergic reactions (urticaria and/or angioedema), however 12 % exhibited breathing difficulties. Most children had reacted to green peas, although 13 had reacted to mushy peas, 6 of these were able to tolerate green peas. Other food allergies were common in children with a pea allergy particularly lentils (51%), chick peas (50%) and peanuts (49%). There had been a steady increase in the incidence of pea allergy over the past 2 decades with the majority of children (58%) being diagnosed in the past 5 years.

Conclusions

We have presented a large cohort of children with pea allergy with demographic features being similar to other food allergies. Most children with pea allergy are highly atopic with one or more associated atopic features especially eczema. Children with a pea allergy commonly had associated legume allergies. Pea allergy appears to be increasing in incidence whether this is due to an increased exposure or heightened recognition of the disorder remains to be determined.

P.109

Specific IgE is a better determinant of walnut allergy than skin prick test in children

Kate O'Farrell, Nicola Brathwaite, Susan Leech
Kings College Hospital, London, United Kingdom

Objectives

Walnut is a common cause of tree nut allergy. A number of children with negative walnut skin prick tests (SPT) have positive walnut challenges. We aimed to assess how many children had positive walnut challenges following negative SPT and determine the sensitivity, specificity, positive and negative predictive values of SPT and specific IgE to walnut.

Method

Electronic records of children completing walnut challenges between January 2009 and May 2018 and children completing mixed nut challenges containing walnut between May 2017 and May 2018 were accessed. A positive SPT was ≥ 3mm wheal and positive specific IgE was ≥ 0.35 kUA/L

Results

26 children (aged 2-17 years) underwent walnut challenge. 25 had walnut SPT and 7 had walnut specific IgE measured. 14 walnut challenges were positive. The sensitivity, specificity, positive predictive value and negative predictive value of a positive walnut SPT were 0.62, 0.75, 0.73 and 0.64. The sensitivity, specificity, positive predictive value and negative predictive value of a positive walnut specific IgE was 1, 1, 1 and 1. 2 children had anaphylaxis requiring adrenaline, both had positive walnut SPT, one had positive walnut IgE.

25 children (aged 3-17 years) underwent mixed nut challenges including walnut. All had walnut SPT and 7 had walnut specific IgE measured. 1 challenge was positive (in a child with positive walnut SPT and specific IgE not measured). Numbers were too small for further calculations.

Conclusions

67% of children with positive SPT reacted at challenge. 5 children (36%) with negative skin prick tests had positive walnut challenges. Walnut specific IgE ≥ 0.35 kUA/L outperformed a positive walnut SPT for predicting challenge outcome. Walnut specific IgE should be measured prior to deciding whether to perform a walnut challenge in children with a history of walnut allergy or walnut sensitisation.

P.110

A Retrospective Cohort Analysis Investigating the Effects of Salmon Consumption during Pregnancy on Signs of Allergy in Children at 30 Months of Age

A Papadopol
Southampton Hospital, Southampton, United Kingdom

Objectives

The aim of this study is to determine the effects of increased intake of salmon during pregnancy on predictors of atopic disease and the development of allergic disease in offspring at the age of 30 months.

Method

The study is a follow-up of the Salmon in Pregnancy Study (SIPS). Mothers who completed SiPS intervention were invited to bring their children (a total number of 58) at 30 months of age to be assessed for signs of atopic disease in Southampton Hospital, United Kingdom. The methods used in the study were: a follow-up questionnaire to identify presence and severity of asthma among these children, a scoring system to divide the groups depending on severity of disease, a clinical examination was performed to assess atopic dermatitis and its severity (SCORAD score). Skin prick tests and blood tests for specific IgE were used as indicators of sensitisation to a panel of inhalant and food allergens.

Results

At 30 months of age, the incidence of asthma diagnosis was lower in salmon diet group (P-value=0.03). However, there is no evidence that increased intake of salmon during pregnancy has any effect on total serum IgE, wheeze, rhinitis, itch and asthma symptoms, although the incidence of wheezing and rhinitis was lower in salmon group comparing to normal diet. Confounders may explain why results regarding wheeze does not follow the same pattern as asthma, although they are tightly connected. Children aged 30 months coming from mothers with pets at home (except cats and dogs) are ten (10.86) times more likely to suffer from wheeze. Also every additional cigarette consumed by mothers daily, increases the chance of having wheeze at 30 months by 53%.

Conclusions

Children coming from mothers who eat salmon during pregnancy are less likely to be doctor diagnosed with asthma comparing to children from mothers who did not consume.

P.111

Anaphylaxis to NAC in treatment for paracetamol overdose in children: A case report and review of the literature

Harsita Patel[1], Rosy Wells[2]
[1]West Middlesex University Hospital, London, United Kingdom. [2]St Georges' University Hospital, London, United Kingdom

Background

Acetaminophen (paracetamol) is used worldwide for its analgesic and antipyretic properties. Accidental or intentional overdose (OD) has become a common paediatric presentation. N-acetylcysteine (NAC) is treatment of choice following OD. It has been associated with adverse drug reactions (ADRs) including severe allergic reactions.

Case Presentation

A 15 year old presented to ED following an intentional OD: 93mg/kg paracetamol, 12.65mg/kg ferrous fumarate, 95.6mg/kg ibuprofen.
She was managed as per the Toxbase guidelines. Paracetamol level was 64mg/l at 9 hours. Other investigations were unremarkable (bloods, ECG).
During administration of NAC (150mg/kg/hr), she developed drowsiness, dizziness, widespread urticarial rash, wheeze, throat swelling, nausea and vomiting. She became tachycardia (130bpm) with normal BP.
Management: 2 x 0.5mg IM adrenaline, 10mg iv chlorphenamine, 200mg iv hydrocortisone, 500ml 0.9% saline bolus. Following discussion, NAC infusion recommenced after patient stable at a slower rate (5mg/kg/hr). No further adverse reactions.

Discussion

The incidence of severe anaphylactoid reactions has been reported as 0.5-29% in adults. Most of the reactions occur at the beginning of the treatment, when the concentration of NAC is at its highest. Risk factors for adverse reactions have been noted including: low serum acetaminophen, history of atopy and rate of NAC infusion.
There are case reports in adult literature of patients whom have been recommenced on NAC following anaphylaxis.
Restarting NAC therapy at a slower rate following a severe anaphylactoid reaction does not result in recurrence of symptoms due to desensitization and reduced activity of mast cells and basophils – similar to the process of rapid desensitization described in antibiotics, chemotherapy, and biological agents.

Conclusions

1. Few reports of anaphylaxis to NAC in children.
2. Case reports in adults suggest that after a severe allergic reaction to NAC, it is safe to restart treatment due to desensitiation.

P.113

Evaluating the risk of laceration when using an adrenaline auto-injector (EpiPen) to treat anaphylaxis via the two standard methods of administration

Louise Pike[1], David Tuthill[2]
[1]School of Medicine, Cardiff University, Cardiff, United Kingdom. [2]Children's Hospital for Wales, Cardiff, United Kingdom

Objectives

Anaphylaxis, a potentially fatal systemic allergic reaction, is treated with adrenaline given via adrenaline auto-injectors (AAI), e.g. EpiPen. Concerns over lacerations to children resulting from being given Epipen by the recommended 'swing and jab' (S&J) method led to this service evaluation comparing S&J and the alternative routine method, 'push and press' (P&P).

Method

We used a training EpiPen with paint in the 'needle' indentation. Children aged 5-11 had both methods 'administered' to their outer thigh on bare skin. They were asked to move their leg when the trainerpen "fired" to simulate real injections. The method used first was alternated between successive participants. Age, movement and length of paint mark (±0.1mm) measured by micrometer were recorded. The mean measurement of marks made by no movement was calculated and subtracted from all measurements leaving the distance the AAI moved. Analysis was conducted using IBM SPSS Statistics 23.

Results

135 children (mean age 8 years) were asked to take part; measurements were taken from 100 (74%). 50 children (50% of participants) moved for one or both methods; 32 children (32%) moved for both methods. 18 children (18%) moved for either S&J (12), or P&P (6); the number of children who moved for each method was significantly different (Chi-squared: p=0.033).
S&J had a mean movement of 8.3mm (95%CI: 3.4-13.3); P&P had a mean of 3.5mm (95%CI: 0.4-6.6). Mean difference between methods was 4.8mm (paired samples T-test: p=0.001).

Conclusions

The evaluation showed a statistically significant longer paintmark made by S&J compared with P&P. There is a risk of laceration when administering EpiPen to children using the recommended S&J method. Therefore it may be advisable to change to P&P when carers administer adrenaline autoinjectors to children. The thigh should be immobilised whichever method is used.

P.114

Telephone clinics in paediatric allergy: a service evaluation

Elizabeth Powell[1,2], Roisin Fitzsimons[1,2], Belinda Buckthorpe[1,2], Bethany Smith[1,2], Kate Swan[1,2]
[1]Evelina London Children's Hospital, London, United Kingdom. [2]Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom

Objectives

Telephone consultations have several potential benefits and have been incorporated into standard practice in several specialties. However, they are currently a rare occurrence in paediatric allergy. A paediatric general allergy follow-up telephone clinic has been established at St Thomas' Paediatric Allergy Department with a separate nurse-led clinic available for those requiring face-to-face procedures. We sought to evaluate this service based on a sample of 80 patients seen in the telephone clinic.

Method

Electronic healthcare records were reviewed for each patient to determine the reason for referral, Did Not Attend (DNA) rate, discharge rate and to determine how many patients needed face to face investigations. Parent feedback (n=14) was gathered after a year including a satisfaction score between 1 (very unsatisfied) to 5 (extremely satisfied).

Results

IgE-mediated food allergy (19.3%), allergic rhinitis (19.3%) and asthma (20%) were the most common atopic conditions reviewed in the telephone clinic, followed by eczema (13.5%), non-IgE allergy (11%) and chronic urticaria (8.3%). DNA rate was 15%, (average 1 patient per clinic). 45.5% were discharged, 41% were referred back to face-to-face clinic in 1 year (commonly for anticipated need to re-test IgE-mediated food allergy in another year), 9% had telephone follow-up and 4.5% were referred into the immunotherapy service. 9% needed skin prick tests and 7% blood tests. 78% of parents preferred the telephone clinic to a face-to-face appointment. 93% were happy with the telephone clinic. 21% would prefer a video call. The mean and median satisfaction score was 4 (very satisfied).

Conclusions

Telephone consultations work best for patients who do not require testing, however, with the facility to offer investigative appointments soon after the virtual clinic, a wide variety of atopy can be assessed by telephone. Telephone reviews are an acceptable method for providing paediatric allergy follow-up but a larger feedback sample is needed to confirm this.

P.115

Service evaluation of negative oral antibiotic provocation challenges in a tertiary paediatric allergy setting: negative predictive value and impact on subsequent choice of antibiotic

N. Dahanayake[1], D. Karavadara[1], E. Routledge[1], S. Begum[1], I. Rafiq[1], R. Jennings[1], K. Swan[2]
[1]King's College London, London, United Kingdom. [2]Guy's and St Thomas' NHS Hospital Foundation Trust, London, United Kingdom

Objectives

Suspected antibiotic hypersensitivity in children is common, with a reported prevalence of 1.7–5.2% for beta-lactams. Only 7–16% of children subsequently tested are found to have true hypersensitivity. At the Evelina London Children's Hospital Allergy department, between 2012–2014, approximately 250 challenges for antibiotics were performed. The initial phase of this service evaluation determined the negative predictive value of the negative antibiotic challenge to demonstrate that a challenge represents ongoing tolerance when unwell. This second phase evaluated the impact of a negative challenge on parental confidence about tolerance which can affect future antibiotic choices.

Method

Patients with negative antibiotic challenge outcomes were identified from the Challenge Database. Parents of these patients were phoned between 3 to 5 years after their challenge and completed a questionnaire to determine primarily whether their child has received the challenge antibiotic since the negative challenge, whether it was tolerated or whether they are still actively avoiding the drug.

Results

83 patients responded, covering 87 challenges. 93% of the challenges were to beta-lactams. 65% had thereafter taken either the challenge antibiotic or one of the same class. Only 2 parents reported recurrence of a mild reaction ("mild itching" and a "rash") giving a negative antibiotic challenge in children a negative predictive value of 96%. 95% of parents would be happy for their child to take an antibiotic based on the negative challenge. Of the 5% continuing active avoidance post-challenge, parental concern and ineffectively communicated results are the main reasons.

Conclusions

Negative antibiotic challenges have a good negative predictive value despite occurring when the child is well. In the vast majority, they alleviate parental and professional concern regarding antibiotic hypersensitivity, thus allowing use of that antibiotic when indicated in the future. Further evaluation could consider how to improve communication of challenge results to primary care providers.

P.116

Audit of a protocol to address the waiting list for an Oral Food Challenge

Patrick Robinson[1], James Pigott[1], James Dickson[2], Suzana Radulovic[2], Katherine Knight[2], Helen A Brough[2]
[1]King's College, London, United Kingdom. [2]Children's Allergy Service, GSTT, London, United Kingdom

Objectives

The gold standard for determining whether a child is allergic or tolerant to a food is the oral food challenge (OFC). Due to constantly increasing demand for this service the Children's Allergy Service at the Evelina Children's Hospital is regularly looking at ways to reduce waiting times for OFCs. Supervised feeds (SF: low-risk OFCs) are performed over a shorter time-period than incremental OFCs, with the child eating a standard portion size of allergen, followed by one hour's observation. Our SF service commenced in 2012.

Method

We reviewed clinical outcomes from SFs and OFCs (January-June 2018) based on previous selection criteria for SF: a skin prick test (SPT) <3mm and specific IgE <1kU/l. Following this, based on a literature review and review of our SF and OFCs outcomes, these cut-off values were increased to SPT≤4mm and sIgE <3kU/l, except walnut, pecan and sesame (tahini), where we kept to the original values. Any history of anaphylaxis remained an OFC. OFC referrals over a three-month period (July-September 2018) (n=204) were audited against this revised protocol.

Results

From January to June 2018, 15/309 (4.8%) SFs were reactive compared to 52/252 (21%) OFCs. 57 children (27.7%) allocated for an OFC met the revised criteria for a SF, and were booked into new SF clinics. This is a reduction of a median 42 days (from an original 217 days) on the waiting list based on availability of SF slots. Dieticians deviated from guidelines 38.4% of the time; consultants, 31.5%; nurses, 27.8% and registrars, 20%.

Conclusions

Based on our experience in performing SFs, and the low positive allergic reaction rate, we have increased the allergy testing cut-off rates. Increasing allergy cut-off rates for SFs might increase the likelihood of positive allergic reactions and potentially anaphylaxis. The service will be audited over the next 6 months to monitor safety.

P.117

Does the paediatric immunotherapy service for allergic rhinitis at Southampton Children's Hospital provide a safe and effective service to the right patients?

Jennifer Rowley[1,2], Judith Holloway[2], Emma Grainger-Allen[1], Graham Roberts[1,2], Mich Erlewyn-Lajeunesse[1,2]

[1]Southampton Children's Hospital, Southampton, United Kingdom. [2]University of Southampton, Southampton, United Kingdom

Objectives

Allergic rhinitis (AR) is a common allergic condition, which can impact on all aspects of a patient's life. For those who do not respond to conventional pharmaceutical treatments, allergen immunotherapy (AIT) may be beneficial. AIT for severe AR has been provided at Southampton Children's Hospital (UHS) for several years. Recently the British Society of Allergy and Clinical Immunology have published guidance on the management of AR[1], and the European Academy of Allergy and Clinical Immunology on the use of AIT for AR[2]. It therefore seemed timely to review the paediatric immunotherapy service at UHS to establish if we are providing safe, effective, patient care that is in line with latest recommendations.

Method

We performed a service evaluation of the paediatric AIT service for AR. The medical records of all patients who have received AIT since 2011 were reviewed, and data on patient demographic, treatment episodes and outcomes collected and analysed. Venom Immunotherapy was considered separately.

Results

75 patients have received AIT for AR since 2011; 25 (33.3%) seasonal subcutaneous immunotherapy (SCIT), 28 (37.3%) seasonal sublingual immunotherapy (SLIT), and 23 (30.7%) perennial SLIT. All patients fulfilled recommendations for AIT, and treatment episodes also met guidance recommendations. Patients receiving SCIT experienced more adverse reactions than those receiving SLIT, although the dropout rate for SLIT was greater than for SCIT. All seasonal treatment was effective in improving quality of life scores and decreasing medication usage for AR. Unfortunately, the number of patients who have completed more than 2 years of perennial SLIT are too small for conclusions in this cohort to be made.

Conclusions

The paediatric AIT service at UHS appears safe, well tolerated, effective and complies with international guidelines.

P.118

An audit of Oral food challenge outcomes at Oxford University Hospitals

Satish Rudrappa, Felicitas Obetoh, Justin Sims, Stepanka Bradford, Jackie Campbell, Umasunthar Thisanayagam
Oxford University Hospitals, Oxford, United Kingdom

Objectives

The main purpose of clinical oral food challenge (OFC) is to prove or disprove that a child is allergic to a certain food. The OFC is usually performed as a day case admission and requires the child to be monitored over a period of at least 4 hours, including 2 hours after the final dose has been given. In general, a positive food challenge rate of approximately 50% of challenges in patients would indicate genuine uncertainty whether someone is able to tolerate an allergen.
Our aim was to assess the outcome of paediatric oral food challenges performed at our trust.

Method

Children undergoing open OFCs to allergens, as per trust protocol, were identified from the Allergy Day Ward Challenge database from January 2017 to Dec 2017. Retrospective data, including types of allergens, Skin Prick Test values, IgE levels and OFC outcomes, were collected via case notes and discharge summaries reviews.

Results

In total, 117 OFCs were performed in children aged between 1 and 17 years (median 7.4 years). Out of which, 18 (15.4%) had positive reactions, 94 (80.3%) were negative and 5 (4.2%) were inconclusive (refusal to eat the food, non-completion of the test due to food dis-like, stopping of the challenge due to subjective symptoms, mainly in children aged more than 10 years). Children with positive reactions, including one with delayed reaction, were treated successfully with oral anti-histamine. None of them had any systemic reaction.

Conclusions

80.3% in this group had negative OFC outcome. 15.4% who had positive reactions were successfully treated with oral anti-histamines. The results suggest that careful screening of the challenges could identify children who are suitable for supervised feeds instead of oral food challenge and thus reduce the healthcare burden.

P.119

Understanding the role of Hazelnut Component Resolved Diagnostics in paediatric practice, a service evaluation

Punit Shah
University Hospital North Durham, Durham, United Kingdom. University of Southampton, Southampton, United Kingdom

Objectives

Hazelnut is a common allergy in the UK and has two distinct entities; either a primary IgE-mediated mechanism or a birch-pollen related cross-reactivity known as pollen food syndrome. Component resolved diagnostics (CRD) provide superior sensitivity and specificity to skin prick tests (SPT) and specific IgE (sIgE), potentially improving diagnostic ability and reducing reliance on oral food challenges. However, there are marked geographical and age-related variations in sensitisation to hazelnut components, therefore published data may not be applicable to the local population.
This was a service evaluation to analyse the demographics, environment, clinical symptoms, sensitisation and allergy profile to IgE-mediated hazelnut allergy of patients seen in a paediatric allergy clinic, in order to better understand the role of CRD in their investigation pathway.

Method

A retrospective electronic-case notes review of 111 hazelnut-sensitised patients seen by the Paediatric Allergy Service at County Durham and Darlington NHS Trust. Cor a 1, Cor a 8, Cor a 9 and Cor a 14 levels compared with hazelnut sIgE, SPT and clinical history.

Results

Patient demographics were comparable to published studies, however the local population had lower rates of Cor a 1 sensitisation and higher rates of Cor a 9 sensitisation. Hazelnut SPT and Cor a 14 were both shown to be strongly associated with clinical reactivity. 19% of the study group did not have a clear history of reaction and had Cor a 9 and Cor a 14 values below published cut-offs. They may therefore be unnecessarily avoiding this nut.

Conclusions

SPT remains a valuable first line tool in investigating hazelnut allergy. Cor a 14 appears to be the superior marker for predicting clinical reactivity, however UK-based, paediatric-specific research is needed to clarify the role of hazelnut CRD in clinical practice.

P.120

Mixed nut supervised feeds in Paediatrics - managing the non-index nuts

Punit Shah, Katie Dieteren, Jean Smith, Helen Smith
County Durham & Darlington NHS Trust, Durham, United Kingdom

Objectives

Recent BSACI guidelines for the diagnosis and management of nut allergies recommend that those individuals with negative skin prick tests (SPT) or specific IgE (sIgE) may start consuming the relevant nuts at home. Those with indeterminate results may require an oral food challenge (OFC) for a definite diagnosis. There is lack of consensus on OFC protocols however most research-based versions require a 4-6 hour hospital stay. Families can be apprehensive about introducing nuts at home if not tried first in the hospital environment. This project sought to evaluate the safety and efficacy of supervised feeds in patients who were felt to be at low risk of clinical allergy.

Method

Patients <18 years with either negative or low SPT and sIgE to non-index nuts were invited to a pilot "supervised feed" day at Darlington Memorial Hospital. There was provision for 14 patients with three Nurses and one Consultant supervising.

Families prepared a mixed nut biscuit at home based on an individualised recipe supplied (depending on allergy and sensitisation status). 10 grams of each nut (powdered) was added (1.5-2.6g nut protein). The patient was asked to eat one bite and 15 minutes later eat the remainder of the biscuit. Observed for one hour before discharge with safety advice.

Results

Patients ranged from 5-17 years in age with a range of nut allergies. One-third were asthmatic and half carried adrenaline autoinjectors. Maximum SPT response was 3mm and sIgE 1.25kU/L. All patients (11/11) passed the challenge. All patients continued to eat these nuts subsequently. 100% of families felt safe during the challenge and confident to start eating nuts at home.

Conclusions

Mixed-nut supervised feeds in selected patients are safe and the majority of individuals continue to consume nuts subsequently. Replacing traditional OFCs with supervised feeds where possible can significantly increase challenge capacity and reduce wait times.

P.121

Our experience with FPIES: 'A varied spectrum of syndrome'

Farrukh Sheikh, Elizabeth Hopkins, Jan Reiser, Lyn Ventilacion, Daniel Carlton-Conway, Kelly Tonge
Lister hospital, East and North Herts NHS Trust, Stevenage, United Kingdom

Background

FPIES is a non-IgE-mediated food allergy that typically presents within the first 9 months with classical symptoms of repetitive vomiting 1-4 hours after food ingestion accompanied with lethargy, pallor and diarrhea. Delayed onset of symptoms, absence of cutaneous and respiratory symptoms suggests a systemic reaction different from anaphylaxis. Eliminating culprit food classically results in symptom improvement. Our objective was to review the patient journey of children diagnosed with FPIES at Lister Hospital and to identify challenges in diagnosis and management.

Case Presentation

We gathered all cases, diagnosed with FPIES from paediatric allergy clinic and dietetic clinics and reviewed case notes and investigations.

Discussion

We identified five patients diagnosed with FPIES over one year. Two patients were diagnosed in paediatric allergy clinic and three by the Dietitian. All had allergy testing (Sp-IgE/SPT). Three children had co-morbid eczema; two had co-existing IgE-mediated CMA; one had IgE-mediated CMA & egg allergy and one had Non-IgE mediated milk & soya allergy.

The severity of FPIES symptoms vary, depending on frequency and exposure to culprit foods. Although OFC is gold standard to diagnose FPIES, none of our patients required any challenges as the 'allergy focused history' was enough to make diagnosis.

90% of patients with FPIES have negative SPT/Sp-IgE at initial diagnosis. However, IgE testing at follow-up visits eventually test positive in 4-20% to trigger foods, and 20-40% may also test positive to other common food allergens. Children with specific IgE positive to trigger foods have slower resolution of FPIES.

Conclusions

- Rice, wheat and cow's milk were the most common trigger foods.
- Dietitians play a pivotal role by providing appropriate advice to breast-feeding mothers, offering choice of formula feeds and weaning guidance.
- Regularly consider resolution of FPIES in order to reintroduce safe foods into the diet. We noted tolerance developing at different ages depending on the culprit foods.

P.122

The chicken or egg! Case report of two paediatric cases of 'anaphylaxis to chicken meat'

Farrukh Sheikh[1], Rachel Kirk[2], Jan Reiser[2], Lyn Ventilacion[2], Daniel Carlton-Conway[2], Kelly Tonge[2], Elizebeth Hopkins[2]

[1]Lister hospital, East & North Herts NHS Trust, Stevenage, United Kingdom. [2]Lister Hospital, East & North Herts NHS Trust, Stevenage, United Kingdom

Background

Chicken is a popular food choice in today's modern diet. While allergic reactions to poultry products (eggs) are common, severe reactions to chicken meat are rarely reported – especially within the paediatric population. We report two new paediatrics cases of anaphylaxis secondary to ingestion of chicken meat.

Case presentation

Case One:

A 2½-year-old boy had his first allergic reaction consisting of urticarial rash after his first birthday following ingestion of egg meringue. He developed lip swelling and wheeze after ingestion of chicken meat for the first time. He received intramuscular adrenaline and his symptoms resolved within six hours.

Case Two:

A 2-year-old boy with history of sensitisation to peanut, wheat and egg developed breathing difficulty and wheeze after eating chicken. He required IM Adrenaline and nebulised adrenaline before his work of breathing improved. A week later, while his Dad was eating chicken and cuddled him, the patient developed an urticarial rash, which resolved with antihistamines.

Discussion

Specific IgE antibody to egg and chicken were raised in both cases with strong family history of atopy. They developed severe eczema and were found to have concomitant food allergies. There were no known drug allergies including antibiotics or vaccines. Both were advised to avoid chicken and other avian meat and were prescribed AAI. Diagnosis was clinical, based on allergy-focused history and confirmed on Specific IgE testing. Oral challenges were not performed due to risk of precipitating severe reactions.

Conclusions

The prevalence of chicken allergy in food-allergic children is 0.6%–5%. The causative antigen is not known for certain. It can occur as primary food allergy, but is more common as part of 'bird–egg syndrome' with associated allergies to egg (yolk & white) and feathers. Clinicians should be aware of potential for avian food products to cause anaphylactic reactions in paediatric population.

P.123

Inappropriate patient selection for open food challenges may lead to re-sensitisation

Nafsika Sismanoglou, Dinkar Bakshi
Queen's Medical Centre, Nottingham University Hospitals, Nottingham, United Kingdom

Background

Cows' milk allergy (CMA) is the most common food allergy in childhood.[1] Specific IgE antibody (sIgE) results and skin prick tests (SPT) are semi-quantitative, with falling levels indicating resolution of allergy. Open food challenge (OFC) remains the gold standard for demonstrating tolerance and resolution of allergy, but carries a risk of anaphylaxis.[2]

Case presentation

A 4 month girl with atopic dermatitis presented with an episode of anaphylaxis after ingestion of 100 ml of regular formula milk. Initial SPT to cows' milk was positive (wheal 4mm) and sIgE 4.1 ku/L . She remained breastfed with dairy exclusion in the maternal diet. sIgE titres gradually declined to 2.5 ku/l. At 26 months age, she had negative SPT and tolerated baked milk on OFC. Following a negative SPT to cows' milk (wheal 0mm), she underwent an OFC to whole cows' milk in hospital. After ingestion of 10 ml milk, she had a significant reaction with vomiting, facial flushing, anxiety and food refusal. Subsequent sIgE was 9.9 kU/l with cows' milk positive (wheal 4mm) on SPT. The girl currently avoids fresh milk but is tolerant of baked milk containing foods in her diet.

Discussion

The increase in sIgE levels most likely represents re-sensitisation to cows' milk protein, subsequent to a failed OFC. Known causes of false negative SPT results are oral antihistamines, high doses systemic steroids, out of date testing reagents or an incorrectly performed procedure[3]. A training issue in performing SPTs was subsequently identified amongst some nursing staff.

Conclusions

Unreliable results due to inadequate training of nursing staff performing SPTs may impact negatively on the results of open food challenges. Apart from the risk of anaphylaxis, even less serious reactions can lead to significant anxiety for the families and may culminate in food aversions.[4]

P.125

The impact of Sublingual Immunotherapy (SLIT) on quality of life in severe house dust mite (HDM) allergy at the end of 3 years of treatment

Kate Swan[1], Gen Ho[1], Aun Kazmi[2], Stefani Widya[2], Suzana Radulovic[1,2], Sian Ludman[1], Victoria Timms[1], Alia Boardman[1], Katherine Knight[1], Gemma Schnitzer[1], Susan Chan[1,2]
[1]Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom. [2]King's College London, London, United Kingdom

Objectives

The Cochrane Review for Sublingual Immunotherapy (SLIT) for allergic rhinitis (AR) 2011 demonstrated efficacy of house dust mite (HDM) SLIT in reducing AR symptoms, but paediatric studies looking at the impact of treatment on health-related quality of life (HRQOL) scores were not included. We present the final results of a 4 year study to determine the impact of 3 years of HDM SLIT on HRQOL in paediatric patients from our tertiary allergy centre at St Thomas' Hospital, London.

Method

Twenty children aged 6 to 16 years with moderate-severe HDM allergy (ARIA classification), initiated the HDM SLIT treatment (Staloral, Stallergenes,). The treatment was changed to Oralvac (Allergy Therapeutics) during their first or second year. We used Paediatric Allergic Disease Quality of Life Questionnaires (PADQLQ) to measure participants' quality of life score after each year of treatment. Statistical analysis was performed by two-tailed Wilcoxon signed-rank comparing the overall PADQLQ score and individual symptom scores collected after each year of treatment.

Results

Twenty patients completed PADQLQ at the end of year 1. Four participants were lost to follow up by the end of year 3. There was a significant improvement in total PADQLQ compared to baseline after 2 years of SLIT (n=18) (p=0.026) which was maintained after 3 years (n=16) (p=0.03). When analyzing individual domains, those with significant improvement varied each year but "feeling out of breath and tightness in the chest", "coughing or wheezing" and "being troubled during day to day activities" showed consistent and significant improvement. ($p \leq 0.05$)

Conclusions

This 4 year study showed improvement of PADQLQ score after 2 years of HDM SLIT which was maintained after 3 years. This is a small study and we encountered difficulties in contacting patients and encouraging questionnaire returns. Further, larger studies using a more robust method for the data return are recommended.

P.126

Audit of in-hospital baked milk challenges in a secondary care setting

Rebecca Tibbott, Alexandra Brightwell
Norfolk and Norwich University Hospital, Norwich, United Kingdom

Objectives

In response to anecdotal evidence that unnecessary in-hospital baked milk challenges were being performed, we audited in hospital baked milk challenges against local and national guidance, with particular emphasis on appropriate patient selection.

Method

Retrospective audit of in hospital baked milk challenges. Patients were randomly selected from the oral food challenge register from the period 2013-2017. The following patient details were recorded: age, reaction type (IgE/non IgE), symptoms of reaction, anaphylaxis, reaction to trace and relevant co-morbities. The challenge outcome and reasons for stopping the challenge were documented.

Results

35 baked milk challenges were reviewed. 23 had a history of IgE mediated symptoms, 10 had a history of non IgE mediated symptoms and 2 had a mixed picture. 16 patients were under 2ys, 11 were age 2-5y, 6 6-10y, and 2 >10 years.

In the IgE mediated subgroup, 3 patients had documentary evidence of anaphylaxis and 4 had reactions to trace amounts. 8 patients had asthma, and 18 patients eczema. 16 patients passed the challenge, 4 failed the challenge and 3 were either equivocal or unknown. All patients who failed had evidence of sensitisation, 2 having SPT above the 95% PPV for allergy.

In the non IgE mediated subgroup, 9 out of 10 patients passed the challenge. The patient that was reported to have failed the challenge had vomiting at 24h. Both patients with mixed reactions passed the baked milk challenge.

Conclusions

This audit has demonstrated inappropriate challenge requesting both for patients with non IgE mediated allergy and with evidence of sensitisation above the 95% PPV. Additionally, reason for discontinuation of challenge are not always clearly documented. All challenge requests are now discussed by the allergy MDT and forms signed by the consultant. A ‘traffic light’ system based on PRACTALL guidelines for stopping food challenges has been implemented.

P.128

False tolerant food challenges in children with Food Protein-Induced Enterocolitis Syndrome

Gabriella Weisz[1], Stephanie Cross[2], Kate Grimshaw[1,2], Michel Erlewyn-Lajeunesse[1,2]
[1]Faculty of Medicine, University of Southampton, Southampton, United Kingdom. [2]Children's Allergy Clinic, Southampton Children's Hospital, Southampton General Hospital, Southampton, United Kingdom

Objectives

Food protein-induced enterocolitis syndrome (FPIES) is an uncommon food allergy which presents in infancy. Children become acutely unwell 4-6 hours after food ingestion; vomiting until floppy and hypotensive. A hospital oral food challenge (OFC) establishes tolerance, with a minimum of 0.3g/kg of trigger food protein consumed. Most centres undertake one OFC; we perform two, 2-6 weeks apart, because of the risk of an incorrect tolerant initial challenge. We undertook a service evaluation of FPIES challenges conducted in the last ten years by our department to assess the prevalence of these incorrect first challenges

Method

We identified cases from departmental databases, collecting demographic and food challenge data to enter into a separate anonymised database. The data was then anonymised using SPSS version XX.

Results

We identified 24 patients undergoing FPIES resolution challenges. 11/24 (46%) patients were male, average age at challenge was 46 months. 19/24 (78%) challenges were to non-milk proteins. In total 30 first and 20 second challenges were performed.
25/30 (83%) first challenges showed true tolerance. Five patients had a positive challenge, three reacted at the first challenge. The other two (40%) had incorrect tolerant initial OFCs and reacted on subsequent exposure.

Conclusions

Incorrect tolerant challenges do occur infrequently, and dual challenges may be advantageous in preventing them. Although uncommon, Finland and the USA have also reported incorrect tolerant FPIES resolution challenges. As incorrect tolerant challenges are uncommon, dual challenges should only be applied in specific cases such as: seeking to confirm active FPIES by diagnostic challenge, seeking signs of resolution in those who are at higher risk of severe reactions (due to previous severe reactions), an isolated home environment, or when subsequent home introduction is not acceptable to the family. Otherwise a single FPIES challenge should suffice.

P.129

'Infant Early Peanut Introduction Clinic' as an active management strategy to introduce peanut protein early in high-risk infants – Is it safe and practical?

Yi Yian Yang, Laura Phillips, Bhupinder Sihra
Colchester Hospital University NHS Foundation Trust, Colchester, United Kingdom

Objectives

Based on the encouraging results of LEAP study, we assessed the feasibility of either home introduction or supervised peanut introduction in hospital, in suitable infants who attended Allergy Clinics in our 2015-2016 study. There were significant delays introducing peanut protein due to difficulties with organising supervised oral challenges, resulting in a higher median age at first consumption of peanut. In response to these findings, a one-stop 'Infant Early Peanut Introduction Clinic' (IEPIC) with a fast track referral pathway was started.

This study evaluated whether IEPIC reduced delays in first introduction of peanut in infants, and whether a modified three-step peanut challenge protocol suitable for clinic setting is safe.

Method

Retrospective data analysis from medical records of 47 infants who attended IEPIC between July 2017 – April 2018.

Results

74.4% of patients had their first clinic appointment within the target 2-6 weeks, with median age at first clinic attendance of 9 months. 28 out of 33 patients who met criteria (peanut skin prick test: 0-4mm) underwent peanut challenge in clinic. 82.1% out of the 28 patients successfully tolerated peanut. Median age at first introduction of peanut was 8 months, which is younger compared to 11.5 months from previous study. 4 of the 5 who failed the challenge had mild cutaneous reaction and 1 vomited after the final dose of the challenge. No patient had severe systemic reactions using this modified protocol.

Conclusions

The introduction of IEPIC lowers the median age at first introduction of peanut in infants. The rate of successfully tolerating peanut however is similar to previous study. This clinic appears to be an effective and safe approach to achieving early peanut introduction in such infants in a clinic setting, and allows us to manage the anticipated level of demand more efficiently.

P.130

APPEAL (*A*llergy to *P*eanuts Im*P*acting *E*motions *A*nd *L*ife): the first pan-European study to evaluate the psychosocial burden of living with peanut allergy

Audrey DunnGalvin[1], Montserrat Fernández-Rivas[2], Katharina Blümchen[3], Helen Fisher[4], Mary Feeney[5], Frans Timmermans[6], Lynne Regent[7], Sabine Schnadt[8], Marcia Podestà[9], Ángel Sánchez[10], Pascale Couratier[11], Betina Hjorth[12], Fiona Kenna[13], Ram Patel[14], Andrea Vereda[15], Tessa Lush[15]
[1]University College Cork, Cork, Ireland. [2]Hospital Clínico San Carlos, idISSC, Madrid, Spain. [3]University Hospital Frankfurt, Frankfurt, Germany. [4]King's College London, London, United Kingdom. [5]St. Thomas' Hospital, London, United Kingdom. [6]Nederlands Anafylaxis Netwerk, Dordrecht, Netherlands. [7]Anaphylaxis Campaign, Surrey, United Kingdom. [8]Deutscher Allergie- und Asthmabund, Mönchengladbach, Germany. [9]Food Allergy Italia, Padua, Italy. [10]AEPNAA, Madrid, Spain. [11]AFPRAL, Paris, France. [12]Asthma-Allergy Denmark, Roskilde, Denmark. [13]formerly of Anaphylaxis Campaign Ireland, Cork, Ireland. [14]Brainsell Ltd, London, United Kingdom. [15]Aimmune Therapeutics, London, United Kingdom

Objectives

Peanut allergy (PA) can affect quality of life (QoL) of individuals, parents/caregivers, and family members. APPEAL was designed to assess the impact of PA on QoL in peanut-allergic individuals and family members.

Method

A 30-minute, cross-sectional online survey was completed by respondents from UK, Ireland, France, Spain, Germany, Italy, Netherlands, and Denmark. Participants were recruited via patient advocacy groups (63.8%) or a specialist recruitment panel (36.2%). Ethics committee approval was obtained; all participants provided informed consent. Eligible participants were: (Group 1) adults ≥18 years with PA (self-report); (Group 2) parents/caregivers acting as a proxy for a child with PA; (Group 3) parents/caregivers of a person with PA (self-report). Percentages of participants with high scores (4/5 on 5-point scale) on psychosocial measures of impact are presented.

Results

Among 1846 participants (Group 1=419; Group 2= 546; Group 3=881), >80% (Group 1=78%, Group 2=88%, Group 3=89%) reported that PA impacts daily living; 40% (Group 1=34%, Group 2=35%, Group 3=46%) reported a high level of uncertainty due to PA; 77% (Group 1=69%, Group 2=81%) reported being made to feel different in a negative way; 43% (Group 1=39%, Group 2=45%) reported having experienced bullying. In contrast, almost 18% of all participants were “not at all reassured” by the advice given at first diagnosis.

All groups reported high levels of frustration (38%), stress (40%), and anxiety (64% when food was involved; 13% with non-food social occasions). The greatest frustration (43%), stress (48%), and non-food-related anxiety (14%) were reported in 4-6-year-olds, and greatest food-related anxiety (73%) in 7-12-year-olds, with 4-6-year-olds most worried about exposure to peanut on occasions with food (73%).

Conclusions

This specifically designed, multi-dimensional, novel online survey has uncovered a significant psychosocial burden and reduced QoL due to PA in patients’ lives and those of their families.

POSTER PRESENTATIONS: PRIMARY CARE

P.131

Exploring the transfer of responsibility between children and young people with food allergy and their parents

Samantha Brown[1], Catherine Will[2], Christina Jones[1]
[1]Brighton and Sussex Medical School, Brighton, United Kingdom. [2]University of Sussex, Brighton, United Kingdom

Objectives
Objectives: Children and young people (CYP) with food allergies (FA) are at risk of severe and fatal anaphylactic reactions. The transfer of responsibility from parents to CYP coincides with an increased risk of serious allergic reactions. The aim of this research was to explore how CYP manage this transition in relation to perceptions of anaphylaxis, AAI carriage and use, and awareness of allergy research.

Method
Methods: CYP aged 12-18 with FA and AAIs and their parents/caregivers were invited to participate from community settings and social media adverts. A semi-structured topic guide facilitated coverage of the aims whilst allowing participants to discuss issues important to them. Interviews were conducted face-to-face or telephone and transcribed verbatim. Data were analysed using thematic analysis.

Results
Results: 7 young people and 5 parents were interviewed. Participants described anaphylaxis in terms of severity and how this impacted on behaviours. CYP and parents expressed uncertainties on how and when to use an AAI. Fear of harming CYP was an emotional barrier that led to reluctance to use an AAI. CYP reported involving friends in the management of their FA in order to ease the transition of responsibility that occurs as dependency on parents lessens. Many participants were unfamiliar with ongoing research and CYP often reported this to be of more interest to parents. Some CYP reported being keen to participate in research in order to be a 'positive role model'.

Conclusions
Conclusions: This study highlights how good support networks and friendships appeared to ease the transition of responsibility in FA management from parent to CYP. Clinicians and researchers need to ensure they are communicating FA research opportunities and results to their patients and parents who appear motivated to participate. Education and reassurance about when and how to use AAIs would be beneficial in reducing the barriers to use in anaphylaxis.

P.133

'But I did everything right, why has my child got an allergy...?' Can current research answer this parents' question?

Victoria Holdstock[1], Michael McCormick[1], George Raptis[2,1]
[1]University of Glasgow, Glasgow, United Kingdom. [2]NHS Greater Glasgow and Clyde, Glasgow, United Kingdom

Objectives
Parents' question of why allergy has happened to their child when they feel they have "done everything right" prompted this study. It aimed to create the profile of children attending the allergy clinic by identifying the presence of 'protective factors' for allergic disease as current research suggests.

Method
In this observational study, patients aged 6 months to 16 years attending the allergy clinic (June 2016-August 2017) were included. Data was collected from clinic notes and it included the perinatal history, type of feeding and duration, weaning to solids age and family history of allergy. Descriptive statistics were used to analyse the data.

Results
200 patients were included and 68% of them were aged 0-3 years old. 68% of the patients were born normally, and full-term with no perinatal complications accounted for 88% of patients. Exclusively breastfed was 40.5% of the sample, of whom 46.5% were breastfed for >6 months, while mixed fed accounted for a further 27%. 95% were weaned to solids at 4-6 months of age. Only 22.5% of the patients had a family history of atopy. 87.5% of patients suffered from food allergy and 56.5% had a single food allergy.

Conclusions
Current evidence suggests that babies born at term by normal birth, breastfed for at least 6 months and weaned to solids early should be protected from developing allergies. However, this does not explain why the prevalence of allergy is increasing even in the population with the above protective factors and no family history of atopy. Available research data on environmental factors such as exposure to animals and diet have also been proposed as protective factors, however, they are more challenging to manipulate since the majority of the allergic population live in an urban environment. Further research is required to answer parents' question on allergy aetiology.

P.134

Prevalence and management of tree nut allergy in the Bangladeshi population

Hiral Rana, Gary Foley, Luul Ali, Frances Ling, Lee Noimark
Royal London Hospital, London, United Kingdom

Objectives

Tree nut allergy accounts for a significant proportion of food allergy in the UK. The aim of this study was to investigate the prevalence of tree nut allergy and its management in an East London population, particularly the Bangladeshi community.

Method

Data was collected using a questionnaire, completed by carers and/or health care professionals. Skin prick testing was performed for individual tree nuts including almond, Brazil, cashew, hazelnut, pecan, pistachio and walnut.

Results

49 patients were recruited aged from 8 months to 16 years, median age of 5 years. 28 were male, 18 were female and 3 did not report gender. 17 were of Bangladeshi origin and the remaining of other ethnicities. 92% of patients reported having a food allergy, 76% had eczema, 37% had allergic rhinitis and 31% had asthma.

46 respondents reported allergic reactions to a tree nut which required medical intervention. 14 of the 17 Bangladeshi patients reported a reaction, 4 reactions were to hazelnut and 3 to cashew. 15 of the Bangladeshi patients had skin prick tests (SPT). 10 had SPT to cashew 0-3mm and 5 had tests greater than 3mm. For hazelnut, 7 had tests 0-3mm and 8 had tests greater than 3mm.

39 of the 49 patients were prescribed at least one adrenaline auto-injector device, which included 14 of Bangladeshi origin. 12 of these patients had been prescribed more than one device and 1 patient had been prescribed over 4 during the course of the illness. In total, 37 of the 39 carers reported they knew how to use the device and 2 reported they did not.

Conclusions

Our data showed that tree nut is a common allergen in the East London Bangladeshi population. In this community allergic reactions to hazelnut were most commonly reported. Adrenaline devices were prescribed for 82% of these Bangladeshi patients.