



Annual Conference

3 – 5 October 2019

Harrogate Convention Centre UK

**Abstracts Presented at the
BSACI 2019 Annual Conference**

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ORAL PRESENTATIONS

CATEGORY ADULT CLINICAL

O01

Dupilumab reduces need for systemic corticosteroids, sinonasal surgery in patients with severe chronic rhinosinusitis with nasal polyps: Pooled results from SINUS-24, SINUS-52 phase 3 studies

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Objectives

Current treatment paradigm for chronic rhinosinusitis with nasal polyps (CRSwNP) is characterized by recurrent surgeries and/or frequent systemic corticosteroid (SCS) use. Dupilumab, a fully human mAb, blocks the shared receptor component for IL-4 and IL-13, key drivers of type 2 inflammation. Dupilumab efficacy and safety were evaluated in patients with severe CRSwNP in two phase 3 studies, SINUS-24 (NCT02912468) and SINUS-52 (NCT02898454). This prespecified analysis evaluates the effect of dupilumab on SCS use and NP surgery in patients with CRSwNP previously treated with SCS and/or surgery receiving mometasone furoate in a pooled SINUS-24/52 population.

Method

SINUS-24 patients were randomized 1:1 to subcutaneous (SC) dupilumab 300 mg or placebo every 2 weeks (q2w) for 24 weeks. SINUS-52 patients were randomized 1:1:1 to 52 weeks of SC dupilumab 300 mg q2w, 24 weeks q2w followed by 28 weeks of dupilumab 300 mg every 4 weeks, or 52 weeks of placebo q2w. This pooled analysis included all patients randomized to dupilumab 300 mg q2w (n=438) and placebo (n=286) over the 24- and 52-week treatment periods. Kaplan-Meier method was used to estimate probabilities of events up to Week 52.

Results

Baseline disease characteristics were comparable between groups. 74.3% of patients used SCS in the past 2 years; 63.4% had prior NP surgery. Dupilumab vs placebo significantly reduced proportion of patients requiring SCS rescue by 73.9% (HR 0.261, 95% CI 0.18-0.38; $P<0.0001$), number of SCS courses by 75.3% (HR 0.247, 95% CI 0.17-0.37; $P<0.0001$), and need for NP surgery by 82.6% (HR 0.174, 95% CI 0.07-0.46, $P=0.0005$). Common adverse events ($\geq 5\%$) were nasopharyngitis, nasal polyps, headache, asthma, epistaxis, and injection-site erythema, all occurring with higher frequency in placebo-treated patients.

Conclusions

Dupilumab significantly reduced SCS use and NP surgery in patients with severe CRSwNP in the pooled SINUS-24/SINUS-52 population and was well tolerated.

002

Can Birch pollen specific immunotherapy (BP-SIT) ameliorate the symptoms associated with pollen food syndrome?

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Objectives

To determine the effects of two years treatment with pre-seasonal BP-SIT on oral allergy symptoms with fresh apple.

Method

We recruited patients with typical oral allergy symptoms on eating fresh apple, spring rhinitis and positive skin tests (SPT) to birch pollen extract. Patients were randomised to receive either BP-SIT or placebo in a pre-seasonal regime and followed for two years. Apple tolerance thresholds were tested by double-blind placebo controlled food challenge (DBPCFC) and open challenge (OFC) with visual analogue scale (VAS) scoring of symptoms. The primary outcome measure was a change in apple threshold tolerated by the patients after one year and two years.

Results

32 patients were recruited to the study. There were no significant differences in apple tolerance between baseline and outcome years 1 or 2 by DBPCFC ($p=0.276$ and $p=0.151$ respectively). Similarly OFC results showed no significant difference between VAS at baseline and years 1 or 2 (0.651 and 0.151 respectively).

There was a significant difference in wheal size on SPT with mid-seasonal tree pollen at both year one ($p=0.0052$) and year two ($p=0.0024$) but no significant change was seen with apple sap.

Conclusions

A pre-seasonal BP-SIT regime for 2 years did not improve apple allergy. The lack of any discernable trend to significance suggests that small numbers are not responsible for the lack of effectiveness. BP-SIT used pre-seasonally cannot be recommended for treatment of pollen-food syndrome.

003

Correlation of Ara h 2 immunoglobulin E level with reactivity threshold in peanut allergic adults

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Objectives

Component-resolved diagnostics have improved the diagnosis of peanut allergy with Ara h 2 immunoglobulin E (IgE) remaining the best predictor of patients at risk of severe systemic reactions. However, studies correlating Ara h 2 IgE levels with reactivity thresholds in allergic individuals are lacking, particularly in adults.

Method

A review of patients participating in The Grown Up Peanut Immunotherapy Study (GUPI) was undertaken. All underwent double blind placebo control food challenges (DBPCFC) to establish baseline reactivity prior to initiating peanut oral immunotherapy. Active peanut protein doses were 0.3mg, 1mg, 3mg, 10mg, 30mg, 100mg and 300mg. Challenges were scored using PRACTALL guidelines and doses could be repeated according to clinical judgement.

Results

Eighteen adult patients (11 male; mean age 24) underwent DBPCFC. The median Ara h 2 level was 13.46 kUA/L. Two patients reacted at a cumulative dose of 14.3mg peanut protein (Ara h 2 27.40 - 100.00 kUA/L), four at 44.3mg (18.50 - 63.50 kUA/L), one at 74.3mg (8.42 kUA/L), four at 144.3mg (0.61 – 48.20 kUA/L), five at 444.3mg (1.04 - 32.50 kUA/L) and two at 1444.3mg (0.82 – 1.90 kUA/L). The latter two had recurrent subjective symptoms up to cumulative dose of 444.3g (negative challenge). Since further doses were not administered according to the trial protocol, an arbitrary top dose of 1000mg (1444.3mg cumulative) was assigned for analysis. Ara h 2 was found to be significantly correlated with cumulative reacting dose (Spearman's correlation; $r = -0.6647$; 95% CI: -0.8673 to -0.2731 ; $p = 0.0026$).

Conclusions

Ara h 2 IgE levels correlated inversely to the cumulative reactive dose of peanut protein, suggesting biomarker potential for predicting reactivity threshold in peanut allergic adults. More data from further DBPCFCs are required to confirm this finding.

O04

The reliability of skin testing in suspected perioperative Ondansetron allergy.

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Objectives

Ondansetron is a selective 5HT₃ receptor antagonist. It was introduced in 1990, initially to prevent and treat chemotherapy associated nausea and vomiting. By the early 1990s, it became apparent that ondansetron very effectively decreased postoperative nausea and vomiting (PONV). Since then, due to its favourable safety profile, it has become preferred antiemetic for PONV and is now used in around 78% of General Anaesthetic (GA) in the UK.

The incidence of ondansetron induced anaphylaxis is rare, only one definitive case was identified by NAP 6. However, severe and even fatal reactions have been reported. A reliable ondansetron test would help in the diagnostic conundrum of anaphylaxis under GA. Fernando et al suggested that ondansetron 0.02 mg/ml is the optimal concentration for skin testing. Here we look at the validity of this recommendation.

Method

14 patients fulfilling the criteria of: anaphylaxis and ondansetron use during GA, attended our day unit. Skin testing was performed with ondansetron as follows: Skin Prick Test (SPT - 2mg/mL), Intradermal test (ID - 0.02mg/mL). Oral challenge was considered negative if patient tolerated 4mg of Ondansetron

Results

All 14 patients tested negative on SPT. 10/14 tested positive on ID testing. 11/14 patients (1 negative and 10 positive ID test result) were challenged with ondansetron. 10/11 challenged patients tolerated the challenge. Only one patient (negative SPT, positive ID test) developed anaphylaxis during the challenge. 3 patients declined oral challenge.

Conclusions

Ondansetron is a well performing perioperative antiemetic with excellent safety profile. However, SPT may not be sensitive enough and ID testing with ondansetron often produces unreliable, likely irritant results. These apparently positive results should not deter clinicians from carrying out oral challenge with Ondansetron. In particular, as labelling patients with Ondansetron allergy will deprive them of very effective antiemetic and likely result in avoidance of other 5HT₃ inhibitors such as Granisetron and Palonosetron.

O05

Safety of Yellow Fever vaccination in egg allergic patients. Is skin testing helpful? Is desensitisation necessary?

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Objectives

Globally the rates of Yellow Fever infections have reduced since the introduction of vaccination programs and compulsory certification. However, prevention through vaccination is still essential for civilian travellers and military personnel in endemic areas.

In spite of concerns regarding severe viceotropic and neurotropic reactions, Yellow Fever Vaccine (YFV) is considered to be safe.

The rate of anaphylaxis for YFV ranges from 0.42 to 1.8/100,000 doses, with most cases considered to be due to egg allergy (EA). However, irrespective of their egg allergic status, potential fatal sequelae of YF, necessitate YFV for those at risk of infection.

YFV skin testing followed by desensitisation (when skin testing is positive) has been recommended. Here, we look at the safety of YFV administration through 2 step challenge in egg allergic patients who skin test positive to YFV.

Method

Six patients with confirmed EA who required YFV, attended our day unit. Skin testing with YFV was performed (SPT – neat, ID 1:100, ID 1:10). All patients, regardless of their skin test results, underwent vaccination with a two-step protocol (10% followed by 90% dose) with YFV.

Results

One patient tested negative to YFV on SPT and ID testing. Two patients demonstrated equivocal result on SPT (3mm – wheal size). 5 patients tested positive (wheal diameter >5mm) on ID testing (2 tested positive ID 1:100 and 3 tested positive ID at 1:10). YFV was administered to all 6 patients via two step protocol. All patients tolerated YFV with no early or delayed allergic reactions.

Conclusions

Our work suggests that there is poor correlation between skin test results and YFV tolerance. Most of the patients with EA, who skin test positive to YFV, don't require desensitisation, as previously suggested, and can receive YFV through two step graded challenge. YFV (Stamaril) contains histidine (precursor to histamine), which may contribute to the positive skin test results.

CATEGORY ALLIED HEALTH

O06

The NHS Grampian Active Allergy Programme: A Digitally-Enabled Paediatric Dietetic Service for Cow's Milk Protein Allergy

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Objectives

To assess the efficacy and safety of a new technology-enabled 100% remote specialist allergy dietitian service across NHS Grampian for the management of non-IgE mediated CMPA as well as drive >£100k savings in CMPA-related prescribing costs.

Method

We undertook a 12-month pilot in NHS Grampian from 1/4/18 - 31/3/19 which included a rapid access clinic that GP's and Health Visitor's (HV's) could refer infants with suspected/diagnosed non IgE mediated CMPA. Patients were also identified via GP practice audits and invited to the programme. Digital and face to face training was provided to GP's and HV's. All patient care was provided remotely via video/telephone calls and through the NHS digital approved smartphone Oviva app.

Results

A total of 31 practices were involved (17 audited) with 222 patients referred in to the rapid access clinic. Key findings showed 98% of infants did not have the milk challenge or milk ladder as per iMAP guidelines, as well as 32% (N=39) of audit patients being switched from an EHF to AAF too early driving increased prescribing costs. Formula was stopped in 79% (n=94) of audit patients and prescription reductions in 7% (n=8). We achieved £175,000 of annualised prescribing savings, an average 2% quarterly decline in infant formula prescribing since service commencement compared to a historical trend of 10% quarterly growth. Total of 100% (N=52) of parent/carers strongly agreed/agreed that they would recommend the service to friends and family and 100% of GP's and HV's (N=40) strongly agreed/agreed that training from the dietitian has improved their knowledge of CMPA.

Conclusions

Providing a 100% remote, technology-enabled specialist paediatric allergy dietitian service has demonstrated clear efficacy and safety, with strong parent and GP satisfaction levels with an average 2% quarterly decline in formula prescribing.

O07

Reliability and validity of the Anaphylaxis Quality of Life Scale for Adults (A-QoL-Adults)

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Objectives

Objective. Anaphylaxis is a severe and potentially life threatening allergic reaction to allergens such as drugs, venom and food and can also be idiopathic (spontaneous). It has a detrimental impact on quality of life (QoL) however there are no validated scales to measure the impact of anaphylaxis on QoL of adults. The aim of this study was to develop and assess the reliability and validity of a QoL scale for adults with anaphylaxis from any cause (the A-QoL-Adults).

Method

Methods. Interviews were conducted with 13 adult participants with anaphylaxis; data was transcribed verbatim and analysed using thematic analysis to extract items for a QoL scale. A 28-item prototype QoL scale was then completed by 115 participants alongside validated scales to measure generic QoL (WHOQoL BREF), anxiety and depression (HADS) and stress (PSS). All participants were recruited from the allergy clinic in Birmingham, U.K. with ethical approval from the SouthCentral-BerkshireB NRES Committee.

Results

Results. After factor analysis the A-QoL-Adults scale was reduced to 21 items which had excellent internal reliability (Cronbach's alpha=0.96). Factor analysis produced 3 sub-scales which were called: Emotional Impact; Social Impact; Limitations on Life. Each had excellent internal reliability (0.92; 0.92; 0.91 respectively). Poorer anaphylaxis related QoL (total A-QoL-Adults score and sub-scale scores) correlated significantly with poorer general QoL and greater anxiety, depression and stress (all $p < 0.01$ with medium to large effect sizes).

Conclusions

Conclusions. The A-QoL-Adults is a reliable and valid measure of QoL in adults with anaphylaxis, although further work is needed to confirm the factor structure, test validity across different settings and assess sensitivity to change during interventions. It will offer healthcare professionals a means to further understand the impact anaphylaxis has on their patients and could help direct and monitor suitable interventions.

CATEGORY BASIC SCIENCE

O08

Household exposure to food allergens: a risk for sensitization?

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Objectives

Exposure to food allergens is a pre-requisite to the development of food allergy. It is not fully understood what levels of exposure to allergens or what route of exposure are most important for allergic sensitization. Food allergens present within household dust and in the air may contribute to allergic sensitization of individuals at risk of developing food allergies. We sought to determine the precise levels of specific food allergens within household dust and establish their stability, and measure levels of inhalable food allergens.

Method

To determine which allergens were present in dust, settled dust samples were collected from >60 households. To assess stability[\[SF1\]](#), a stock dust was aliquoted and stored at various temperatures and extracted at set intervals over two years. To determine levels of exposure to airborne food allergens, nasal filters were worn in a variety of settings. Common food allergens were simultaneously quantified using MARIA[®] for Foods assay; peanut (Ara h 3 and Ara h 6), milk (Bos d 5), egg (Gal d 1 and Gal d 2), hazelnut (Cor a 9), cashew (Ana o 3), soy (Gly m 4 and Gly m 5) and shrimp (tropomyosin).

Results

All allergens assessed were readily found within household dust and nasal filter samples. Allergens from egg (Gal d 2) and milk (Bos d 5) were found to be the most abundant. The stability analysis showed that food allergens in dust were remarkably stable.

Conclusions

Food allergen levels in household dust are within the same range and higher than those known to cause sensitization to common indoor allergens, and generally remain stable for long periods of time. Additionally, food allergens were detected in nasal filter samples, suggesting that both settled dust and inhaled allergens may be an important source of food allergen sensitization.

009

Progenitor cell-derived basophil activation test (PCBAT) predicts clinical reactivity in cat allergic adults- a proof of concept study

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Objectives

Many adults who are sensitized to cat (on skin prick or IgE testing) deny symptoms of asthma or allergy on contact with cats. Clinical reactivity to cat can be measured using inhaled allergen challenge, but this test is not widely available in clinical practice and is not appropriate in poorly controlled asthma. We are investigating whether we can predict clinical reactivity to cat allergen using an *in vitro* high throughput effector cell assay (progenitor cell-derived basophil activation test -PCBAT).

Method

We performed inhaled allergen challenge on 17 adults who were skin prick positive to cat. Briefly, participants inhaled cat allergen at increasing concentrations until forced expiratory volume in 1 second (FEV₁) dropped >20% from baseline. The dose response slope (DRS) was calculated by dividing the maximum % drop in FEV₁ by the cumulative dose of allergen inhaled.

For PCBAT, well-characterized human CD34+ progenitor cell-derived basophils were passively sensitized with sera from the 17 adults. The cultures were stimulated with increasing concentrations of cat allergen (provided by McMaster, Ontario). Degranulation was quantified by flow cytometry using CD63 as a marker of activation, and results presented as area under the curve (PCBAT AUC).

Results

In PCBAT we saw a dose-dependent increase in CD63 expression on flow cytometry for each subject, but showing a range of AUC (>600 fold difference). On cat allergen challenge, the subjects reacted at a range of different doses (>4000 fold difference). We saw a significant correlation between PCBAT AUC and DRS ($r=0.54$, $p=0.026$).

Conclusions

Our novel *in vitro* high throughput effector cell assay (PCBAT), predicted clinical responsiveness to cat allergen in adults with cat allergy. PCBAT may provide a safe alternative to inhaled allergen challenge in asthma. Further work is required to confirm these findings and to determine the place of this test in clinical practice.

O10

Understanding spatio-temporal variation in taxon-specific grass pollen exposure, using targeted molecular analysis of aerial environmental DNA in the UK.

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Objectives

In Europe, 27% of the population are sensitised to grass pollen leading to extensive negative health outcomes (e.g. allergic rhinitis and allergic asthma). However, grass pollen from different species cannot be discriminated using traditional observational methods. Currently, there is no way of detecting, modelling or forecasting the aerial-dispersion of taxon-specific pollen from the extensive biodiversity of UK grasses. Primary objectives here include:

To develop a taxonomically resolved, grass pollen assessment framework throughout the UK.

Establish if there are phenological or geographical trends exhibited in pollen deposition, or whether the summer pollen load is admixed?

Method

We analysed aerial environmental DNA (eDNA) from up to 13 sites across the UK during the 2016-2017 grass flowering seasons. Two plant molecular taxonomy markers, ITS2 and rbcL, were used for eDNA “metabarcoding”, complemented by taxon-specific quantitative PCR to detect which species or genera of grass pollen are present in space and time during the summer months across the UK. Our aim was to quantify trends exhibited in pollen deposition of key known allergenic grasses, including *Dactylis glomerata*, *Lolium perenne* and *Phleum pratense*.

Results

Metabarcoding demonstrated that the species composition of aerial grass pollen communities vary significantly both temporally and spatially across the grass flowering season. Quantitative PCR data also confirmed significant quantitative spatio-temporal variation in pollen deposition.

Conclusions

The results confirm that pollen deposition throughout the grass flowering season is heterogeneous, showing quantitative differences in taxon composition throughout the summer months. The data demonstrate that seasonal exposure to different types of grass pollen is not static, but features shifting abundances of different species of pollen that can be linked to allergy. The empirical findings will be discussed in relation to coincidental health outcomes in addition to providing a broader perspective of the PollerGEN program, that integrates species vegetation mapping, advanced aerobiological modelling, environmental genomics, and human epidemiology.

O11

Hereditary Angioedema due to a Plasminogen Mutation: clinical and biochemical Studies

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Objectives

'Hereditary angioedema (HAE) with normal C1 inhibitor', also known as HAE type III, is a genetically heterogeneous disorder. Mutations of the coagulation factor XII (F12) gene have been established as one cause of HAE with normal C1-inhibitor, explaining approximately 25% of type III families. Recently, it has been shown that a novel type of dysplasminogenemia, resulting from a missense mutation (p.Lys311Glu) within the plasminogen kringle 3 domain, represents the molecular basis for another substantial subgroup of HAE type III [Biochem. Biophys. Res. Comm. 498:193–198 (2018)]. In the present study, we aimed to further characterize the clinical symptomatology as well as the aberrant plasminogen protein observed in patients with HAE due to the p.Lys311Glu mutation of plasminogen.

Method

Medical histories and venous blood samples were obtained, after informed consent, from members of HAE families exhibiting the p.Lys311Glu mutation of plasminogen. Plasma samples from patients and controls were treated with various deglycosylating enzymes for removal of N-linked or O-linked oligosaccharides; following SDS-PAGE plasminogen banding patterns were visualized by immunoblotting.

Results

Twenty mutation-positive individuals affected by recurrent angioedema attacks were evaluated. Tongue swellings and attacks affecting the lips were by far the most common symptoms. Recurrent gastrointestinal symptoms occurred in half of the patients. Swelling attacks affecting the extremities were very uncommon.

Comparing the plasminogen banding patterns seen in native plasma samples with those obtained after various deglycosylation procedures suggests that the presence of the p.Lys311Glu substitution alters the glycosylation of plasminogen, in particular the N-glycosylation at position Asn289 – different glycoforms of plasminogen being known to exhibit numerous functional differences.

Conclusions

Hereditary angioedema due to a plasminogen mutation is not only a distinct molecular entity but also shows distinct clinical features which allow for a differentiation from other HAE types.

O12

Development and validation of a novel multiplex immunoassay for the simultaneous quantification of food allergen proteins

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Objectives

Quantification of food allergens is increasingly important for dose assessments of food preparations used in oral immunotherapy (OIT), food allergy prevention, and monitoring safety in the food industry. Generic immunoassays for 'total protein' do not measure specific allergens. Our aim was to use a molecular approach to food allergy to develop and validate MARIA[®] for Foods to simultaneously measure specific allergens, the 'active ingredients', from peanut (Ara h 3 and Ara h 6), cow's milk (native Bos d 5), shellfish (tropomyosin), egg (Gal d 1 and Gal d 2), cashew (Ana o 3), soy (Gly m 5) and hazelnut (Cor a 9).

Method

MARIA[®] for Foods was developed on the Luminex xMAP[®] system. Microspheres coupled to specific monoclonal antibodies were used for allergen capture. Biotinylated specific monoclonal or polyclonal antibodies were used for detection. Reference standards were formulated from natural or recombinant allergens, with purity established by mass spectrometry.

Results

Method validations were completed for nine major food allergens to determine parameters of linearity, range, limits of quantification and detection, accuracy and precision. The standard curves for all analytes allow for quantification over a broad dynamic range. The limits of detection (LLOD) were between 240–10 pg/ml. Intra- and inter- assay accuracy and precision for three reference samples assayed in triplicate on four occasions fell within the range of 78-119% recovery and a coefficient of variation of < 9%, respectively. MARIA[®] for Foods was effective at detecting allergens in packaged foods where their presence was known.

Conclusions

A quantitative, accurate and precise multiplex immunoassay was validated for the simultaneous detection of nine major food allergens. MARIA[®] for Foods provides a sensitive and efficient tool for measuring specific food allergens, as opposed to generic food source proteins, with potential applications for risk assessment in the food industry and standardization of OIT products.

CATEGORY PAEDIATRIC CLINICAL

O13

Oral immunotherapy using heat-modified peanut in peanut-allergic children in the UK: results from the BOPI (Boiled Peanut Oral Immunotherapy) study

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Objectives

Peanut oral immunotherapy (OIT) is clinically efficacious, with most studies using peanut flour to induce desensitisation. Boiled peanut represents a less allergenic peanut product, and may offer an alternative option with the potential for improved outcomes.

Method

Children with peanut allergy confirmed at double-blind, placebo-controlled food challenge (DBPCFC) were randomised (2:1) to receive either oral immunotherapy (up dosing using boiled peanut for ~6 months, followed by maintenance with roasted peanut) or standard treatment (allergen avoidance). Participants underwent repeat DBPCFC at 12 months to assess response, following which peanut OIT was stopped and sustained unresponsiveness assessed after 4 weeks (4-SU). Participants randomised to the control group were offered boiled peanut OIT after the second DBPCFC. Clinicaltrials.gov NCT02149719.

Results

Forty-seven children (8-17 years, 43% female) were enrolled, 32 to active treatment in the first year of the study. Median cumulative dose prior to OIT was 143mg peanut protein (IQR 43-443mg). After 1 year of treatment, 24/32 participants (100% per protocol) achieved the primary outcome of desensitisation to >1.4g peanut protein ($p < .0001$); of those 14 tolerated >4.4g peanut protein. There was no significant change in threshold in the control group ($p > 0.05$). Across both groups, 37 completed 1 year of OIT and were able to tolerate >1.4g peanut protein at exit DBPCFC, with 24 tolerating >4.4g peanut protein. 21 participants (45% by ITT, 57% per protocol) achieved 4-SU, the remainder tolerating at least 1 peanut. Adverse events were reported in under 8% of doses (with over half graded as transient, mild symptoms). There were 24 episodes of anaphylaxis during treatment. Abdominal pain was reported in 1.1% of doses (vomiting 0.1%), and urticaria in 0.1%.

Conclusions

Oral immunotherapy using boiled peanut is pragmatic and effective. Adverse events are infrequent, but can be significant, and require supervision and support by experienced health-care professionals to ensure safety.

O14

What dose? Pharmacokinetics of two different doses of adrenaline in food-allergic teenagers (The PIMAT Study)

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Objectives

There are limited data on the pharmacokinetics of intramuscular adrenaline (epinephrine) used to treat anaphylaxis. In particular, the Resuscitation UK guideline for anaphylaxis recommends a dose of 500 micrograms (mcg) in older teenagers and adults, but only one manufacturer of adrenaline autoinjectors currently produces a device which delivers this dose in the community setting.

Method

Randomised, single-blind, cross-over study in young adults at risk of food-induced anaphylaxis. Participants were cannulated one hour prior to self-injection using Emerade 300mcg or 500mcg on separate occasions, at least one month apart, controlling for circadian rhythm and injection site. Of note, the needle length in both devices is the same, and intramuscular injection was confirmed by ultrasound. Blood samples were drawn for up to 3 hours after injection, and analysed for plasma catecholamines. Registered at Clinicaltrials.gov NCT03366298.

Results

Twelve participants (58% male, median age 15.4 years) provided consent and completed the study protocol. Median weight: 61.8kg (range: 41.8-76.4kg). The time to maximum plasma adrenaline (Tmax) was 45 and 60 minutes for 300mcg and 500mcg doses, respectively. A biphasic pattern was observed, with a smaller initial peak at 5 and 10 minutes respectively. The 500mcg dose resulted in a higher peak adrenaline level (Cmax) compared to 300mcg ($p=0.01$), as well as a greater Area-Under-Curve ($p<0.05$). The adrenaline injections were well-tolerated, with no adverse events of significance.

Conclusions

A 500mcg dose of intramuscular adrenaline results in a greater plasma catecholamine level than a 300mcg dose. This provides the first published pharmacokinetic data with respect to adrenaline dosing by the intramuscular route in young adults at risk of anaphylaxis.

O15

Improvement in quality of life following peanut oral immunotherapy in a paediatric population at the Cambridge Peanut Allergy Clinic

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Objectives

Current standard of care for peanut allergy is avoidance with appropriate treatment of reactions. Peanut immunotherapy is a safe and efficacious treatment for peanut allergy but is not currently widely available. Oral immunotherapy is gaining momentum as a future standard of care for treatment of food allergy in specialist centres. The Cambridge Peanut Allergy Clinic delivers a peanut oral immunotherapy service to paediatric patients from age 7 to 16 years. The aim of the study was to evaluate the change in quality of life scores from baseline (before starting immunotherapy) to the end of the first year of treatment in a real-world clinical setting.

Method

A retrospective review of 111 patient notes following completion of the first year of peanut immunotherapy was carried out. Relevant clinical factors were recorded in a data collection proforma. Quality of life scores (Food Allergy Quality of Life Questionnaire (FAQLQ) child and parent form (7-12 years) or teenage form) completed at baseline, stage 7 (completion of up-dosing) and one year were recorded.

Results

A total of 69 patients had sufficiently complete FAQLQ forms at baseline and one year (33 teenage forms, 35 child forms and 36 parent forms (35 with corresponding child forms)). There was a significant improvement in quality of life scores from baseline to one year (mean change in total FAQLQ by 1.6 teenage form, 1.5 child form, and 1.2 parent form; all $p < 0.001$, Wilcoxon signed rank test).

Conclusions

Oral peanut immunotherapy was associated with a significant improvement in quality of life in a real-world clinic setting using a validated quality of life score, exceeding the minimally important difference for FAQLQ of 0.5. Whilst our findings are limited by a lack of control group to compare, the findings were similar to that seen in the research setting.

O16

The burden of non-IgE mediated gastrointestinal food allergy on quality of life and psychological wellbeing in children

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Objectives

We assessed the quality of life (QoL) and psychological wellbeing in children with suspected non-IgE mediated gastrointestinal (GI) food allergy (GI-FA) attending a complex joint GI-allergy clinic.

Method

Paired proxy and self-reported Paediatric Quality of Life Inventory (PedsQL) questionnaires were used to assess QoL, and Strengths and Difficulties Questionnaire (SDQ) the psychosocial complexity. Published PedsQL and SDQ normal data were used as control.

Results

Twenty-seven children (15 males; mean age 8.8 years) and their parents completed the questionnaires. Feeding difficulty (55.6%) and abdominal pain (48.1%) were the most common symptoms. Seventy percent had upper GI symptoms (UGIS) and 55.5% lower GI symptoms (LGIS). At first appointment, 77.8% were on restricted diet, 18.5% excluding >3 foods.

Compared to PedsQL normal values, self-reported scores were significantly lower only for school functioning (61.00±25.06 vs 77.72±18.50; p<0.01), whereas proxy-reported scores were significantly lower in physical (69.54±30.22 vs 86.08±14.06, p<0.05[DC1]), emotional (55.52±29.44 vs 76.99±18.43, p<0.01), school functioning (62.63±24.24 vs 77.29±16.92, p<0.01) and total (66.44±25.18 vs 82.25±13.09, p<0.01) domains.

Compared to SDQ normal values, significantly higher values were observed in emotional (4.0±2.6 vs 1.9±2.0; p<0.001), peer (2.2±2.1 vs 1.5±1.7; p<0.001) and overall (12.7±7.8 vs 8.4±5.8; p<0.01) domains.

Children with UGIS showed lower emotional (2.63±1.99), peer (1.38±1.30) and overall (8.13±3.76) SDQ scores than children with LGIS (5.54±2.29, p<0.01; 3.23±2.31: p<0.05; 17.38±7.08: p<0.01 respectively). Children on exclusion diet had lower self-reported total PedsQL (65.63±22.50) than those on unrestricted diet (90.50±7.94; p<0.01).

Conclusions

QoL and psychological wellbeing are significantly impaired in children with suspected GI-FA. Both foregut symptoms and dietary exclusion may be significant contributors. Parent's perception is significantly worse than their children, which highlights the need to assess the child's perspective on symptoms and treatment plans. Studies exploring the impact of holistic interventions on both GI-FA children and their family are highly warranted.

O17

Daily emollient for the first year of life for preventing eczema: results of the BEEP randomised trial

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Objectives

The primary objective was to determine whether daily full-body emollient use in the first year can prevent eczema in high risk infants. A secondary objective was to investigate whether emollients can prevent the development of other atopic diseases.

Method

Pragmatic, multicentre RCT. Term infants under 21 days old with a family history of eczema, allergic rhinitis or asthma were randomised to skin care advice plus advice to apply daily emollient for the first year of life (intervention) or skin care advice only (control). Primary outcome was eczema diagnosis between 1 and 2 years using UK Working Party criteria. Secondary outcomes included time to onset and severity of eczema, allergic rhinitis, wheezing, allergic sensitisation, food allergy and safety (skin infections and slippages).

Results

1394 babies were randomised (693 intervention, 701 control). Adherence to allocation at 3, 6 and 12 months was 88%, 82% and 74% in the intervention and 82%, 83% and 85% in control groups respectively. Eczema occurred in 139/598 (23%) intervention and 150/612 (25%) control participants (adjusted relative risk 0.95, 95% CI 0.78 to 1.16, p=0.61). Time to eczema onset, eczema severity, food sensitisation, allergic rhinitis and wheezing were also very similar between groups. Confirmed food allergy at 24 months was 7.5% and 5.1% in the intervention and control groups respectively (adjusted risk difference of 2.4%, 95% CI -0.5% to 5.2%). Mean number of skin infections per child in the first year was 0.23 in the intervention group compared with 0.15 in controls (adjusted incidence rate ratio of 1.55, 95% CI 1.15 to 2.09). Infant slippages were uncommon and similar between groups; none were serious.

Conclusions

We found no evidence that advice to use daily emollient in high risk infants influences risk of eczema, but some evidence for increased skin infections.

O18

BPSU Surveillance of Food Protein Induced Enterocolitis Syndrome (FPIES) in UK and Republic of Ireland: First 4 months

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Objectives

Food protein induced enterocolitis syndrome (FPIES) is a severe form of non IgE-mediated food allergy. Within the United Kingdom(UK) and Ireland, there is very limited data on FPIES, and this study aims to provide a better insight into its incidence, demographics and causative foods.

Method

From January 2019, we undertook prospective surveillance for new cases of FPIES using the British Paediatric Surveillance Unit (BPSU). Every month all consultant paediatricians' in the UK and Ireland are asked to report if they have seen a case(s) of FPIES. Further information about the cases is collected by a study specific questionnaire. This is a 13 month study and we report the first 4 months.

Results

In the first four months of the study we have received 63 notifications from the BPSU. 45 questionnaires have been completed, and of these, there are currently 30 confirmed cases within the study period. 25 (83%) were male and 20 (67%) were White British / Irish. The median age of presentation was 6 months. The commonest presenting food triggers were milk 8 (27%), egg 6 (20%) and both fish and grains 4 (13%). Most cases have been reported by paediatricians with an interest or specialism in allergy (22 (73%).

Conclusions

This is the first systematic study of the epidemiology of FPIES in the UK and Ireland. At present most cases are being reported by paediatricians with specialist knowledge of the condition. We hope that general paediatricians will start to recognize cases of FPIES in their own practice as the study continues. Details of patient journey are being recorded and will help to improve access to diagnosis and treatment. Paediatricians should continue to ensure that they report cases through the BPSU scheme.

CATEGORY PRIMARY CARE

O19

The Impact of a GP-led Community Paediatric Allergy Clinic: A Service Evaluation

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Objectives

The NHS is not meeting the nation's allergy needs. There are insufficient allergy specialists, with variable care across the country. General Practitioners (GPs) are lacking in allergy training. London's Whittington Hospital created a GP with Special Interest (GPwSI) community paediatric allergy clinic, running alongside pre-existing hospital clinics, to address local unmet needs, aiming to provide equity for patients, improve patient experience and decrease secondary care burden. The objective of this Service Evaluation was to establish whether improvements have occurred within the service by introducing a GPwSI-led community paediatric allergy clinic alongside providing GP education and referral pathways. This study asks: 1: Have allergy-related hospital attendances decreased with the provision of the community service? 2: Are patients seen in the appropriate clinic? 3: What proportion of patients require GPwSI follow-up? 4: Is there good patient satisfaction? 5: Have allergy clinic waiting times changed?

Method

Numbers of allergy-related hospital attendances and waiting times in 2013, 2014 and 2016 were assessed. Data was analysed regarding proportions of patients requiring GPwSI follow-up or referral from the GPwSI community clinic to hospital. Patient satisfaction was assessed

Results

Since introducing the GPwSI community service the burden on secondary care has decreased, with reduced hospital attendances for allergy clinic patients, although waiting times have increased. In 2013, 65% of allergy clinic patients attended other hospital services for allergy-related complaints prior to their first allergy clinic appointment. This was reduced to 27.3% (community) and 36.9% (hospital) in 2014 and maintained in 2016 (27.5% community and 37.5% hospital), $p < 0.01$. Patient satisfaction in the hospital and community clinics is very high.

Conclusions

This service evaluation has shown that introducing a GPwSI-led community paediatric allergy clinic, alongside providing GP education and pathways for referral, has improved the paediatric allergy service. We have demonstrated a decreased burden on secondary care, with reduced numbers of hospital

attendances by allergy patients in other departments. Patients are highly satisfied with the service on both sites. This integrated, multidisciplinary paediatric allergy service could provide a model to improve the unmet allergy need in the UK and beyond. This GPwSI model could also be applied to other chronic diseases in both adults and children, improving care beyond allergy.

O20

An audit of the management of allergic rhinitis in primary care patients referred to an allergy service

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Objectives

Allergic Rhinitis (AR) is an underdiagnosed chronic illness carrying significant associated morbidity. It affects 26% of adults in the UK and its incidence is increasing. The revised 2017 BSACI guidelines recommend intranasal corticosteroids (ICS) as first-line treatment for moderate to severe disease. Second Line treatment combines ICS with intranasal antihistamine (IAH). There are also local guidelines which are in accord with BSACI. This audit evaluates if the primary care management of AR patients referred to a specialist Allergy Clinic aligns with current guidance.

Method

A retrospective descriptive analysis was carried out using the departmental database of Allergy Clinic correspondence. Patient letters from 1st January 2018 to 1st September 2018 were searched for terms 'Allergic Rhinitis', 'Hayfever', 'Hay fever' over a 9 month period. Pregnant women were excluded.

Results

83 patients with allergic rhinitis were identified. 56.6% of patients only received monotherapy with oral antihistamine (OA) prior to specialist referral. Only 27.7% of patients received ICS, the recommended first line management. 4.8% of patients received a combination of ICS and IAH, the recommended second line management. 1 patient received maximal triple therapy with IAH + ICS + OA. 15.2% received short-acting OA with 63% receiving a long-acting OA.

Conclusions

Community management of AR does not align with published guidance. This could be attributed to a lack of knowledge on the condition and its management. There is a lack of documentation on self-care methods, symptom severity and response to treatment. Locally, a referral proforma may help guide GPs through the appropriate management steps, maximising therapy whilst building a data set for further analysis of AR patients. Larger scale evaluation of community management is required to assess practice across the UK. Regional education may raise awareness and implement a change in practice.

O21

GP and parent understanding and beliefs about food allergy testing in children with eczema: qualitative study within the Trial of Eczema allergy Screening Tests (TEST)

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Objectives

To explore GP and parent understanding and beliefs about food allergy testing for children with eczema within the context of the Trial of Eczema allergy Screening Tests (TEST) study.

Method

TEST is a feasibility trial of test-guided dietary management for children with eczema. Participating GPs and parents, purposively sampled to ensure diversity in characteristics, were invited to participate in semi-structured interviews. Families who declined to participate or withdrew during TEST were also invited. Interviews were audio-recorded, transcribed verbatim and analysed thematically.

Results

At submission, 11 GP interviews and 18 parent interviews have been conducted. GPs reported limited experience and knowledge of referral for food allergy in children with eczema and wanted more information to guide their decision-making and advise parents. Although some GPs said they believed allergy testing to be acceptable in children, most had reservations about the usefulness of testing in children with eczema and were cautious about making referrals. GPs said they were more likely to refer in severe or complex cases and were guided by parental requests for testing.

Parents seemed unsure of the causes of eczema, including the role of food allergy, with most believing family history, age or environmental factors to be responsible. They reported being influenced by media coverage of food allergies and anecdotal stories from parents whose child's symptoms improved when

certain foods, particularly dairy, were eliminated from their diet. While parents were uncertain of the role of food allergy in eczema, they were motivated to try anything which might help. Parents' complex beliefs may conflict with food allergy test results and current advice given by GPs.

Conclusions

There is a shared uncertainty among GPs and parents regarding the role of food allergy testing in eczema. Definitive evidence in this area is needed to inform clinical practice and parents' treatment decision-making.

CATEGORY UNDERGRADUATE

O22

Home Food Reintroduction: A Retrospective Review of Patients' Experience in Adult Allergy Service

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Objectives

Food allergy is diagnosed clinically through a combination of history taking, skin prick tests and specific immunoglobulin E levels. In the instance where the medical history and investigations are inconclusive, oral food challenge can be performed. Where the history and investigations suggest that food allergy is unlikely, other options such as a supervised feed or home food reintroduction can be considered. Our aim was to review the current practice and patients' experience of home reintroduction and evaluate its efficacy, safety and limitations.

Method

60 patients were offered home reintroduction from May 2017 to May 2018. A telephone survey was conducted and the results were evaluated with reference to the food tested, outcome and satisfaction.

Results

50 patients participated in the survey; 20 of whom had performed home reintroduction with 37 foods tested. The most common reason for not performing the test was fear of a reaction. 89% (n=33) of the food tested were successfully reintroduced with no reaction. 48% of the foods tested were nuts, 27% were seafood, 11% were fruits and vegetables and 8% were eggs. 4 reactions were reported but they were not life-threatening, without ABC symptoms and did not require any medical intervention. 18 (90%) of the patients were satisfied with the instructions of home reintroduction given. Of those who performed the home reintroduction, 95% (n=19) reported high satisfaction with 1 neutral response.

Conclusions

In cases where the history and investigations suggest the absence of food allergy, home reintroduction avoids the need for the patient to attend hospital and may serve as a safe and pragmatic option for patients. In the 20 patients who performed home reintroduction, this was an effective and safe procedure. Appropriate patient selection and adherence to the protocol is important.

O23

Evaluation of the sufficiency and feasibility of modified PRACTALL oral food challenge dosing schedules

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Objectives

Oral food challenges (OFC) are the gold standard for diagnosing food allergy. PRACTALL OFC dosing schedules use a 4.43g allergenic-protein dose delivered in a semi-logarithmic scale. However, it is unknown whether this is sufficient to exclude allergy in high-protein foods (where the challenged dose is much less than an age-appropriate portion), and whether it is feasible to complete OFC with low-protein foods in young children, where the PRACTALL dose may be higher than a typical portion. In this study, we evaluated whether modified PRACTALL OFC dosing is sufficient and feasible for high- and low-protein foods respectively.

Method

Retrospective analysis was performed on a database containing 1387 OFCs undertaken between January and December 2018 at St Mary's Hospital, London. Telephone interviews were conducted with parents of children who passed challenges to high-protein foods (i.e. fish, meat and egg) to assess tolerance towards subsequent exposures of regular portions at home.

Results

305/352 (86.6%) children passed OFC to a high-protein food and 257(84.3%) of these were successfully interviewed. 24/257 (9.3%) reported a subsequent adverse reaction to a quantity greater than the total OFC dose. There was a positive correlation between OFC to high-protein food and increased risk of post-OFC reaction ($p=0.04$).

92/1387 (6.6%) OFCs were inconclusive, all due to inability to complete the total dose. Inconclusive OFC outcome was no more frequent with OFC to low-protein foods, where challenge dose is more than an age-appropriate portion, than for other foods.

Conclusions

For children undergoing high-protein OFCs, PRACTALL dosing schedules may carry a risk of false-negative outcomes due to insufficient total dose compared with a standard portion. For children undergoing OFCs to low-protein foods there is no evidence that challenge doses of 4.43g allergenic-protein contribute to inconclusive outcomes. OFC protocols need revising to determine safe and sensitive dosing schedules.

POSTER PRESENTATIONS

CATEGORY ADULT CLINICAL

P024

Drug-related Baboon Syndrome precipitated by amoxicillin challenge

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Background

In individuals with self-reported beta-lactam 'allergy', only a minority will have genuine type 1 IgE-mediated hypersensitivity confirmed by in-vitro /in-vivo testing. As there is an increasing trend amongst healthcare professionals for penicillin allergy de-labelling, potential sequelae of this approach should be considered. We report the first case of symmetrical drug-related intertriginous and flexural exanthema (SDRIFE) following amoxicillin drug challenge.

Case presentation

A 19-year-old female was referred for investigation of penicillin allergy. Past medical history included hypothyroidism and aplastic anaemia with matched unrelated donor bone marrow transplant (aged 3). After negative skin and blood tests, a low risk oral provocation test (OPT) to amoxicillin syrup was undertaken: a final dose of 786mg was tolerated with no evidence of type 1 IgE-mediated hypersensitivity. Four hours later, she developed a marked burning sensation over her back and buttocks. Examination revealed a maculo-papular rash over her lower back and buttocks. Seven days later, the rash remained persistent, but also now involved the décolleté area and flexural regions of the arms. A diagnosis was made of SDRIFE, formerly known as Baboon syndrome.

Discussion

SDRIFE is a rare dermatological disorder due to delayed type IV T cell-mediated hypersensitivity, manifesting as maculopapular rash in distinct skin areas, characteristically the buttocks. In our case, SDRIFE was diagnosed based on the typical presentation after re-exposure to amoxicillin of abrupt onset, sharply demarcated, symmetrical rash, involving at least one great flexure (criteria proposed by Hausermann et al, Contact Dermatitis, 2004). As no specific test is available to diagnose SDRIFE, a clinical diagnosis is reached following exclusion of other causes.

Conclusion

With the increasing number of low-risk oral amoxicillin challenges currently being performed, it is important for clinicians to be aware of possible delayed type IV reaction to OPT, and particularly SDRIFE as a potential dermatological complication.

P025

Occupational allergy to beta-lactam antibiotics in a health care worker

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Objectives

Beta-lactam antibiotics have been implemented as a cause of occupational allergy through inhalation. Cases of occupational asthma (OA) have been reported with beta-lactam antibiotics, including ampicillin, amoxicillin, tazocin and cephalosporins.

Method

We describe a case of OA and rhinoconjunctivitis with airborne penicillin allergens.

Results

A case of a 28-year-old female who is a hospital nurse. Whilst at work she develops sneezing, itchy and swollen eyes. Three months later, in addition to the above symptoms, she developed shortness of breath along with chest tightness. She has attended the Emergency Department on three occasions where she was treated with nebulisers, steroids and antihistamines. On one occasion, she also developed a rash on her back which resolved within six hours. She only had known hand eczema. Her PEFr is usually 400l/min but has dropped to 230l/min on occasions when at work. She uses fexofenadine 180mg, ketotifen eye drops and fluticasone furoate nasal spray prior to work but still develops the above symptoms. She is exposed to latex and chlorhexidine at work but denied any symptoms with these products. She did notice these symptoms on exposure to IV antibiotics and was referred to the Allergy Centre. Specific IgE was negative to latex, latex components, chlorhexidine and penicillin allergenic determinants. Skin prick and prick prick tests with latex were also negative. Skin prick tests to penicillins including tazocin and meropenem gave a strong positive to tazocin and also positive intradermal tests to amoxicillin and penicillin G. These results confirm her reacting to penicillin antibiotics upon reconstitution and preparation.

Conclusions

Health care workers are at risk of sensitization by inhalation of airborne penicillin allergens. Individuals presenting with such symptoms should be promptly identified so that appropriate precautions are taken to prevent further exposure.

P026

Recalcitrant allergy symptoms in two adults with hereditary alpha-tryptasaemia

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Objectives

Background In 2016 increase in copy number of the alpha-tryptase-encoding allele at the *TPSAB1* gene locus was linked to raised serum mast cell tryptase (MCT) and multisystem complaints, including flushing and pruritis. We report on two cases who were found to have *TPSAB1* alpha gene duplications, in whom symptoms have been difficult to control.

Method

Case presentations Case 1: A 33-year-old female presented at the age of 23 years with recurrent anaphylaxis and a baseline MCT of 14.0 to 18.3ng/ml. Bone marrow and duodenal biopsies excluded systemic mastocytosis. Symptoms did not respond to high dose oral anti-histamines, montelukast or sodium cromoglycate. She did respond to ciclosporin, although suffered breakthrough episodes with pharyngitis, bee sting (non-IgE mediated) and perioperatively. She has remained on ciclosporin for the past six years. Case 2: A 29-year-old female presented at the age of 23 years with episodic wheeze, generalised pruritus, flushing and urticaria, with baseline MCT of 14 to 19ng/ml. Bone marrow and skin biopsy showed no evidence of systemic mastocytosis. Symptoms remained poorly controlled despite high dose anti-histamines, montelukast, ciclosporin, methotrexate and azathioprine, although she had a partial response to sodium cromoglycate. In both patients, digital droplet PCR identified *TPSAB1* alpha gene duplications.

Results

Discussion Although symptoms remained difficult to control, both patients were relieved to have a definitive cause for their symptoms identified.

Conclusions

Conclusion Hereditary alpha-tryptasemia should be considered in the differential diagnosis of mast cell activation syndrome, mastocytosis or idiopathic anaphylaxis where baseline MCT is over 8.0mg/ml. Genetic testing may avoid ongoing invasive investigations, guide future treatment and may have familial implications given the autosomal dominant nature of the condition.

P027

Junior doctor knowledge of the diagnosis and management of anaphylaxis at St George's Hospital, London

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Objectives

Anaphylaxis is a severe, potentially life-threatening systemic type 1 hypersensitivity reaction involving circulatory, respiratory, skin and mucosal systems. (1) Immediate diagnosis and administration of adrenaline is vital to reduce morbidity and mortality. (1) Junior doctors are likely to be first responders. (2) Junior doctor knowledge of anaphylaxis guidelines has previously been targeted for improvement. (3) This audit assessed junior doctor knowledge of the diagnosis and management of anaphylaxis against EAACI, NICE and ALS guidelines. (1)(4)(5)

Method

Baseline knowledge was assessed through an online questionnaire distributed to junior doctors on Foundation, Core Medical and General Practice training programmes at St George's Hospital, London. The intervention was distribution of a revision leaflet based on EAACI, NICE and ALS guidelines. Post-intervention knowledge was reassessed one month later using the same questionnaire.

Results

Of 115 junior doctors approached, 27 (23.5%) responded to the pre-intervention (Pre) questionnaire and 5 (4.3%) to the post-intervention (Post) questionnaire. The adult dose of intramuscular adrenaline was correctly identified by 81.5% (Pre) versus 100% (Post). During emergency management, immediate ABCDE assessment was identified by 40.7% (Pre) and subsequent adrenaline administration by 37.0% (Pre). This rose to 100% (Post) for both measures. Delay in administering adrenaline was identified as a risk factor for biphasic reactions by 37% (Pre) versus 100% (Post). Correct timings for mast cell tryptase samples were identified by 25.9% (Pre) versus 80% (Post).

Conclusions

This audit adds to growing evidence for improvement in junior recognition, investigation and management of anaphylaxis. Our study population at a large teaching hospital had knowledge gaps in several aspects. Disseminating a revision leaflet demonstrated marked improvement at one month follow up. However, our study is limited by sample size and short time course. Further work is urgently needed to improve junior doctors' awareness of best practise in managing patients with anaphylaxis.

P028

Yellow fever vaccine desensitisation in egg allergic patient ,Y T Chin and S Chandel.

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Background

Yellow fever vaccine (YFV) is contraindicated in egg allergic patients. Anaphylaxis is estimated to occur at a rate of 0.42 - 1.8 per 100,000 doses of YFV. However, yellow fever is associated with a 50% risk of mortality.

Case presentation

A 17-year-old patient with confirmed severe egg allergy was referred by a Yellow Fever Vaccine Centre (YFVC) to the Allergy Department at University Hospital Southampton for drug allergy testing +/- YFV administration/desensitisation which is required for her travel to Peru. SPT with undiluted YFV was borderline (2x2 mm). Intradermal testing with 1:10 concentration was strongly positive (wheal size increase 9x6 mm).

Successful desensitisation was achieved using the US protocol (5 steps at 15 minute intervals) without premedications. A full dose of YFV (0.5ml Stamaril, Sanofi Pasteur) was administered with minimal localised erythema and minor urticaria.

Discussion

YFV contains an attenuated live 17D YF virus propagated on embryonated hens' eggs and has higher amount of egg proteins.

Conclusions

We describe a successful case of desensitisation to YFV using the US protocol.

P029

Can total IgE levels predict outcomes for urticaria patients treated with omalizumab?

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Objectives

It has been reported that baseline and week 4 total IgE levels predict response to treatment in patients with urticaria receiving omalizumab. We sought to explore if this could be replicated in a normal allergy service setting. In addition we looked at the baseline IgE level in individuals requiring multiple courses of Omalizumab.

Method

Total IgE levels were measured a) prior to the first omalizumab injection and b) at week 4 for all patients receiving omalizumab, including those requiring repeat courses. UAS scores were recorded at each visit. Responders were identified as patients with <50% of their baseline score at week 4.

Results

We have collected data on 25 new patients (av UAS 34) and 5 patients undergoing a repeat course (av UAS relapse 33). 12 patients were partial-responders [LD1] and 13 were responders based on UAS score at week 4. We found that partial-responders [LD2] had lower mean IgE at baseline (87.2 v 186 [LD3] ; $p=0.042$) and week 4 (366 v 713; $p=0.057$). Of the partial responders 5 (41.6%) achieved UAS <10 during the rest of the course, but had low IgE levels at baseline. Patients attending for multiple courses with complete resolution of symptoms, and injection intervals of 6-8 weeks [LD5] had a high relapse baseline IgE of 601.

[LD2] Non responders versus partial responders?

[LD3] Generally mean \pm 2SD is shown

[LD4] At baseline? Week 4?

[LD5] You did not introduce this concept- might be difficult to understand for people reading the abstract

Conclusions

Despite the small sample size, we were able to replicate similar findings to those published previously and found a trend towards higher IgE levels in patients who respond well to Omalizumab. However, this was not reliable enough to predict outcomes. In our service at least 50% of patients require repeat courses. Patients who have had multiple courses with complete resolution of symptoms on omalizumab have very high baseline IgE levels.

P031

Comparison of omalizumab standard-dose and high-dose responders in the treatment of urticaria

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Objectives

The standard dose of omalizumab for chronic spontaneous urticaria is 300mg 4-weekly. In partial responders, up dosing can be safe and effective. We previously reported that up dosing may be more effective in those patients with angioedema and higher baseline total IgE. We further analysed our cohort to determine differences between standard-dose responders (S) and high-dose responders (H).

Method

The medical records of patients receiving omalizumab for urticaria at the Leeds Teaching Hospitals NHS Trust from August 2010-April 2018 were retrospectively reviewed.

Results

From September 2010 to April 2018 we have treated 209 patients with omalizumab; 206 with CSU, 3 with cold-induced urticaria. Of these patients 168 (80%) responded to omalizumab; S=144 (85%), H=24 (15%). All cold-induced urticaria patients responded to standard dose.

Adverse effect frequency and severity were comparable between the two groups. There were no differences observed for gender, age, presence of angioedema, baseline tryptase and CRP.

No high dose patient had a TPO>100iu/L compared to 16% of standard dose patients. Average weight was higher in patients treated with higher dose, in particular those that received a higher dosage, e.g. 450mg, over increased frequency, e.g. 300mg 3 weekly (S=83kg, H=88kg, H minus increased frequency patients=92kg). There was a small increase in baseline UAS7 in the higher dose patients (S-average=32, median=32; H-average=33, median=35). Patients in the higher dose group were more likely to have a raised baseline total IgE (>120 ku/L); S=49%, H=63%, H minus increased frequency patients=78%. Average and median total IgE was also increased in the high-dose group.

Conclusions

Up dosing of omalizumab is safe and should be considered in patients who fail to respond to standard doses. Patients with higher weight, higher baseline UAS7 and raised baseline total IgE may require higher doses, although further studies are required to determine the significance of these differences.

P032

Management of Wheat-Dependent Exercise-Induced Anaphylaxis: A Two year Audit

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Objectives

Wheat-Dependent Exercise-Induced Anaphylaxis (WDEIA) is a severe food allergy occurring when wheat ingestion is followed by exercise¹. The literature contains recommendations about appropriate management but there are no definitive guidelines. The most reliable prophylaxis for WDEIA is strict adherence to a gluten-free diet, but despite dietary advice 1/3 of patients have further anaphylactic reactions², highlighting the importance of both dietary and pharmacological management of the condition. This audit aims to assess the department's performance in management of WDEIA, through standards obtained from the literature.

Method

All patients with a positive specific IgE (>0.35 kUA/L) to omega-5-gliadin between 01/01/2017 and 01/01/2019 at the Royal Victoria Infirmary were identified and their medical records reviewed. The standards used for assessment centred around two themes; 1) adequate patient counselling regarding diet and co-factors, and 2) appropriate medication prescription as part of an Allergy Management Plan.

Results

A total of 43 patients with WDEIA were identified (13 women, 30 men) with a mean age of 42 years. 100% of patients received dietary advice from their clinician and 33 patients (77%) were advised about co-factor avoidance. 33 patients (77%) were offered a dietician referral but 36% of those referred did not attend their appointment. 100% of patients were given an appropriate Allergy Management Plan and all patients with confirmed WDEIA diagnosis were prescribed an adrenaline auto-injector.

Conclusions

This audit has shown the department to be managing WDEIA in accordance with the literature; however, room for improvement lies with increasing dietician referral & attendance. Creating a patient information leaflet will also help to ensure more patients are aware of co-factor avoidance together with dietary recommendations. A re-audit of practice after these measures have been implemented will be useful in maintaining best practice.

P033

Successful desensitization of dog induced anaphylaxis in a tertiary teaching hospital using sublingual immunotherapy.

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Background

Dogs are among the most common sources of aeroallergens worldwide. On average, the prevalence of allergic sensitization to cat or dog is around 20% in adults below 45 years. Nonetheless, dogs contribute to human flourishing and function, thus allergic sensitization to dogs can be a hindrance.

Case Presentation

A 40-year-old woman with a background of allergic asthma and chronic urticaria was referred to our clinic for dog desensitization. She develops angioedema, urticaria and moderate-severe asthma exacerbations upon dog dander exposure. Her SPT in clinic was positive to dog.

It was clear that her quality of life (QoL) was impaired by dog allergy given her occupation as a customs officer which involves working closely with dogs. Furthermore, she was unable to attend family reunions and had to cancel holidays due to dog allergy. Thus, she was started on dog allergen sublingual immunotherapy (SLIT) with Oralvac. Initiation was done over 4 days, using the highly-sensitized-patient-treatment-regimen. Nonetheless, she developed moderate-severe symptoms with the initial, minute SLIT doses (managed with Antihistamines). After initiation, she continued on maintenance therapy for 3 years. At follow up after SLIT completion— she no longer had life-limiting reactions.

Discussion

Dog SLIT was indicated for this patient given the severe impact on her QoL. The highly-sensitized-desensitisation-protocol was chosen given her symptomology. This involves initiation with a minute starting dose, over a longer period as per manufacturer instructions. Despite this, on her first dose, she developed moderate-severe symptoms, highlighting the risks involved in dog SLIT. Nevertheless, she was still able to complete the treatment regimen.

Conclusions

Dog allergen SLIT can be safely administered under close supervision, even in highly sensitized patients with co-morbid asthma. However, it is not without risks. Tolerance to this aeroallergen can be achieved and maintained with the right treatment regimen and good adherence. With careful patient selection, dog allergen SLIT can improve quality of life significantly.

P034

A Case of Oral Mite Anaphylaxis

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Background:

Oral mite anaphylaxis is commonly known as pancake syndrome and is more common in tropical climates. It is characterised by severe allergic reactions occurring immediately after consuming foods made from mite contaminated flour. This syndrome occurs with cooked foods indicating thermoresistant allergens. A history of atopy, usually asthma or allergic rhinitis as well as allergy to NSAIDs is usually reported in these cases.

Case Presentation:

An 18 year old female was referred to allergy clinic with a history of wheezing, urticaria, nausea, diarrhoea and dizziness within 15 minutes of consuming home-made pancakes. Symptoms settled with antihistamines and salbutamol inhaler. She tolerated the individual components of pancakes (wheat, milk, eggs) subsequently, without symptoms. Her medical history includes asthma, hay fever and allergies to pets. Skin prick testing was positive to *Dermatophagoides pteronyssinus* and *D farina* (both 6x8), grass pollen (5x4) and birch pollen (4x4). Milk, wheat and eggs were negative. The patient was asked to check for mites in the flour which were seen crawling at the bottom of flour package. Patient declined skin prick testing with the flour.

Discussion:

Most cases of pancake syndrome have been observed in tropical and subtropical locations in which climatic conditions, especially high temperature and relative humidity, are favourable for mite proliferation in the food. This syndrome frequently goes unnoticed or is wrongly confused with allergy to wheat. Skin tests with unheated and heated mite-contaminated flour extracts in subjects with mite allergy are positive. Mite group 2 (thermoresistant allergens) are probably involved. In the current example, a particularly warm summer might have resulted in mite infestation of the flour in UK.

Conclusion

Oral mite anaphylaxis is a relatively rare condition that is often misdiagnosed. Considering global warming and climate changes it needs to be kept in mind even in temperate climatic regions such as UK.

P035

Chicken meat allergy and chicken-dependent co-factor-induced allergy: Case series

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Background

Allergy to chicken meat is uncommon compared to egg, milk and peanuts. There are reported cases in both adults and children but no reliable data on prevalence. Molecular analysis studies have identified α -parvalbumin to be the main allergen in chicken meat allergy.

Case presentation

We describe three cases of atopic male patients with chicken allergy presenting in childhood. The first is a 36 year-old with multiple episodes of generalized urticaria and angioedema noted on exertion, after ingesting poultry and alcohol. He was diagnosed with poultry-dependent co-factor induced allergy with positive skin prick test and specific IgE to chicken. The second is an 18 year-old who presented aged 8 with multiple episodes laryngeal irritation with a sensation of a lump in his throat and cough, noted whilst eating chicken meals. His skin prick test to chicken was positive, confirming allergy. He outgrew the allergy aged 14. The third case is a 22 year-old with multiple episodes of anaphylaxis occurring within ten minutes of ingesting chicken meals. Skin prick test to chicken was diagnostic and on avoiding chicken his symptoms resolved. Emergency medicines with oral anti-histamines and adrenaline auto-injector were prescribed for all patients.

Discussion

Our first case is the first, to our knowledge, of chicken-dependent co-factor-induced allergy. This highlights the repertoire of plant and animal proteins implicated in allergy when co-factors such as exercise and alcohol are at play, is increasing. There is evidence for cross-reactivity between different poultry species, due to the structural homology of their α -parvalbumin. Interestingly, α -parvalbumin in crocodile meat is also homologous to chicken's with one reported case of cross-reactivity.

Conclusions

Awareness of potential risk of cross reactivity among poultry species is vital. If patients wish to introduction of other poultry species into their diet, we recommend undertaking skin prick test and IgE serology prior to food challenge.

P036

A sting in time saves nine - venom ultra-rush immunotherapy, a patient perspective

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Objectives

Venom immunotherapy is a widely used treatment for patients that have experienced anaphylaxis following bee or wasp stings. Conventional venom immunotherapy can be inconvenient, requiring 12 weekly visits to a specialist Allergy/Immunology department during the up-dosing period. This is especially relevant to a large geographical area like the South West Peninsula. Drawing from the evidence and the experience we have within the department from Australia, we are performing ultra-rush immunotherapy, reducing the up-dosing period to three visits. This poster documents our experience of ultra-rush venom immunotherapy from a patient perspective.

Method

The medical notes of ultra-rush desensitisation patients at University Hospitals Plymouth NHS Trust were retrospectively reviewed. Feedback was collected from patients and staff on the unit.

Results

So far 10 patients have followed the ultra-rush protocol, of whom 9 were up-dosed successfully and 1 reverted to dose 9/12 of the standard protocol. On average up-dosing took 16 hours of clinic time compared to an estimated 18 hours for the standard protocol and saved up to 8 vials of venom per patient. The patients saved on average 16 hours of journey time and £22.80 if parking on site.

Conclusions

The ultra-rush protocol is proving successful to date. It provides an extra degree of flexibility to an already busy clinic timetable. Positive feedback has been received and it is saving patients long weekly commutes.

P037

Illness perception of adolescents with allergic conditions under specialist's care

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Objectives

Our understanding of how adolescents perceive and cope with their allergic condition/s is limited. This study used the Brief Illness Perception Questionnaire (BIPQ) in a group of adolescents with allergies and correlate the findings with demographic and clinical conditions.

Method

In this observational questionnaire-based study, we analysed 100 valid questionnaires from adolescents (11-18 years) attending our service after receiving management and treatment for their allergic condition/s.

Results

The overall BIPQ score was 34.69 ± 11.89 . The highest item-related scores were for 'timeline' (illness duration) followed by 'concern'. The lowest scores were found for 'coherence/understanding,' demonstrating that adolescents do not perceive that they have a sound understanding of their condition/s. We found a significant difference in the overall BIPQ scores between the genders and in the emotional representation score, between young female and young male of a comparable age. Older adolescents reported a more chronic perception of the allergic disease/s.

Conclusions

Our results suggest that BIPQ is an important adjunct to routine allergy clinic appointments for further exploration of the wider impact of allergies on adolescents' lives. For older adolescents, better understanding of their illness is likely an important target for intervention intended to improve quality of life.

P038

Patient satisfaction outcome from a tertiary care allergy telemedicine service.

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Objectives

Telemedicine is defined as 'the use of technology to deliver health care, health information or health education at a distance'. Telemedicine can be divided into asynchronous and synchronous communication. The latter type being more comparable to traditional patient-clinician consultations.

The use of telemedicine to deliver high-quality healthcare is increasing. We aimed to determine the patient satisfaction outcomes of synchronous telemedicine consultations in our tertiary allergy service.

Method

Patient satisfaction feedback was obtained from patients who had received telemedicine consultations between August 2018 – February 2019.

Results

Total number of completed feedback received was 11, 55% female and 45% male. 36% were skype consultations and 64% telephone consultations.

100% encountered no technical difficulties. 100% agreed a diagnosis was provided, they were treated with consideration and were provided with enough information regarding their condition/ treatment during their telemedicine consultation.

Only 27% felt the consultation was limited by not being face to face with a clinician. Reasons cited including wanting skin testing and wanting to show the clinician cutaneous signs.

64% were either likely or extremely likely to recommend allergy telemedicine consultations to friends or family members.

Conclusions

Telemedicine facilitates better access to care; removing travel time, travel costs and mobility burdens. In other specialties telemedicine has been demonstrated to provide quicker access to health services, improved health outcomes and significant cost savings.

In the United States, a 98% patient satisfaction for allergy telemedicine visits was reported. We also demonstrated positive patient feedback of telemedicine in our allergy service. Our lower patient satisfaction rates are likely due to the patient selection and better identifying patients appropriate for telemedicine consultations.

P039

Aspirin maintenance therapy: discontinuation rates in nsaid exacerbate respiratory disease.

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Objectives

NSAID exacerbate respiratory disease (NERD), also known as Samter's triad, is a triad of chronic rhinosinusitis, eosinophilic asthma with nasal polyposis and NSAID intolerance. NSAID use typically initiates both upper and lower airway symptoms. Aspirin desensitisation followed by aspirin maintenance therapy is an effective treatment option shown to reduce nasal polyp recurrence rate, need for systemic corticosteroids and rate of hospitalization amongst other clinical outcomes. Discontinuation of maintenance therapy is a barrier to successful aspirin therapy.

We aimed to characterize aspirin therapy discontinuation amongst NERD patients in a tertiary UK allergy centre.

Method

Included were patients who had undergone aspirin desensitisation followed by aspirin 300 mg maintenance therapy between 2014 – 2019. Both face to face and telephone follow-up consultations were utilised.

Results

Total number of patients included were 39: 46% male and 54% female.

54% continued and 46% (n=18) discontinued aspirin maintenance therapy.

Of those who discontinued aspirin maintenance therapy:

- 33% experienced gastrointestinal upset,
- 28% experienced no clinical benefit
- 17% were unable to complete the desensitisation process
- 11% missed aspirin doses for longer than 48 hours
- 11% either discontinued prior to surgery or following bleeding symptoms

Conclusions

Aspirin desensitisation followed by indefinite continuous aspirin therapy improves clinical outcomes in NERD.

In keeping with our findings, gastro-intestinal upset is the most reported adverse effect of aspirin maintenance therapy in literature. After adverse effects, the second commonest cited cause of discontinuation is lack of clinical benefit, which our data also supports. Our overall discontinuation rate was in keeping with the higher end of previously reported rates ranging from 6% to 46%.

With lower discontinuation rates of 9% demonstrated when protective medication including proton pump inhibitors are utilised, we should have a lower threshold for initiating aspirin maintenance therapy with prophylactic protective medication such as proton pump inhibitors (PPIs).

P041

Uptake of the BSACI registry for Immunotherapy (BRIT) amongst BSACI members during its first year of activity

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Objectives

The BSACI registry for Immunotherapy (BRIT) is an online prospective database for adults and children receiving allergen and venom immunotherapy, and omalizumab for Chronic Spontaneous Urticaria. It is available to BSACI consultant members practicing in the UK. Once registered consultants are able to enrol delegate users from within their clinical teams to assist with data entry. We reviewed the uptake and usage of the registry by BSACI members eight months after launch.

Method

A spreadsheet of current registered users was downloaded from the Registry on 13 May 2019 and data analysed in Excel. Cumulative registration data since launch was taken directly from the Registry. User demographics were compared to the totals for all BSACI members at the same timepoint to explore the representation of current Registry users.

Results

There were 104 registered users with steady growth since launch. 70 (67%) were consultants and 34 (33%) registered delegate users. 73 (70%) were from England outside London and 24 (23%) from Greater London. Clinical speciality was available for 76/104 (73%) of whom 46/76 (60%) were paediatricians, 19/76 (25%) were adult physicians, and 10/76 (13%) clinical nurse specialists or nurse consultants. Based on current BSACI membership this represents 51% of paediatric allergists, 14% of adult allergists, 12% of clinical immunologists, and 10% of general paediatricians with an interest in allergy.

Conclusions

The BRIT registry has shown steady uptake by BSACI members since its launch. Paediatric allergists have shown most engagement with signs of early uptake amongst adult allergists and immunologists. This should improve now that BRIT registration is required for RCP *Improving Quality in Allergy Services* (IQAS) accreditation. Other specialities may not practice immunotherapy leading to lower uptake rates. There is still work to be done to engage clinics around the UK in particular London and the devolved nations

P042

Management of patients with label of penicillin allergy in the Allergy Centre, Wythenshawe Hospital

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Objectives

The current practice of offering penicillin allergy testing (PAT) to patients with penicillin allergy (PenA) varies between centres. BSACI recommend the following for selecting patients with immediate PenA for PAT: Criterion-1: label of “multiple antibiotic allergies”; Criterion-2: frequent or recurrent infections; Criterion-3: requiring specific β -lactam antibiotics; Criterion-4: perioperative-anaphylaxis when penicillin is administered. We aimed to assess whether all eligible PenA patients are offered PAT at our Allergy Centre.

Method

The initial audit was conducted from October 2015 to September 2016, and re-audit from March 2018 to May 2018. All patients who had a history of immediate PenA and attended the Allergy Clinic were included in the initial audit (n=156) and re-audit (n=77). Clinic letters were accessed for co-morbidities and evidence/results of PAT. We compared our practice against BSACI criteria.

Results

The initial audit revealed 28/33 (84%) patients fulfilling criterion-1 and 12/14 (86%) patients meeting criterion-2 were offered PAT. Findings were highlighted at the departmental meeting and a summary was emailed to all members. In the re-audit, 14/15 (93%) patients fulfilling criterion-1 and 5/5 (100%) patients meeting criterion-2 were offered PAT. All patients meeting criteria-3 and 4 were offered PAT in the initial (Criterion-3=1 and Criterion-4=y) and re-audit (Criterion-3=7 and Criterion-4=2)

The initial audit demonstrated that 36 patients who did not fulfil the criteria above were offered PAT; 27/36 (75%) patients were successfully de-labelled and 8/36 (22%) have received penicillin from their GP since. In the re-audit, 23 patients who did not fulfil criteria above were offered PAT and 15 of them were successfully de-labelled.

Conclusions

The initial audit showed the vast majority of eligible patients were offered PAT and this improved further after a simple intervention. Importantly, offering PAT to additional patients to those BSACI-eligible could lead to de-labelling and allowed them to receive first-line antibiotics in the community.

P043

Polyethylene glycol 3350: An allergen not to be missed in depot medroxyprogesterone acetate.

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Objectives

The depot contraceptive Depo-Provera (medroxyprogesterone) contains polyethylene glycol (PEG) with a molecular weight of 3350. This excipient is likely to be the cause of acute allergic reactions reported to this drug. Since there is no standardised testing protocol for PEG allergy, our aim was to analyse our patients' diagnostic pathway.

Method

We performed a retrospective analysis of patients with a suspected history of Depo-Provera allergy who presented to our centre (Cambridge) from 2007 to 2019 focussing on their demographics, clinical presentation and diagnostic work up.

Results

There were seven females (age range 18-53 years, median 28) with a history of anaphylaxis to depot medroxyprogesterone: including one patient who also had history of anaphylaxis to Moviprep and three with a history of penicillin allergy. Skin prick testing to 150mg/ml (undiluted concentration) of depot medroxyprogesterone was positive in only one out of six patients. Out of four patients who underwent intradermal testing with depot medroxyprogesterone(1.5 mg/ml) only one was positive. Skin prick to PEG 3350 was positive in two out of four patients and positive in a further two patients to a higher molecular weight PEG, one with molecular weight of 8000, and the other to 20000. Intradermal PEG testing was performed in two cases. One patient has positive result to 0.1% concentration of PEG 3350 , and the other to a higher concentration of 1%. Both patients suffered a possible systemic allergic reaction shortly after the intradermal test.

One skin test negative patient underwent a Depo-Provera challenge with one tenth of the dose and had a positive challenge.

Conclusions

Polyethylene glycol is contained in large number of diverse classes of drugs. Parenteral administration as depot-medroxyprogesterone can result in severe allergic reactions. Skin testing to this common excipient should be carried out where suspected. Concise protocols remain to be established

P044

Safety, efficacy and long-term outcomes of the use of tranexamic acid in idiopathic angioedema

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Objectives

Tranexamic acid (TXA) is increasingly recognised as an effective therapy for idiopathic angioedema (IA), although there is little data on safety, overall efficacy across particular treatment groups, and whether patients require long term treatment, and at what dose. We examined a large dataset to answer these questions.

Method

Casenotes were reviewed for all patients treated with TXA for IA, with or without coexistent urticaria, at a single centre allergy clinic in a district hospital setting over the period 2008-2018. Data were collected on dose, duration of therapy, side effects, efficacy, long-term outcome of angioedema, and ongoing need for TXA.

Results

71 patients were assessed, mean age 43.6 years, of whom 68% were female, and 40% had urticaria; 2 stopped treatment early due to side-effects. Treatment overall was safe and well-tolerated, mean duration 1041 days, median 464 days. Side-effects were observed in 5 patients, mainly headaches/GI upset, with 1 small pulmonary embolus in a patient on high dose therapy. 78% of patients showed clinical benefit, with complete response in 22%; no difference in response rate was seen by sex, age or presence of urticaria. 30% of patients remained on therapy, often at lower doses or with as required use. 46% of patients still had angioedema, with persistence more likely in males, older patients and those without urticaria

Conclusions

1. TXA is a safe and effective long term treatment for idiopathic angioedema, across the clinical spectrum including in patients with urticaria. Side effects are generally mild and not treatment-limiting.
2. Many patients will have spontaneous resolution of angioedema, with persistence more likely in males, older patients and those without urticaria.
3. Long term treatment, often at lower doses, is required in a minority of patients

P045

Adrenaline autoinjector (AAI) provision and training among adult patients in the UK

Lynne Regent, Grace Brocklehurst

Anaphylaxis Campaign, Farnborough, United Kingdom

Objectives

The Anaphylaxis Campaign conducted a patient survey on the quality of allergy care in the UK. The objective was to identify current gaps in the standard of care, with a view to addressing these gaps with enhanced support and information.

Method

Patients who had an episode of anaphylaxis or were deemed at risk were questioned on their experiences of care including prescription of AAIs and training on their use. The survey was open for 6 months. The self-reported findings from adult respondents are presented here.

Results

Of 1217 respondents, 562 were adult patients. Respondents were aged from 17 to over 60 years, with a geographic spread across the UK. Ninety-three percent had been prescribed an AAI.

Two-thirds (65%) were prescribed two AAIs as recommended by the MHRA, with 24% prescribed one AAI. Half (50%) of respondents had carried AAI(s) for more than 15 years. Three-quarters (74%) agreed they were shown how to use their AAI when first prescribed (vs 20% who disagreed). Just 47% were given a training device (48% disagreed). A minority (28%) were directed to the company website for instructional videos (60% disagreed). Just 73% were informed that AAIs have an expiry date (19% disagreed), and 23% were told about the expiry alert service (67% disagreed). Fewer than half (41%) were given instructions on AAI storage (45% disagreed). Just 10% were shown how to use the device when collecting repeat prescriptions (79% disagreed).

Conclusions

Given the potentially life-threatening nature of anaphylaxis, it is surprising that a substantial proportion of patients are not instructed on proper use of their AAI, expiry dates and storage. The wrong number of pens are often prescribed, with limited direction to instructional resources.

P046

Anaphylaxis care and follow-up among adult patients in the UK

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Anaphylaxis Campaign, Farnborough, United Kingdom

Objectives

The Anaphylaxis Campaign conducted a patient survey on the quality of allergy care in the UK. The objective was to identify current gaps in the standard of care, with a view to addressing these gaps with enhanced support and information.

Method

Patients who had an episode of anaphylaxis or were deemed at risk were questioned on their experiences of care including referral times, advice and support. The survey was open for 6 months. The self-reported findings from adult respondents are presented here.

Results

A total of 1217 people responded, 562 of whom were adult patients. Respondents were aged from 17 to over 60 years, with a geographic spread across the UK. Ninety percent had experienced anaphylaxis. Half (50%) of patients first presented at general practice, 44% at A&E and 6% at an allergy clinic.

Just 36% of patients presenting to general practice reported that allergy avoidance advice was given (vs 49% who disagreed). The corresponding figure was higher among those presenting to an allergy clinic, but still suboptimal at 74% (16% disagreed). Information and support was limited. Less than a fifth (19%) of patients presenting to their GP were informed about resources for support or signposted to patient organisations (66% disagreed). The corresponding figure among those presenting to an allergy clinic was 56% (30% disagreed). Fewer than half (47%) of patients presenting to their GP, and 36% presenting to A&E, were referred to an allergy clinic after their visit.

Conclusions

Clinical experiences of adults at risk of anaphylaxis indicate a suboptimal standard of care. Advice on allergy avoidance and support services is lacking, and fewer than half of patients presenting to general practice or A&E are referred to an allergy clinic.

P047

Drug provocation testing (DPT) to exclude neuromuscular blocking agent (NMBA) allergy : a case report

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Objectives

NMBAs cause 33% of UK cases of perioperative anaphylaxis. Diagnosis relies on skin tests (ST) but these are associated with a high false positive rate. DPT is the gold standard test of tolerance but for NMBAs it presents challenges.

Method

A 36 yr old female undergoing laparoscopic cholecystectomy suffered severe peri-operative anaphylaxis with tryptase rise, immediately after administration of co-amoxiclav, and 10 minutes after receiving atracurium. The patient was successfully resuscitated, the procedure abandoned and 15 weeks later ST was positive to co-amoxiclav and all 7 NMBAs used in a standard panel. The latter were considered likely to be false positive. To confirm this, following Trust risk management approval, a challenge test to rocuronium was performed prior to the rescheduled cholecystectomy in an operating theatre with full standard anaesthesia monitoring. Incremental IV doses of 1/1000, 1/100 and 1/10 rocuronium were given to the awake patient, with the remaining 1/2 and full dose given after inhalation induction of anaesthesia. Other than rocuronium, no IV drugs were used in order to minimise confounding cardiovascular instability and exposure to other potential allergens. The 1/10 dose produced mild respiratory compromise and ptosis consistent with the pharmacological effect of rocuronium, but the patient was not distressed by this. After completion of the test, inhalation anaesthesia was supplemented with IV opioids and the surgery was completed uneventfully.

Results

The label of 'multiple NMBA allergy' may delay, compromise or prevent future surgery. A definitive diagnosis should be sought as for any drug allergy. NMBA DPT is used routinely in some countries: protocols range from a maximum 10% dose, to full dose DPT. Close collaboration between allergists and anaesthetists is crucial.

Conclusions

In selected cases of apparent multiple NMBA allergy, patient safety can only be assured following DPT to establish tolerance to a single agent.

P048

Increasing incidence of mammalian meat allergy over 10 years mirrors the rising deer tick population in Scotland

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Objectives

Mammalian meat allergy (MMA) is rare in the UK. Recent evidence linking MMA to arthropod saliva exposure, suggests a relationship with deer tick numbers in Scotland. Scottish tick populations have risen over the past 20 years through changing land use and warming climate. We hypothesised that this rise would be mirrored by an increasing incidence of MMA and that this would be mediated by specific IgE directed to galactose-alpha-1,3-galactose residues (alpha-gal).

Method

We conducted a retrospective analysis of adults with food allergy using records of specific IgE requests between 2005-07 and 2015-17. We identified MMA specific IgE requests and used chicken meat allergy as a non-vector transmitted control. We compared clinical and demographic details of MMA and CMA positive cases examining rurality, recreational pursuits and nature of incident reaction. Meat allergy was diagnosed by a compatible history, positive sIgEs and skin tests to meat.

Results

In West central Scotland we identified 2 cases of MMA between 2005-07 and 9 cases between 2015-17, (4.5 fold increase). In contrast CMA rose from 2 cases to 4 cases while the case load for the adult allergy service rose by 27%. Eight MMA cases were alpha-gal positive; 7 reported regular recreation or employment in rural regions of Scotland and all recalled receiving tick bites. All 8 alpha-gal positive cases reported >2.5 hour delay between meat consumption and symptom onset while 6 described allergy cofactor exposure. The earlier MMA cases described a delay in clinical onset typical of the Alpha-gal MMA syndrome.

Conclusions

In conclusion we find that MMA allergy remains a rare but increasing problem in Scotland. This change is closely related to tick exposure. Changing land use for deer farming and recreation means that both rural and urban populations are at risk. Alcohol and exercise are significantly related to severity of reaction in our patients.

P049

Combined use of ciclosporin and omalizumab for the treatment of chronic spontaneous urticaria.

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Objectives

There is widely used guidance for the management of chronic spontaneous urticaria and angioedema (CSU) as published by BSACI and EAACI. However, there is little guidance on how to treat patients who have failed standard second and third line therapies. There is increasing evidence for the up dosing of omalizumab, but evidence for combining immunomodulatory therapies in resistant cases is lacking. Here we present two patients who have successfully been treated with a combination of ciclosporin and omalizumab.

Method

Patient 1, a 40 year old man with CSU did not respond to ciclosporin on two occasions. He initially responded to omalizumab at 300mg 4 weekly dosage, but unfortunately developed secondary non-response to omalizumab after 1 year. Omalizumab up dosing to 600mg 4 weekly was ineffective. He was treated with ciclosporin 3mg/kg and omalizumab 600mg 4 weekly combined treatment, achieving full remission. He remained on dual treatment for 5 months, without adverse events.

Patient 2, a 44 year old man with CSU did not respond to ciclosporin on three occasions. He showed initial remission, with subsequent relapse within several weeks to 6 months after discontinuing ciclosporin. He was then commenced on omalizumab, but did not respond to conventional doses. He was up dosed to 600mg 4 weekly. On high dose omalizumab, there was a partial response. Ciclosporin (1mg/kg) was re-commenced alongside omalizumab achieving remission for 4 months without any adverse events.

Results

There are other case reports/series reporting on the combined use of omalizumab and ciclosporin. These cases report the use of conventional dosage of omalizumab 300mg 4 weekly, alongside ciclosporin (dose range 1.5-3.7mg/kg). There were no adverse events reported in these case reports/series.

Conclusions

Combined omalizumab and ciclosporin treatment was successful in inducing remission in two patients with treatment resistant chronic spontaneous urticaria. Treatment duration was 4-5 months and no adverse events were reported.

P050

Cochineal extract-induced allergy

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Objectives

Cochineal extract is a natural red colorant derived from the dried female cochineal insects *Dactylopius coccus*, a parasite of the prickly pear cactus native to Central and South America, particularly Peru. Carminic acid, the principle red colouring matter, and its product, carmine, are world widely used as colouring agents in the manufacture of food, cosmetics, and drugs. Immediate and delayed hypersensitivity reactions have been reported mainly in Japan and USA, and sparsely in Europe.

Method

We report a case of a 34-year-old female who developed severe abdominal pain, nausea, diarrhoea and persistent vomiting within 90 minutes after eating red-coloured button-shaped chocolates. A few months later she exhibited the same symptoms after eating a piece of red velvet cake. On a third occasion, she ate one pink macaroon and immediately felt unwell with stomach ache and vomiting. She has had no further reactions after avoiding all foods containing red colouring. Specific IgE for cochineal extract was elevated (1.57 kUA/l). She is otherwise fit and well with mild seasonal allergic rhinitis. There is no history of asthma or eczema.

Results

Hypersensitivity reactions to cochineal extract are believed to be due to inadequate removal of insect-derived proteins during the purification of the cochineal dye and carmine. Cochineal-sensitive patients should be educated to check labelling for colour (120), colour (E120), cochineal, carmine, cochineal carmine, carminic acid, or colour index (CI 75470).

Conclusions

To our knowledge, this is the first reported case of an IgE-mediated hypersensitivity reaction induced by ingestion of a cochineal extract-containing food in the United Kingdom. Since natural red colorants have been widely used in foods, drugs and cosmetics, allergy professionals need to have a high index of suspicion to cochineal extract, especially with atypical or unclear cases where pink or red substances are involved.

P051

Use of oat-based skin products is associated with oat-sensitisation in a single-centre, retrospective cross-sectional cohort of adults with atopic dermatitis

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Objectives

Exposure to peanut oil-based creams has been associated with peanut allergy in infants with atopic dermatitis (AD) and use of such products in young children is avoided. Meanwhile, in England, oat-based skin products (OSP) are widely prescribed; 1.6million prescriptions in 2018 at a cost of £12.5million GBP. The objective of this study was to investigate associations between OSP-use and oat-sensitisation in adults with AD.

Method

This was a retrospective study utilising hospital electronic records of patients attending the Food Allergy or the joint Allergy/Dermatology Clinic of a tertiary Allergy Service in London in 2018. All AD-patients who underwent oat skin prick testing (SPT) during their consultation were included. SPT results and information regarding use of and reactions following OSP were extracted. OSP-users were defined as those who reported previous or current use of an OSP. Associations between oat-sensitisation and OSP-use or OSP-reactions were calculated with Fisher's exact test. The probability of oat-sensitisation in the OSP-users versus the non-users was calculated as the relative risk (95% Confidence Interval).

Results

One hundred and forty-three (94 female) AD-patients tested for oat were identified (mean age = 35 yrs (SD +/-13). Forty-one (28.7%) had a positive oat SPT. Over half (53.7%) of the oat-sensitised patients had or were using an OSP as opposed to 17.6% of the non-oat-sensitised patients ($p < 0.0001$). OSP users had a 3-fold risk of oat-sensitisation compared to non-OSP users (95% CI 1.8-4.9; $p = 0.001$). Only 2.9% of the non-oat-sensitised OSP-users reported reaction(s) following use as opposed to the 24.4% in the oat-sensitised subgroup ($p = 0.002$).

Conclusions

Our results indicate a significant association between OSP-use and oat-sensitisation. We also demonstrated an association between self-reported reactivity to OSP and oat-sensitisation. Prospective studies considering eczema severity, and length of OSP-use are required to provide better understanding of these associations and to inform recommendations regarding potential avoidance.

P052

A case presentation of a gentleman admitted with food bolus obstruction

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Objectives

Eosinophilic oesophagitis (EoE) can be defined as the presence of oesophageal dysfunction and mucosal inflammation secondary to eosinophilic infiltration, in the absence of other differential diagnoses. The incidence of EoE is growing, with one study estimating an increase of 4.4-7.4 cases per 100,000 of the population between 2005 and 2011. Many patients have a history of atopy, although evidence to support the targeted elimination of food groups through allergy testing remains inconclusive.

Method

A 30 year old gentleman presented to the emergency department with dysphagia, recurrent vomiting and a feeling of something being stuck in his throat, after recent consumption of chicken for his dinner.

An urgent OGD was arranged. The obstruction was removed and photos from the procedure demonstrated furrows and concentric rings, which were highly suspicious for eosinophilic oesophagitis. This was later confirmed from biopsies and the patient was commenced on PPIs, before being followed-up in outpatients.

Results

EoE occurs in three times as many males as females, with notable peaks during childhood and in the fourth decade of life. It can take up to 4-5 years for a diagnosis to be made from the onset of symptoms using the history, histology results and endoscopy results. An eosinophil count of ≥ 15 per high power field is a characteristic finding. The mainstays of treatment are the empiric elimination and elemental diet therapies, PPIs and ingested topical corticosteroids.

Conclusions

EoE can have a significant impact on quality of life, leading to patients developing coping mechanisms, such as avoiding problematic food groups or excessively chewing their food.

Chronic inflammation causes irreversible remodelling, which can lead to complications including stricture formation and food bolus obstruction.

The introduction of new treatment options remains a priority, as the diet therapies are poorly tolerated by some patients and symptoms usually return within weeks of discontinuing topical corticosteroids.

P053

A successful desensitization to metronidazole with multiple fixed drug eruptions (FDE)

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Background

It is not common to encounter fixed drug eruptions to metronidazole. In addition, there is no standardized protocol for the desensitization of delayed drug hypersensitivity. We would like to report a successful case in which the patient suffered from multiple fixed drug eruptions to metronidazole and required repeated metronidazole desensitization.

Case presentation

A 26 year-old woman was referred with a suspected allergy to metronidazole which is the only best treatment for her *Trichomonas vaginalis* infection.

She recalled the development of hives after receiving metronidazole. Skin prick test and intradermal test to metronidazole were negative. She then proceeded with a oral provocative test with 400mg of metronidazole which confirmed of multiple fixed drug eruptions. She was treated with oral prednisolone & anti-histamines.

In view of the lack of alternative treatment, she received a desensitization to metronidazole. After day one, she reported having itchy red patches over the fixed drug eruption sites which she encountered previously. Otherwise, she tolerated the remaining desensitization protocol without any use of rescue medications. The target dose of metronidazole was reached on day eleven.

Unfortunately, her *Trichomonas vaginalis* infection was not cured after the first course of treatment. She received another course of metronidazole using the same protocol and she tolerated the course without any adverse events.

Discussion

There are only a few publications for metronidazole desensitization – but none is targeted for delayed fixed drug eruptions. Little is known related with the pathophysiology of delayed drug hypersensitivity reactions. Our case is a good illustration in which practically a desensitization can be safely carried out in fixed drug eruptions without the need of hospitalizations.

Conclusions

Desensitization to metronidazole can be carried out in a patient who suffered from fixed drug eruptions safely and effectively.

CATEGORY ALLIED HEALTH

P054

Evaluation and development of an allergy-focused dietetic outcome tool (ADOT) for use in allergy dietetic services. A pilot study at The Royal London Hospital.

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Objectives

Interest in demonstrating/improving the effectiveness of dietetic intervention(s) has been growing. In response the Food Allergy Specialist Group developed an allergy-focused dietetic outcome tool (ADOT). This study evaluated whether an adapted ADOT improved reporting of dietetic goal outcomes in paediatric allergy patients after intervention. A refined ADOT for future use by dietetic services was developed.

Method

ADOT was adapted for use at the Royal London (RLH) – renamed ADOT1. Following a 1-year pilot (June 2017 – June 2018), 20 participants (≥ 1 food allergy who had received dietetic counselling) were selected randomly from paediatric dietetic outpatients. These were compared retrospectively (via clinic letters) with 20 similar participants pre-ADOT1 use (June 2016 – June 2017) seen in dietetic clinic. Achievement of dietetic goals was assessed at follow-up. Dietitian feedback around using ADOT1 was collected. Following comparison with 5 other UK specialist dietetic outcome tools - ADOT2 was developed.

Results

RLH dietitians recorded 49 goals at baseline from pre-ADOT1 and 56 goals in pilot-ADOT1 group. Improving micronutrient status was most frequently chosen goal for both groups (11/49 pre-ADOT, 15/56 pilot-ADOT1). A higher proportion of dietetic goals were recorded as “achieved” at follow-up in pilot-ADOT1 group compared with pre-ADOT1 (64% vs 41% respectively $p=0.03$). ADOT1 use enabled rapid analysis of participant goal results. Following feedback ADOT2 was developed to capture 3 overarching longer-term health/clinical outcomes following dietetic intervention (annually) and 10 shorter-term dietetic goals that contribute to ensure longer-term outcomes are facilitated.

Conclusions

Use of ADOT1 led to an improvement in recording of dietetic goals and their achievement. This provides valuable data to demonstrate the effectiveness of dietetic intervention in paediatric allergy patients. Small sample size limits power of the study, but serves as a driver for future research and in our case development of an “enhanced” paediatric dietitian-led clinic. A larger pilot study is proposed using ADOT2.

P055

Growth indices of children with food allergy attending a tertiary paediatric allergy clinic

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Objectives

Our primary objective was to review growth indices of children with food allergies referred into the paediatric allergy clinic. Our secondary objective was to gather data on the demographics of the allergy dietitian caseload to shape future service development.

Method

Patient data was gathered from electronic patient records (EPIC). Baseline z scores and z scores at last allergy review for; weight-for-age, height-for-age, BMI-for-age, number and type of food allergies, and whether the child was under the care of a dietitian were gathered. Patients with incomplete data and those with a non-allergy diagnosis that would impact their growth were excluded.

Results

67 patients were included in the analysis. Patients who attended the paediatric allergy clinic at Addenbrookes Hospital over the last year did not experience a significant change in their z scores for height-for-age ($p=0.93$), weight-for-age ($p=0.44$), and BMI-for-age ($p=0.11$). 6% were underweight at baseline, and 3% were stunted (z score <-2) with another 3% who were severely stunted (z score <-3). 36% were seen by the allergy dietitian and 9% were seen by their local dietitian. All children with a poor growth history were referred to the dietitian, and all but one saw improvement in weight-for-age and height-for-age z scores. All children with 7-8 food allergies were referred to the dietitian.

Conclusions

Most patients attending our centre have z scores for weight-for-age, height-for-age and BMI-for-age within the normal range, with no significant change over time. 52% of food allergic patients are not seen by a dietitian, indicating a service need for increased dietetic input to the clinic. Patients with a poor growth history benefit from dietetic input. Number of food allergies did not appear to be a strong indicator of poor growth.

P056

Serology with specific IgE in children with asthma could lead to substantial cost savings for the NHS: a population-based simulation study

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Objectives

Asthma affects one child in 11 [Asthma UK], and 90% of children with asthma have allergic triggers [Allen-Ramey 2005]. Numerous studies demonstrated that a successful strategy for preventing exacerbations include the identification of triggers [Murray 2007, Morgan 2004, Zethraeus 2010]. As 65% of asthmatic children are sensitized to mites, dust-mite-impermeable encasings could reduce the burden of asthma [Murray 2006 & 2017].

This study estimates the potential cost savings to the NHS, should allergy testing (serology with specific IgE d1) be performed in the total population of asthmatic schoolchildren in the UK, and should interventions to reduce allergens exposure to mites be in place.

Method

In 2016, 8,669,085 pupils attended school [Mukherjee 2016]; 788,099 of them were asthmatic and 512,264 sensitised to mites. Allergy testing (d1) in all asthmatic schoolchildren was simulated; exposure to triggers was reduced through house dust mite encasings among sensitised children. Model input parameters came from the literature; the modelled output, from the NHS perspective, were exacerbation-related hospital admission costs per year.

Results

In 2016, mites-related hospital admission costs were estimated in £611,896,729. The simulated intervention consisted in testing with d1 all asthmatic children (costing £88,858,163), and in the usage of house dust mite-impermeable encasings in all mites sensitised children (£0, no cost for the NHS). After the intervention, simulated total hospital admissions costs dropped to £432,011,928 in 2016. The total savings associated to the simulated intervention were £91,026,638 in the year 2016, and £105,098,890 in the 5-year time horizon 2016-2020.

Conclusions

If the NICE guideline NG80 [NICE Guideline NG80, November 2017] recommendation to screen for sensitization to aeroallergens was implemented for all school-aged asthmatic children in the UK, our model indicates potential cost savings of more than 100 million pounds over five years due to reduced hospital admissions with asthma exacerbations.

P057

Developing a home-based milk reintroduction ladder that includes ‘Asian foods’ for children with cow’s milk allergy (CMA).

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Objectives

The Leicester Children’s Allergy service dietetic team has developed a home-based milk reintroduction ladder for children with CMA. As our service has a large south Asian patient population, we wished to expand our ladder to include popular Asian foods to allow families to manage reintroducing milk with foods common to their diet.

Method

We gathered information from many sources (parents, relatives, staff, Asian food stores, internet) on ingredients of commercial pre-packed foods and home-cooked recipes common to Gujarati, Punjabi, Pakistani and Bangladeshi communities. Food items and recipes were allocated ladder stages based on their milk quantity, heating time and food matrix. Children with IgE-mediated CMA were advised to introduce Asian food items only after tolerating ladder stage 1. Families were contacted at intervals regarding their progress and to document any problems.

Results

Families reported the most popular foods new to the ‘Asian’ ladder were dokra, aandvo, kadi and dishes using yoghurt marinades. One family reported a delayed mild reaction when homemade tepla (containing a tablespoon of yoghurt) was introduced. Further analysis showed that the portion of milk protein was too high and there was insufficient heating; tepla was therefore moved further down the ladder from stage 2 to 3. Families welcomed the inclusion of familiar family foods into the ‘Asian’ ladder.

Conclusions

This is our first effort to expand our milk ladder to include foods familiar to our south Asian communities. This preliminary report suggests that these new inclusions were well received. More experience will improve our dietetic knowledge on new ingredients and recipes, guide more accurate stage allocation and support additional food inclusion in the ‘Asian’ ladder. We plan to use our experience to develop bespoke ladders for other communities.

P058

A comparison of attitudes and condition beliefs of 11-16 year olds with and without a diagnosed food allergy.

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Objectives

Adolescents with food allergy (FA) are an age group that is associated with higher rates of allergic and fatal allergic reactions potentially due to increased risk-taking behaviour. As peers were highlighted as important yet no previous research looked at their beliefs, we recruited a further sample to explore these beliefs and compare them to the FA sample and identify a focus for a peer-led intervention.

Method

Participants aged 11 to 16 years, with FA (n=20) and without FA (n=16), living in the 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

Four themes were observed through the process of thematic analysis; 1) anaphylaxis and adrenaline auto-injectors (AAI's): views of severity, 2) questioning accuracy and necessity: looking at labels, 3) managing FA in different situations, and 4) education and improvement; peers, schools and beyond.

Conclusions

Adolescents with no history of FA were able to imagine some aspects of life with a food allergy in line with FA diagnosed adolescents beliefs. Conflicting beliefs surrounded the areas of communication and education; adolescents with FA believed their peers were unwilling to learn, while the peer sample acknowledged they had gaps in their knowledge and wanted to learn, but were reluctant to ask questions so not to pry. Adolescents from both samples emphasised the need for further education in their age group, as well as the wider community, in aspects such as anaphylaxis and adrenaline auto-injectors.

P059 Post-traumatic stress symptoms in parents of children with food allergy.

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Objectives

Parents of children with food allergy often witness their child's allergic reactions, including life threatening reactions. Whilst existing qualitative research has described parent experience suggestive of post-traumatic stress, there has been limited quantitative empirical research in this area. This research study aims to address this area.

Method

One hundred and four parents of children (aged 0-16 years) with food allergy were recruited to an online survey of parent wellbeing through social media (N=96) and an allergy clinic (N=8). Parents were required to be UK residents, and indicate that their child's allergy had been medically confirmed. Parents were asked to complete the Impact of Events Scale – Revised (IES-R; Weiss & Marmar, 1997) in response to the most stressful food allergy related event they could recall. The IES-R is a validated trauma measure that assesses post-traumatic stress symptoms over the past week.

Results

Forty-four parents (42.3%) scored above the cut-off indicative of clinically significant post-traumatic stress symptoms. Of those reporting significant post-traumatic stress symptoms, the events parents responded to were: witnessing anaphylactic reactions in their children (56.8%); witnessing non-anaphylactic allergic reactions (36.4%) and other events (6.8%). 'Other' responses largely related to hearing that their child had been exposed to their allergen (e.g. at school). The median time since the traumatic event varied from less than one week to ten years, with a median of 11 months.

Conclusions

Witnessing a child's allergic reaction is not a neutral experience for parents. Some parents may go on to develop symptoms of post-traumatic stress, and this may occur in response to mild-moderate as well as life threatening allergic reactions. Furthermore, for many parents trauma symptoms can persist for months or years after the event. Therefore, there is a clear need for further research and clinical awareness in this area.

P060

Interventions to improve outcomes for caregivers of children with food allergies: A systematic review

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Objectives

Studies have identified that food allergy (FA) in children is related to poorer parental quality of life (QoL) and mental health. However, it is unclear what interventions are most effective in supporting these caregivers. The aim of this review was to determine the acceptability and efficacy of supportive interventions that target parents of children with food allergies.

Method

A systematic search of four databases was conducted to identify peer-reviewed studies evaluating any intervention (e.g. educational, psychological, social, behavioural) that targeted knowledge and wellbeing of parents and caregivers of children with food allergies. Studies were not excluded based on research design. Assessment of study quality was conducted using the Mixed Method Appraisal Tool (MMAT).

Results

A total of 15 studies met inclusion; eight studies used a pre-test post-test design, four used a post-test design, two were randomised controlled trials and one a case-control design. Six studies were educational interventions, five were psychological interventions, and four were peer/professional support interventions. The review found that all interventions had high acceptability with participants, and educational interventions reported an improvement in food-allergy knowledge. Of the psychological interventions, there was some evidence for the use of cognitive behavioural interventions in supporting mothers. When assessed for quality, seven scored between 0 and 25% on the MMAT, six scored 50% and only two scored 75-100%.

Conclusions

There is a paucity of high-quality research evaluating interventions to support parents of children with food allergies. However, studies indicate that providing psychosocial education to caregivers may influence their wellbeing. Limited evidence suggest that cognitive behavioural interventions could also offer mothers some benefits but has not been tested on other populations. The current research suffers from methodological constraints which limit the validity of reported outcomes. Future research should use more methodologically sound designs and use validated outcome measures.

P061

Subcutaneous Venom Immunotherapy: A Nurse Led Service

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Objectives

Hymenoptera is an IgE (Immunoglobulin E) mediated hyper sensitivity to the venom of insects such as bee and wasp. Insect stings are the second most frequent cause of anaphylaxis in the UK, second to drug allergy and two to three times greater than food allergy. There is no current data on the prevalence of severity of hymenoptera stings in the paediatric population.

BSACI guidelines recommend Venom Immunotherapy (VIT) may be indicated for certain individuals for treatment of IgE mediated allergy to bee or wasp sting. NICE guidance recommends all patients with a history of severe reaction should be referred to a specialist allergy centre for further investigations.

Evelina London Children's allergy service provides VIT for children in our nurse – led allergy day unit, by competent experienced staff who are able to provide emergency treatments to treat anaphylaxis and life-threatening episodes. This includes SptIgE blood testing, Skin prick testing and intradermal testing. Counselling regarding the VIT process including; commitment, risks, benefits and intended outcome, to manage the family's expectations is also discussed. patients attend every weeks for year 1, every 6 weeks for year 2 and every 8 weeks until cessation.

Method

A prospective evaluation of patients receiving VIT between 2014-2019 was performed.

Results

14 patients were commenced on subcutaneous immunotherapy for venom. 2 patients have finished the 5 year course with 1 withdrawing from treatment.

Out of the 11 current patients 4 patients (36%) Bee VIT and 7 (63%) undertaking wasp VIT. 1 patient had a recent wasp sting on the lip and experienced localised swelling. No other patients have had recent stings. Anaphylaxis has not occurred on the unit during administration of SCIT.

Conclusions

SCIT can be safely administered following guidelines for VIT administration and can be performed by a skilled competent allergy clinical nurse specialist team. A 5 year course can be completed by patients when well informed of the clinical process.

CATEGORY BASIC SCIENCE

P062

Interpretation of tryptase results – is dynamic tryptase useful?

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Objectives

During anaphylaxis, tryptase can be measured in the serum within a few minutes, peaks within 1-2h and falls back to baseline 6-12 hours later. Clinically significant concentrations are >95th or >99th percentile of normal 11.4 ug/L or 14 ug/L, respectively. However, only approx. 50% of clinical peri-operative anaphylaxis episodes show a raised tryptase. The change in tryptase from baseline to peak may have better utility at diagnosing anaphylaxis. A number of “dynamic” interpretation formula have been proposed such as peak tryptase >(1.2 x baseline + 2 ug/L) or peak >20% of baseline. The clinical utility of different tryptase interpretation algorithms was assessed.

Method

Tryptase results from November 2014 to November 2017 and associated laboratory and clinical records were reviewed. Data was analysed in Excel.

Results

547 tryptase tests were performed by Mid Essex NHS Trust. These were mainly requested by Allergy outpatients (47%) and Emergency department (18%). The main clinical indication was an acute allergic reaction (52.1%) or mast cell activation disorder/mastocytosis (27.6%) but 20.3% were taken for cutaneous symptoms only or none allergy reasons. 115 acute episodes were identified. Patient notes were obtained for 48/115 episodes. 19/48 (39.6%) had tryptase of >11.4 ug/L, 13/48 (27.1%) had a tryptase >14 ug/L, 16/48 (33.3%) had tryptase >1.2xbaseline+2ug/L, 17/48 (35.4%) had tryptase >20% baseline. Unfortunately, for 18/48 (37.5%) the dynamic interpretation could not be calculated due to insufficient date/time information.

Conclusions

Dynamic tryptase has potential to improve clinical interpretation of tryptase but it is essential that requests are clearly labelled with the date and time of reaction and sample collection. Plans are in place to amend the electronic ordering system to have a mandatory field for reaction date and time.

P063

Comparison of sensitisation profiles using the ImmunoCAP Immuno-solid phase allergen chip (ISAC) and the Allergy explorer (ALEX) platforms

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Objectives

To compare the sensitisation profiles of the shared components of the ISAC (Thermo Fisher) and the ALEX (Macro Array Diagnostics) platforms in 108 serum samples obtained from patients attending the allergy service at University Hospital of Wales.

Method

The ImmunoCAP ISAC contains 112 allergen components (103 components prior to 2011), the ALEX contains 282 allergens (157 extracts and 125 components), of these 80 components are shared by both methods. Both methods were performed in accordance with manufacturer's instructions. The majority of samples (n=100) were historic samples stored at -20°C which had previously been tested by ImmunoCAP ISAC. A small proportion of new patient samples (n=8) were also compared by both methods. Data was analysed by comparing the results from both methods. Positive results were categorised as ImmunoCAP ISAC ≥ 0.3 ISU, ALEX ≥ 0.30 kUA/L (negative results categorised as ImmunoCAP ISAC < 0.3 ISU, ALEX < 0.3 kUA/L).

Results

Overall agreement between methods ranged from 81.5 to 100% with a mean agreement value of 96.7%. The sensitisation profiles also correlated well with patient clinical details and other parameters where available (e.g. skin prick testing (SPT)/ImmunoCAP specific IgE). A sub-analysis of allergens such as rAra h 2 also demonstrated excellent correlation between methods (100% positive/negative correlation). When compared quantitatively, rAra h2 gave a correlation coefficient (r^2 0.75) taking into account that the methods utilise different units (ISU and kUA/L). Where ImmunoCAP rAra h2 specific IgE results were available (n=20), 100% correlation between positive/negative results (ImmunoCAP specific IgE negative results < 0.35 kUA/L, positive results ≥ 0.35 kUA/L) was observed when compared to both ALEX and ImmunoCAP ISAC.

Conclusions

This data demonstrates a good correlation in overall sensitisation profiles between methods as well as individual components when sub-analysis was performed (such as rAra h2). These results also correlated well with other parameters where applicable including ImmunoCAP specific IgE and SPT.

CATEGORY PAEDIATRIC SCIENCE

P064

Are we prescribing an appropriate dose of adrenaline auto-injectors for self-administration in the over 60 kg Paediatric Allergy population?

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Objectives

Several important considerations emerged from Natasha Ednan-Laperouse's inquest after she suffered a catastrophic anaphylactic reaction. Amongst these were the appropriate needle length and dose of adrenaline auto-injector (AAI) device. Epipen and Jext have 300 mcg AAIs with 15mm needles; Emerade has 300 mcg and 500 mcg doses with a 25 mm needle. The 500 mcg Emerade is recommended for adolescent patients > 60kg, depending on clinical judgment. We aimed to evaluate our clinical practice in AAI prescribing for self-administration in the over 60kg adolescent group.

Method

We audited the prescription of adrenaline auto-injectors in children over 12 years old and ≥ 60 kgs attending our allergy clinic between August 2018 and March 2019. Their medical records were reviewed retrospectively.

Results

23 children (83% male) aged 12-19 years and weighing ≥ 60 kgs (60-106 kgs; mean = 74kgs) were identified from our clinic database. 65% (15/23) of patients had multiple (≥ 2) food allergies. Emerade 500mcg was prescribed in 4/23 patients (17%). It was considered in one further patient but not prescribed. 12/23 children (52%) carried a 300mcg Epipen, 5/23 (22%) carried a 300 mcg Jext and 2/23 (9%) carried a 300mcg Emerade.

Conclusions

In this small audit, only 17% of adolescents over 60kgs were prescribed the 500 mcg Emerade auto-injector. Increased awareness is required amongst paediatric allergy specialists for optimal dosing of AAIs. The additional benefit of Emerade 500mcg includes its longer needle length increasing the likelihood of an intramuscular injection.

P065

DGH experience of managing children presenting with anaphylaxis.

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Objectives

- 1-To assess how the management of anaphylaxis in children complies with local and national guidance.
- 2-To identify deficiencies in the management of anaphylaxis.

Method

Retrospective case notes review of children seen in Pilgrim Hospital, Boston.

Results

We reviewed 17 case notes retrospectively over 24 months. 58.9% of children were > 5yrs age with a slight predominance of boys (52.9%). Only 76.5% of children were seen in A&E following anaphylaxis symptoms. In 58.9% of cases, the possible trigger was identified. The most common identified agent identified was peanut in 23.5%.

76.5% of patients were referred to A/E and 53.8% of children who were seen in A&E were administered AAI. 84.6% of children who presented to A&E had a complete set of observations.

76.9% of children presenting to A&E were observed in children unit for at least 4 hours.

Overall 88.2% of children were referred to paediatric allergy services in Pilgrim hospital.

70.6% of children were recorded to have received allergy action plan. Training for AAI use was recorded in 82.4% of clinical notes.

Conclusions

We have identified the number of areas of improvement in the management of children presenting with anaphylaxis. We aim to share lessons with various stakeholders including A&E, GP surgeries and paramedics staff with the ambulance.

P066

Anaphylaxis during oral egg challenges in a pediatric tertiary care centre: would the BSACI home introduction criteria have been met?

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Objectives

To assess whether children who experienced anaphylaxis during the egg oral food challenge (OFC) or supervised feed (SF) performed at our tertiary care centre over five years met the BSACI criteria for home based introduction of egg.

Method

We performed a retrospective analysis of egg OFCs and SFs conducted at the Children' Allergy Service, Evelina London UK, over a period of more than 5 years, from January 2014 until April 2019.

Results

678 egg OFC were performed at our Service from January 2014 until April 2019; 475 (70.1%) were OFCs and 203 (29.9%) were SFs. 346/475 (72.8%) of OFC and 95/203 (46.8%) of SFs were performed with baked egg. 8/678 patients (1.2%) experienced anaphylaxis during the egg OFC. 6/8 (75%) patients did not meet the BSACI criteria for egg home introduction: four children had asthma, one had previous history of vomiting and cutaneous symptoms and one due to age. 2/8 (25%), however, met BSACI criteria for home introduction.

Patient 1 experienced only skin symptoms at 7 months. Baked egg OFC was performed at 33 months; skin prick tests (SPT) to egg white (EW) 10 mm prior the procedure. Patient 2 avoided egg due to positive SPT but ingested some pasta at eight months without the reaction. Baked egg OFC was performed at 36 months; SPT to EW 4 mm prior the procedure.

Conclusions

Our data show that anaphylaxis can occur in children who meet current BSACI criteria of home-reintroduction of egg and repeating skin prick tests before advising to reintroduce egg at home should be considered. Families who are advised to reintroduce egg at home should be instructed about symptoms of allergic reactions and when to seek urgent medical help.

P068

Food challenges: a comparison of raw egg versus pasteurised egg powder in determining resolution of egg allergy in a tertiary allergy centre.

Alyson Barber, Eleanor Minshall

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Objectives

Egg allergy is relatively common with the majority of children growing out of their egg allergy. Oral food challenges (OFC) to unbaked egg should be undertaken to confirm resolution. We have previously used OFCs to pasteurised egg powder, however recent changes in product labelling has meant that we are unable to use egg powder in children allergic to either milk or nuts. As such, we are now using whole raw egg. The aim of this study was to determine if there were any differences between the failure rate using raw egg versus pasteurised egg powder and the types of reactions exhibited.

Method

Children tolerating baked egg who were believed to have grown out of their egg allergy underwent OFCs were performed in a medical day care setting by experienced allergy nurse specialists. Using PRACTAL guidance, individuals were offered 5 incremental doses of whole raw egg, or pasteurised egg powder.

Results

Over an 18 month period (Jan 2018 – June 2019), 116 challenges to raw or pasteurised egg were performed. The mean age of the children was 5.1 years. Of these, 34 (29%) children failed the egg challenge (raw egg, n = 14, 27%; egg powder n = 20, 36%). There were no instances of anaphylaxis but those children reacting to raw egg tended to do so at a later stage in the challenge with more gastrointestinal symptoms.

Conclusions

The overall challenge failure rate to using powdered egg verses whole raw egg is equivocal. This indicates that to use raw egg in order to prove that a child has outgrown their egg allergy safe an appropriate to use. However challenges to raw egg appeared to fail later in the challenge and need an additional period of observation.

P069

A new synbiotic eHF for infants with cow's milk protein allergy is well tolerated, highly acceptable and supports good growth and intake over 28 days

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Objectives

The aim of this study was to evaluate intake, growth, gastrointestinal (GI) tolerance and acceptability of a new extensively hydrolysed formula (eHF) containing prebiotics (galacto-oligosaccharides/fructo-oligosaccharides) and probiotics (*B.breve* M16-V) (collectively: 'synbiotics') in infants with cow's milk protein allergy (CMPA) over 28-days.

Method

In this single-arm study, 17 infants with non-IgE-mediated CMPA (mean age 7.5mths, range 3.1-12.3) conducted a 3-day baseline period (no changes in eHF prescription) followed by a 28-day intervention period in which a new synbiotic eHF was introduced (Aptamil Pepti Syneo (APS)). Formula consumption was reported daily by the parent/carer. Length, weight and head circumference were measured using standardised methods at baseline and study end and the change in absolute measures and in z-scores was calculated. GI tolerance was recorded via standardised questionnaire. Parents/carers completed a Likert-style acceptability questionnaire at baseline and study end for ease of use, perceived enjoyment and overall liking of their usual eHF and of APS.

Results

Mean intake of APS (572±210ml/day, providing 48.1±22.4kcal/kg/day) was not significantly different to mean intake of baseline eHF (584±234ml/day, providing 49.2±24.4kcal/kg/day, $p=0.56$). There were significant increases in all absolute anthropometric measures (length: +2.3±1.0cm; weight: +0.55±0.23kg, head circumference: +1.05±0.78cm; $p<0.05$ for all) and significant increases in z-scores, despite stable formula intake (z-score changes, length: +0.30±0.41; weight: +0.20±0.18, head circumference: +0.37±0.61; $p<0.05$ for all). Tolerance was good (94% tolerated APS), with no significant changes in any GI symptoms ($p>0.05$). Acceptability of APS was high, with 100% positive responses

(agree/strongly agree) for ease of use, 93% for perceived enjoyment and 87% for overall liking (compared to 93%, 80% and 80%, respectively, for usual eHF).

Conclusions

Patients maintained good growth with APS, an eHF with synbiotics which was well tolerated and rated as highly acceptable compared to patients' previous eHF. The positive growth observed warrants further evaluation with longer term follow-up.

P070

Isotretinoin treatment in a patient with soy and peanut allergy.

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Background:

Peanut and soy both belong to the legume family. The incidence of these co existing allergies is small and cross reactivity unclear. Common clinical practice does not recommended patients with peanut allergy avoid soy due to concerns regarding cross reactivity. Despite this, the European Medicine Agency recommend that medicines containing soy are contraindicated in peanut and soy allergic individuals which includes isotretinoin.

Case History:

A 15-year-old boy with severe acne and multiple allergies including peanut and soy. He was referred by his dermatologist whose preferred treatment modality was isotretinoin. Clinical history and skin prick tests confirmed peanut and soy allergy. An open oral challenge with 40mg of isotretinoin was performed which was successful and treatment continues to be well tolerated.

Discussion:

Multiple case reports in peanut allergic patients treated with isotretinoin have been successful. The cross reactivity between peanut and soy has been demonstrated on a few small studies on a molecular level but the prevalence of co-existing clinical peanut and soy allergy is small. The case report demonstrates it is possible to treat patients with co-existent allergies safely with a soy-containing medicine.

Conclusions

The EMA's guidance regarding the contraindication of medicine with soy in peanut allergic patients potential excludes many 1000's of people who could be safely treated. As the prevalence of food allergies including peanut allergy is rising worldwide this may be an increasing problem in years to come.

P071

A retrospective re-audit evaluating the assessment and referral of anaphylaxis following emergency treatment of children and young people in a secondary care setting

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Objectives

This retrospective clinical re-audit aimed to determine whether standards of best practice are met for the assessment and referral of children and young people (CYP) following emergency treatment for anaphylaxis, as defined by NICE Guidelines CG 134. The re-audit also aimed to establish whether recommendations from the first stage of the audit in 2014 led to improvements in the care provided. Interventions since 2014 include: establishment of a new multidisciplinary allergy service, defined pathways for onward referral and implementation of a new local guideline 'What to do after a patient has been treated for an allergic reaction'. Eight criteria were identified from the reference guidelines and we aimed for 100% of patient records to fulfil all criteria listed.

Method

Patients attending the Children's Assessment Unit for anaphylaxis were retrospectively identified between a 12 month period. 15 cases were identified of that 2 were excluded. Descriptive statistics expressed as proportions of the data were used to analyse the results with comparisons made against the baseline audit.

Results

13 patients were included (ages ranged 10 months to 15 years). 100% compliance was achieved in 4 out of 8 criteria, an improvement since the initial audit in 2014. Particular improvements were noted in documentation of the circumstances immediately before the reaction, appropriate referral onwards for specialist allergy assessment and provision of an adrenaline autoinjector before discharge.

Conclusions

This re-audit has demonstrated that recommendations from the baseline audit have led to improvements in the care of CYP presenting with anaphylaxis as defined by national standards. Signposting of appropriate support groups and measurement of mast cell tryptase have been identified as areas for focus as a next step. A follow-up audit should be performed to observe whether recommendations will further improve practice.

P072

A child with a SCAR. A laboratory confirmed case of DRESS syndrome to piperacillin.

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Background

A six year old boy with cystic fibrosis was electively admitted to hospital for a bronchoscopy, bronchoalveolar lavage (BAL) and a course of intravenous antibiotics. In the past, this boy had a right pneumonectomy for severe bronchiectasis.

Case presentation

On admission to hospital, he was commenced on piperacillin/tazobactam and tobramycin (changed to amikacin in Day 2) via a central line. He underwent a bronchoscopy and BAL the following day. On Day 10, the patient developed a fever up to 38.8°C. Line sepsis was suspected, therefore teicoplanin was added. In view of ongoing fevers, rigors and a truncal blanching rash, his antimicrobial cover was changed to meropenem and amphotericin, and his central venous line was removed. By Day 16, despite line removal, the patient continued to be febrile and his rash became more florid. An opinion from the allergy team was sought and a diagnosis of DRESS syndrome (Drug Reaction with Eosinophilia and Systemic Symptoms) was suspected. Laboratory investigations showed a rise in eosinophils and a modest rise in transaminases. The rash and fever improved by Day 22. The patient was discharged on Day 24, with a plan to perform a lymphocyte transformation test to piperacillin, meropenem and amikacin in 6 weeks. This test confirmed a diagnosis of DRESS to piperacillin.

Discussion

This case involved a boy with significant cystic fibrosis who experienced a severe cutaneous adverse reaction (SCAR) to piperacillin. As this boy is anticipated to require frequent courses of antimicrobials throughout his life, a thorough investigation to elucidate the culprit drug was warranted to minimise the number of drug avoidances.

Conclusions

The lymphocyte transformation test can be a useful tool for diagnosing a SCAR. It is important to be mindful of the limitations of this test and to know the optimum timing for performing this investigation to ensure maximal yield from this specialised investigation.

P073

Clinician confidence in counselling families after anaphylaxis in a large District General Hospital

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Objectives

To evaluate the clinical confidence in counselling families after anaphylaxis as recommended in NICE CG134 guideline “anaphylaxis assessment and referral after emergency treatment”

Method

A questionnaire was designed based on the NICE guidelines CG134 recommendations asking clinicians after an anaphylaxis, how confident they would feel on a scale of 0-10 counselling a child/young person and carer about the following:

- 1.Signs and symptoms of an anaphylactic reaction**
- 2.What to do if an anaphylactic reaction occurs**
- 3.How to use an adrenaline auto-injector**
- 4.How to avoid the suspected trigger**
- 5.The role of the outpatient allergy service follow-up, including the referral process**
- 6.Where to find information on relevant patient support groups.**

16 clinicians including 5 consultants, 5 registrars, 6 SHOs in Paediatric department participated and anonymously rated their confidence. Following the initial audit, educational slides were circulated with information based on the NICE guidelines and informal teaching sessions carried out. A re-audit was completed with the same questionnaires on another sample of clinicians keeping the spread of grades the same.

Results

The initial audit showed median scores of 9(7-10), 9(6-10), 8.5(4-10), 7.5(6-10), 7.5(0-10), 5(1-8) for the above 6 questions respectively. Highest scores achieved in question 1 and 2 and lowest in question 6.

Following our educational interventions these median scores were increased to 9(8-10), 9.5(8-10), 9(7-10), 9(5-10), 9(2-10), 8(1-10).

Conclusions

A preliminary audit identified trigger avoidance, the role of outpatient allergy service follow-up, including the referral process, and location of information on relevant patient support groups as key areas where knowledge was lacking. An education package was devised to deliver a summary of NICE CG134 guidelines, specifically focusing on these knowledge gaps. Re-audit demonstrated improved clinician confidence in counselling in all areas following targeted education.

P074

Challenging health inequalities by co-creating an eczema care plan accessible to all carers regardless of literacy abilities.

Sinead Doherty

Whittington Health NHS Trust, London, United Kingdom

Objectives

1year old male attended clinic with severe eczema requiring treatment.

Atopic eczema (atopic dermatitis) is a chronic inflammatory skin condition. Healthcare Professionals (HCPs) use a ladder-like approach for treating eczema. Emollients form the basis of eczema management. Medicated ointments such as topical corticosteroids are tailored to eczema severity, which may vary according to body site (1). The current eczema care plan was inappropriate for this family due to limited literacy ability. The aim was to co-create and integrate an accessible eczema care plan into allergy practice.

Method

The current resources were reviewed (3)(4). A visually friendly and easy to follow care plan was co-created. Face to face interviews were conducted 1:1 with 15 HCPs. The plan was modified after each interview eg. sun protection information was added. Once medical accuracy was obtained, 12 parents were interviewed.

Results

When reviewing the original careplan parents reported: 'Duration of treatment was a concern for us as it was not stated', 'too much information, important points lost.' All parents (12) felt that the new plan was laid out clearly, and that it was easy to understand and follow. They all referred to the additional information and felt that it was clear and concise: 'I love the bath-time regimen', 'this would have enhanced my understanding when my son was small.'

Conclusions

Concerns regarding side-effects of topical corticosteroids are a barrier to therapy adherence. Research is limited however clinical consensus suggests that usage, within clinically recommended dosages, appears to be safe (2).

It is hypothesized that intervention to treat early onset eczema may prevent food allergy. Awaiting further research.

Developing a care plan accessible to our population may promote understanding and treatment concordance. Empowering families to improve clinical outcomes for chronic conditions will reduce dependence on healthcare services and healthcare cost (1).

P075

Challenging literacy and health inequalities by developing a visually friendly FPIES plan.

Sinead Doherty

Whittington Health NHS Trust, London, United Kingdom

Objectives

The **Objective** was to co-create a FPIES care plan with clear instructions for parents regarding when and how to access help and clearly highlight acute FPIES as a differential diagnosis to healthcare professionals(6) .

6 month old male attended paediatric clinic with a suspected diagnosis of FPIES.

FPIES (Food Protein induced enterocolitis syndrome) is a severe non-IgE mediated allergy. This type of allergy does not result in typically recognised allergy symptoms, but rather with extreme gastrointestinal symptoms(5). Treatment is symptomatic aiming to prevent complications associated with serious dehydration progressing to shock, a life threatening situation(4).

Local practice was to provide a factsheet to parents and a separate letter to be presented to healthcare professionals in the event of an emergency. Parents had limited English literacy ability and found it difficult to understand the plan.

Method

Our cohort of patients were considered- 12 recorded patients with symptoms consistent with FPIES presented over a 2 year period. The current FPIES resources were reviewed (1)(3)(2). A visually friendly FPIES plan was then developed. The multidisciplinary allergy team were interviewed 1:1 for comments. Once a general consensus and medical accuracy was achieved, parents were then contacted to provide feedback.

Results

4 parents provided feedback leading to co-creation of the plan 'I think this is great as I really struggled with having something I could give to my child's school and groups she attends.'

Conclusions

Parents feel more in control when they have the knowledge, confidence and skills to help them manage their child's condition more effectively. A succinct emergency care plan can provide rapidly accessible information about a child's diagnosis and recommendations for care. The first nationwide UK study of FPIES is currently underway and the plan may then be adapted.

P076

ARTEMIS: A European, Phase 3, Randomised, Double-Blind, Placebo-Controlled Trial of AR101 in Peanut-Allergic Children and Adolescents Aged 4-17 Years

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Objectives

ARTEMIS is a European phase 3, randomised, double-blind, placebo-controlled trial investigating the efficacy and safety of AR101, a potential immunomodulatory treatment for peanut allergy. Baseline characteristics of AR101- and placebo-treated subjects are presented.

Method

Eligible subjects aged 4-17 years were enrolled in 7 European countries, including 5 sites in the UK. Key entry criteria included sensitisation to peanut on skin prick test (SPT) and/or peanut-specific IgE (psIgE) and dose-limiting symptoms to ≤ 300 mg peanut protein at baseline double-blind, placebo-controlled food challenge (DBPCFC). Subjects reporting previous severe anaphylaxis to peanut >60 days prior to screening DBPCFC were not excluded. Subjects were randomised 3:1 to AR101 or placebo, underwent dose escalation for 20-40 weeks to the therapeutic dose (300mg/day), followed by an additional 3 months of daily dosing at the therapeutic dose. The primary endpoint was the ability to tolerate a 1000mg dose of peanut protein with nothing more than mild symptoms at exit DBPCFC.

Results

175 peanut-allergic children aged 4-17 years were randomised (AR101 n=132, placebo n=43). Mean (SD) age (AR101 9.0 years [3.70], placebo 9.5 years [3.86]) and proportion of males (AR101 51.5%, placebo 62.8%) were similar in both treatment arms. History of asthma and pre-study peanut-related anaphylaxis were reported in 42.4% and 44.0% of AR101-treated subjects and 32.6% and 51.2% of placebo-treated subjects, respectively. Baseline peanut sensitisation measurements were broadly similar between AR101- and placebo-treated groups (median [Q1, Q3]): peanut SPT (9.50mm [7.50, 12.25], 9.75mm [8.00, 12.50]); pslgE (43.5 kU_A/L [5.20, 147.00], 69.70 kU_A/L [2.70, 103.00]); maximum tolerated peanut protein dose at screening DBPCFC (10mg [3, 10], 10mg [3, 10]) respectively.

Conclusions

Baseline results indicate a highly allergic and atopic population who react to low doses of peanut protein at screening DBPCFC. ARTEMIS will provide additional data supporting the safety and efficacy of AR101.

P077

APPEAL (Allergy to Peanuts IMPacting Emotions and Life) 1 and 2: Results on Peanut Allergy Impact on Allergic Individuals, Parents and Caregivers in the UK

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Objectives

Peanut allergy (PA) is usually lifelong and known to affect quality of life. APPEAL 1 and 2 evaluated the psychosocial impact of PA on individuals and their parents/caregivers. UK results are presented.

Method

APPEAL was a 2-part European study (UK, France, Germany, Ireland, Spain, Italy, Denmark, and the Netherlands). APPEAL 1, a quantitative, cross-sectional, online survey, revealed areas of concern for PA individuals and parents/caregivers of PA individuals (responding for themselves or the PA individual). APPEAL 2, a qualitative study using an independent sample, provided in-depth insights that build on findings from APPEAL 1. Native-speaking qualitative interviewers conducted semi-structured interviews with parents/caregivers of PA individuals (4-17-years-old) and PA individuals (8-30-years-old). Interviews were analysed using thematic analysis (data saturation was recorded); conceptual models were developed for PA individuals and parents/caregivers.

Results

APPEAL 1 UK respondents (n=289) indicated “high” or “extremely high” food-related anxiety (65%), uncertainty (47%) and stress (44%) related to PA. They reported “frequent” or “very frequent” frustration (41%) due to PA. APPEAL 2 UK participants (PA individuals n=24, parents/caregivers n=8) reported minimal-to-substantial emotional, social and relationship impacts of PA, including feeling anxious, frustrated, stressed, guilty, not attending social events and having a restricted choice of places to go. Participants reported daily coping behaviours to ensure effective peanut avoidance and preparation for a reaction, including heightened vigilance when reading food labels, increased awareness of hygiene and need for additional communication and organisation. Attitudes of other people and levels of control/vigilance employed to avoid peanuts were substantial moderators in both conceptual models (with positive and/or negative impacts).

Conclusions

APPEAL is the first multidimensional, pan-European study designed to investigate the psychosocial burden of PA on individuals' lives and on their families. In both APPEAL 1 and 2, PA impacted many aspects of everyday life among UK participants.

P079

Educating non-specialist healthcare professionals about allergic disease: what work is there still to do?

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Objectives

To assess the level of knowledge of the core paediatric allergy curriculum for general paediatricians among a range of healthcare professionals.

Method

An online questionnaire was designed to test knowledge of how to manage several key paediatric allergy scenarios and cascaded as widely as possible to healthcare professionals around the UK.

Results

122 responses were received including doctors from general practice, general paediatrics, and paediatric allergy; as well as nurses, dietitians and other speciality doctors. 54.9% of respondents knew the prevalence of food allergy in the paediatric population. 99.2% correctly identified a history suggestive of an IgE mediated reaction and 91.8% a history suggestive of a non-IgE mediated reaction. 98.4% knew previous anaphylaxis was an indication for prescribing an auto-injector, but only 41% recognised the same for co-existing asthma and food allergy. Recognition of potential allergens was variable with 99.2% identifying peanut, 97.5% identifying egg and 96.7% identifying cow's milk; but only 40.2% identifying lupin and 34.4% identifying goat's milk. 19.6% exclusively selected appropriate amino acid based formulas from a list of options for the management of severe milk allergy. 45.1% correctly realised that IgE type symptoms developing 12 hours after a meal containing commonly allergenic foods would be likely to have been caused by something else. 73.8% could name oral allergy syndrome from a description of its symptoms. 73.8% would refer a child with a history of a non-specific rash while taking antibiotics during an infection for further investigation. 54.1% were aware of peanut component testing.

Conclusions

This project has identified several areas of strength and weakness in knowledge among practitioners seeing allergy patients in day to day clinical practice, and this information could be used to identify areas to focus on for future educational events targeted to different clinical groups.

P080

An Audit on East and North Hertfordshire Schools' Policy Regarding Emergency Adrenaline Auto-Injector Use and Provision of Spare Pens

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Objectives

With the increase in the incidence of food allergies and recent adrenaline auto-injector (AAI) shortage in the UK, it is important that schools remain updated about the policy on the emergency use of AAI in schools for children at risk of anaphylaxis. The purpose of this audit is to review current practice in schools in the region covered by the Paediatric Allergy Service at the East and North Hertfordshire NHS Trust in order to identify whether schools are aware of and following the Department of Health guidance regarding emergency AAI use, including provision of spare pens.

Method

An online questionnaire was developed to gather information on the schools' respective policies regarding emergency AAI use, and their awareness and engagement with the recent "Spare Pens" policy. This was sent to all 230 schools within the districts of East and North Hertfordshire, Stevenage and Welwyn Hatfield.

Results

Out of 230 schools, 151 completed the questionnaire, covering 48,398 children aged 3-18 years. Of this cohort, 611 children are diagnosed to be at risk of anaphylaxis and prescribed with AAIs. 494 (80.9%) have allergy action plans in school. 149 (98.7%) schools train their staff regarding management of anaphylaxis, with 118 (78.7%) training every year or less. Although 120 (78.9%) were aware of the Spare Pen policy, only 27 (17.8%) stock their own AAIs. 138 (92%) schools keep children's own AAIs on site, (135/138) 98% of which have them within 5 minutes reach, and (99/138) 71.7% store them appropriately.

Conclusions

Majority of the respondent schools are compliant with current guidance and are aware of the "Spare pen" policy. However, there remains a need to ensure that children at risk of anaphylaxis are provided with their own action plans and AAIs that are readily accessible, because only a minority of schools stock spare pens.

P081

Access to universal Adrenaline Auto-injectors (AAI) in local London schools

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Objectives

We aimed to explore whether children in our local boroughs had access to universal adrenaline auto-injectors (AAIs) in school and if not, what potential barriers schools were encountering.

Method

We sent out an anonymised questionnaire to all state-funded primary school head-teachers in two local inner-city London boroughs. Assessing: awareness of the new legislation for universal AAI's; whether a supply was currently available; and challenges schools may be encountering.

Results

Questionnaires were sent to 40 head-teachers (20 in each borough). 15(37.5%) questionnaires were returned within an 8-week period (between April and June 2019), (7)46% & (8)53% returned from each borough respectively.

Thirty-nine schools (93%) were aware of the new legislation and (13)87% indicated they would be keen to have spare AAI devices available in the school. One (13%) of the schools currently have a supply and (8)53% of schools reported problems encountered in obtaining a supply, such as: nationwide shortage of AAI devices and the expense. A number of challenges were also raised, including: anxiety around dosing errors, burden of ensuring in-date devices and parental consent.

Conclusions

Our project has demonstrated that there are a number of real and perceived challenges currently preventing schools from 1) having an adequate supply of universal AAIs and, 2) being able to confidently use them when available. Thus further work is required to enable schools to readily administer potentially life-saving emergency treatment to a pupil in anaphylaxis. This could include: ring-fenced funding allowing all schools to purchase an adequate supply of devices; organisation and implementation of a specific training programme by school nursing teams (as has been done for asthma in one local borough), development of easier-to-use dosing schedules, and developing more robust systems to help all schools keep track of expiry dates and parental consent.

P082

A mixed methods investigation into a new Clinical Psychology service in Children's Allergy

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Objectives

The Children's Allergy Psychology service at The Evelina London provides services to children and their families. This study investigates the impact of the psychology service and explores how parents experience the service, so as to inform future development.

Method

A two phase mixed method study. Phase 1: Quantitative sociodemographic was collected from the establishment of the service in 2016 until 2018. Phase 2: A semi structured questionnaire to gather parents' perspectives of the stepped care allergy psychology service. The questionnaire included questions about the different types of intervention from referral to discharge.

Results

Phase 1: 254 patients were referred to the service from 2016-2018. Children ranged between 1 and 18 years, with the mean age 9.1 years. Of those who took up the service, patients were contacted within an average of 78.5 days. The mode of initial contact varied between phone, face to face and workshop. Average confidence ratings for subjective therapy goals before and after individual therapy and workshop interventions were both statistically significant at $p > .005$ level.

Phase 2: 36 parents were contacted by phone. The main reasons for psychology intervention were for child anxiety and feeding difficulties. The majority parents reported that intervention relieved anxiety and improved quality of life. All parents had a positive opinion of psychology, describing it as "important", "useful" and "essential". Negative aspects reflected the realities of service driven constraints including long waiting times, lack of provision for older children and appointment availability.

Conclusions

Service user feedback is imperative to providing a high standard of care. This study highlighted positive experiences of a psychology service and indicated areas for future improvement that we are attempting to address. Waiting times decreased and provision to adolescence clinic was provided with continued growth of the service showing increased provision of psychology addresses negative aspects of parental reported experiences.

P083

How does Emergency Department coding of allergic symptoms compare with final specialist diagnosis?

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Objectives

Children present with allergic symptoms relatively commonly to Emergency Departments. A recent national initiative (The Emergency Care Data Set) has rationalized the number of codes a clinician may use to describe a patient's diagnosis. There have been concerns this system, while important for clinical information transfer, data analysis and income generation, is too restrictive. The aim of our study was to assess if allergic patients presenting to ED have been coded appropriately and whether diagnostic codes change following specialist review should this occur.

Method

We retrospectively collected data from the electronic records for children with any discharge diagnosis relevant to potential allergic cause who were subsequently referred to the allergy services during the year 2018. We documented the diagnosis and treatment in the ED, the final diagnosis code given and the subsequent follow up and diagnosis by the allergy team.

Results

89 patients were identified. Approximately half (46, 51.7 %) of the patients had skin related allergy concerns, whereas 39% had respiratory and cardiovascular system involvement. Allergic reaction was the commonest diagnosis made by the ED doctors (43.80%), followed by anaphylaxis (12.4%). The ED code used was allergic disposition in 76.40% and anaphylaxis in 18%. One third of the patients were referred to the allergy clinic by the ED, another third by the GP and the rest either had already a follow up or referred by the paediatricians. At the allergy clinic 29.2% were diagnosed with food allergy and 11.2% cow's milk allergy.

Conclusions

There is a discrepancy between the anaphylaxis diagnosis and use of adrenaline as well as between the diagnosis in the notes and the coding. Allergic disposition covers the majority of allergic presentations, which can be misleading and result in income loss. ED doctors training and change of the coding system are recommended.

P084

A case of patient with chronic urticaria and inflammatory bowel disease

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Objectives

Background: Chronic urticaria is a heterogeneous group of conditions that presents with wheals and angioedema, with symptom duration of 6 weeks or longer. Chronic spontaneous urticaria is thought to have an autoimmune aetiology; in chronic inducible urticaria symptoms are precipitated by physical triggers such as heat, cold and physical exercise.

Method

Case presentation: A 17 year old male presented due to urticarial rash, angioedema and breathing difficulties occurring with exercise. All allergy tests were negative. He was diagnosed with cholinergic urticaria after a positive exercise challenge, was commenced on antihistamines and provided with adrenaline auto-injector device. He continued to have symptoms despite increasing the dose of antihistamine and the addition of Montelukast. His reactions came on with minimal exertion and were restricting his ability to socialise and go to college. Due to the severity of his reactions Omalizumab was commenced in February 2019, with improvement of symptoms after the second dose. In April 2019 he developed rectal bleeding and subsequently was diagnosed as having Crohn's. Prednisolone and azathioprine commenced. The patient is now able to go out cycling (on electric bike) and is no more housebound.

Results

Discussion: Chronic urticaria is not a type 1 hypersensitivity reaction. It can be associated with infections, physical triggers, auto-inflammatory conditions and rarely with neoplasms. Very often autoimmunity is associated with urticaria. Crohn's disease is a chronic inflammatory disease that can present with extra-intestinal manifestations. Commonest features from the skin include erythema nodosum and pyoderma gangrenosum. There are also case reports of urticarial vasculitis associated with Crohn's in adults. It is of note that the patient was not complaining of any abdominal symptoms and was diagnosed after the presentation of rectal bleeding.

Conclusions

Conclusions: This is the first report of a child with chronic cholinergic urticaria and Crohn's disease. The patient was not having gut symptoms until late in the course of urticaria. It is important in cases of persistent and difficult to treat urticaria to consider underlying systemic disorders.

P085

The safety of paediatric incremental oral food challenges at UCLH.

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Objectives

We examined outcomes and anaphylaxis cases within our paediatric oral food challenge (OFC) service.

Method

A retrospective chart review of OFCs during 3-year period (2016-2019) was compared to previous 3-year period (2013-2016). Incomplete OFC and supervised feeds were excluded. We assessed the pre-challenge probability of allergy (nuts only), and the recognition and management of all cases of suspected anaphylaxis.

Results

Of 927 OFCs booked (2016-2019), 54 were incomplete. Of the 873 completed: 713 passed [82% vs 69% (2013-2016), NS]; 160 failed [18% vs 24% (2013-2016), NS]. In 2016-2019, baked egg/milk (BE/M) had the highest pass rate (89%). Nuts accounted for 42% of OFCs. During 2016-2019, component-resolved diagnostics (CRD) were measured in 60% (71/118) of peanut OFC vs 13% (13/97, $p < 0.0001$) during 2013-2016.

Suspected anaphylaxis occurred in 32 (3.5%) in 2016-2019 vs 8 (1.4%) in 2013-2016. Eighteen (56%) were nut-triggered anaphylaxis (NTA), of which 7 (22%) had peanut triggered anaphylaxis (PTA). 2 NTA had a high pre-challenge probability of allergy [Skin Prick Test (SPT) 9mm/Ara-h 2 0.2kU/L; SPT4mm/Ara-h2=0.42kU/L]; of the 7 PTA: three Ara-h 2 ≤ 0.2 kU/L; one Ara-h 2 0.42; three only had SPTs (2/0/0mm).

Of the 32 suspected anaphylaxis, 30 received IM adrenaline as first-line, whilst 2 with respiratory symptoms (cough and wheeze) received only antihistamines and salbutamol (and resolved).

Conclusions

Compared to the previous 3-year, we found no difference in failure rate of OFC despite increased use of CRD, confirming its limitation in outcome prediction. Due to the limited OFC resources and high success rate for BE/BM, our department's risk stratification in such cases has been accordingly reviewed. The increase in anaphylaxis rate could be attributed to a better recognition due to recent service implementation. Although the majority of the anaphylaxis cases were appropriately treated, the two aforementioned cases indicate the need for ongoing training and regular service-safety reviews.

P086

The curious incident of cow's milk allergy in a peanut allergic patient - a case study

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Objectives

Cow's milk (CM) allergy usually develops early and most children out-grow it by the age of five.

Method

A 7-year old girl monoallergic to peanut, diagnosed at age 3, enrolled in a peanut oral immunotherapy (OIT) trial in 2017. At diagnosis the microchip molecular allergy test revealed casein sensitization (3.4 ISU-E) without a history of CM induced symptoms. She was bottle-fed (CM-based formula) in infancy and at commencement of POIT she consumed 2-3 cups (14-21g protein/day) of CM/day without symptoms.

In early maintenance of POIT (mid 2018), she presented with unexpected allergic reactions including urticaria, pruritus and cough. After thorough investigation, the reactions were linked to goat's milk (GM). Skin prick tests (SPT) of 20mm to GM, 17mm to sheep's milk (SM) and sIgE of 83.2 and >100 kUA/L respectively, confirmed the suspicion, while SPT to CM was 5mm, sIgE to CM 3.28 kUA/L. The patient was advised to avoid GM and SM, but in light of CM tolerance she was advised to continue with CM consumption.

Within a month, she presented with allergic symptoms following consumption of CM. Symptoms were noted with co-factors of allergic reaction including exercise, viral cold and after consumption of higher-than-usual amounts of CM.

Results

Isolated GM and SM allergy (GSMA) has been described [1, 2, 3]. It usually develops later in life compared to CM allergy. However, in this patient, isolated GSMA preceded development of CMA with high tolerance threshold.

We hypothesised the patient might have increased the daily dose of CM with age and thus exceeded her threshold of tolerance. Alternatively, POIT may have been a co-factor of allergic reactions to CM.

Conclusions

This is an unusual case of a patient with late manifestation of milk allergy with high threshold of CM tolerance which developed during POIT.

P087

Adolescents with allergies: Understanding their needs.

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Objectives

It is well documented that adolescents are at increased risk of developing severe and fatal allergic reactions (1,2). Many adolescents are discharged from allergy services by the age of 16 years. Our project aimed to gain a greater understanding of adolescents' confidence with independently managing their allergies and in particular how they would seek advice once discharged from children's services

Method

Paper questionnaire disseminated to individuals aged between 11 and 19 years attending the St. George's Allergy Service between September and December 2018. Questions inquired about confidence with management of allergic reactions, food avoidance skills, carriage of emergency treatments, understanding of how to seek adult services, confidence with collecting prescriptions and whether workshops and dedicated adolescent clinics were preferable.

Results

29 individuals completed the questionnaires. 48% (14) reported that this was their first appointment in the allergy service. 40% (11) were very confident that they could manage their allergies independently and 79% (23) were confident that they could take responsibility to avoid allergenic food. 48% of individuals reported always carrying emergency treatment with them and 32% (6) reported always checking ingredients listed in food items prior to purchase. 54% (14) did not know of any websites providing further information and none of the respondents were members of an allergy support organisation. 61% (16/26) stated a preference for attending a dedicated adolescent clinic. Only 30% (7) agreed that they would attend a workshop aimed at adolescents living with allergies.

Conclusions

Our data shows that as the majority of adolescents are seen by the allergy service only once, there is a tight window in which to teach them skills to enable them to manage their allergies independently. Well established allergy organisations and websites exist, but our data suggests that more should be done to signpost these to adolescents.

P088

Use of a patient information leaflet in facilitating discharge from the paediatric allergy clinic in a district general hospital – a quality improvement project

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Objectives

Paediatric allergy services are under considerable strain, resulting in long wait-times. With a clear diagnosis and a well-defined management plan, paediatric allergies can be stable conditions, not requiring frequent secondary care follow-up. We wanted to see if providing better written information for patients and their families on discharge would be of benefit in our paediatric allergy clinic (PAC), facilitating increased discharge rates from follow-up, thus freeing up time for new patients to be seen.

Method

Routinely collected data on clinic services were used to audit our PAC, analysing data from 1st January to 31st December 2017 (pre-intervention). A patient information leaflet to facilitate patient discharge from clinic was designed and introduced in February 2018. The PAC was re-audited following this, looking at data from 1st March to 31st August 2018 (post-intervention), comparing the two data-sets to assess the effect of the change. The PAC consultants were surveyed using an online questionnaire to gather their opinions on the leaflet.

Results

A mean of 94 patients were seen monthly in the PAC pre-intervention, whilst 97 were seen post-intervention. The mean number of new patients seen per month rose from 39 pre-intervention to 43 post-intervention. The median wait time was 14.3 weeks in 2017 and 14.5 in March to August 2018. A mean of 20.9% patients were discharged from clinic monthly pre-intervention, while 21.8% were discharged post-intervention, however amongst follow-up patients 25.8% were discharged pre-intervention and 30.4% post-intervention. The monthly new to follow-up patient ratio increased from 0.69 in 2017 to 0.84 post-intervention. The survey of PAC consultants revealed that all found the leaflet useful and all used it regularly.

Conclusions

In this preliminary assessment, our patient information leaflet seemed to be acceptable to the PAC team and may have aided discharge. Other local Trusts are now using this leaflet.

P089

Nasal phototherapy from a paediatric patient and nursing perspective

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Objectives

Explore the acceptability and short term efficacy of nasal phototherapy in a small paediatric population, from the patient and nursing perspective.

Method

Nasal phototherapy was administered to 13, 8 -17 year olds from a diverse ethnic and socio-economic background who, despite compliance with standard medical treatment, were all still experiencing rhinitis symptoms impacting on their QOL.

8 treatments were provided for perennial symptoms and 6 treatments for seasonal symptoms (treatment started at 2 minutes in each nostril and gradually increased to 3 minutes).

Prior to commencing nasal phototherapy, a diagnosis of allergic rhinitis was made by a paediatric consultant. All children were either Skin Prick Test, sIgE or component test positive to at least one of the following; house dust mite, tree pollen or grass pollen

All children were asked to complete a Total Nasal Symptom Score Sheet (TNSS) prior to commencing each treatment.

Results

All 13 children completed their treatment programme. At the end of their treatment all patients reported improved TNSS scores. Treatment was well tolerated. The reported side effects were mild, consisting of nasal dryness and mild epistaxis. Children reported that the treatment was fast, effective and pain free.

From the nursing perspective the treatment was well tolerated, simple and quick to administer, with few, mild side effects.

Conclusions

This small study suggests nasal phototherapy is an effective and acceptable treatment from the child and nursing perspective. The results warrant further investigation on a larger cohort and follow-up to monitor long term efficacy.

P090

Tale of food challenges in a district general hospital. (F. Napoleon, S. Bilal, Ch. Jampala)

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Objectives

Double blinded placebo controlled food challenge is the gold standard to assess and diagnose food allergies. Due to practicality open food challenges are used for diagnosis and evaluation. This study aims to assess the role of allergy-focused-history, skin prick test (SPT) and specific IgE (sIgE) in selecting patients for food challenges.

Method

A retrospective observational study analyzing all food challenges done in a district general hospital between August 2017 and August 2018.

Results

45 patients had food challenges done. A successful challenge was seen in 93% (42/45) and only 7% (3/45) failed challenge with mild reactions requiring one dose of antihistamine. None of the patients had anaphylaxis.

All patients had SPT done at diagnosis and/or before challenge and sIgE was done in 73% (33/45). All children with negative SPT (22/45) had successful challenges. Fifteen children (33.3%) had decreasing repeated measurements of SPT and out of them 14 had successful challenges. The sIgE success rates for food challenges were 95% for grade 0 and 100% for grade 1 (0.35: 0.7 Kua/L) or 2 (0.7: 3.5 Kua/L). Out of 5 children with grade 1 positive, 2 had positive SPT (4 & 8mm) and out of 7 children with grade 2 positive, 3 had positive SPT (4, 7 & 7mm). The only child who failed challenge despite having grade 0 sIgE had peanut allergy with 5mm SPT.

Conclusions

Our study shows that it is safe to perform food challenges with sIgE grade 2 or below (<3.5 Kua/L) and SPT less than 8mm with history not suggestive of primary allergy. History remains the mainstay for selecting patients for food challenges. Allergy specific tests are helpful but cannot always predict the outcome. We recommend taking allergy-focused-history with both SPT and sIgE before challenges. The downward trend of repeated SPT is helpful in making decision for challenges.

P091

A rare case of attempted suicide in an adolescent with known peanut allergy using deliberate ingestion of peanuts as a method of harm

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Background

Anaphylaxis is a life threatening condition where avoidance of the allergen is a key factor of allergy management. Severe allergy impacts on a young person's life causing them to repeatedly question others, feel isolated, miss out on special occasions, feel different and cause anxiety as independence increases with maturity. Adolescents are under increasing pressure and higher levels of young people are suffering from mental health issues

Case Presentation

A 16 year old adolescent male with a history of peanut, tree nut allergy, asthma and allergic rhinitis presented to the emergency department with anaphylaxis symptoms following deliberate ingestion of peanuts as attempted suicide. Having ingested them he had then chose to leave home without taking his Adrenaline Auto-Injector with him. Anaphylaxis occurred, albeit slower than anticipated, his EpiPen was brought by his parent and administered; the boy was brought to ED, and discharged the following day with a psychiatric and allergy clinic follow up.

Discussion

A literature search reveals a limited number of similar cases, and nothing within the paediatric population (Ellis, 2004, Scotland Herald, 2014, Marcelino *et al*, 2016). A comparable condition where self-harm is commonly seen, is diabetes, however much of the literature describes adults. In young people it appears this is often not seen as a suicide attempt but as a way of controlling weight or avoiding managing their condition. (Myers, 2017)

Conclusions

This case describes an attempted suicide by anaphylaxis using peanuts in a high risk adolescent. With the increasing levels of mental health problems in young people, is this an isolated case or are we missing cases of deliberate self-harm with allergens.

P092

Dupilumab provides clinically meaningful responses versus placebo: post-hoc analysis of a phase 3 trial in adolescents with moderate-to-severe AD among patients not achieving IGA 0/1

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Objectives

Dupilumab, a fully human monoclonal antibody inhibiting interleukin (IL)-4 and IL-13, approved for patients aged 12 years and older in the USA with moderate-to-severe AD inadequately controlled by topical prescription treatments or when those therapies are not advisable, adult AD patients in Japan not adequately controlled with existing therapies, and moderate to severe AD patients aged 18 years and older in Europe who are candidates for systemic therapy. This analysis aims to determine clinically meaningful responses (in signs, symptoms, or quality of life) to dupilumab treatment among adolescent patients with moderate-to-severe AD who did not achieve Investigator's Global Assessment (IGA) score of 0/1 (clear or almost clear) at Week 16.

Method

In a double-blind, placebo-controlled, phase 3 trial, adolescent patients (≥ 12 to < 18 years) were randomized 1:1:1 to subcutaneous dupilumab every 4 weeks (q4w; 300mg), every 2 weeks (q2w; 200mg baseline weight < 60 kg, 300mg ≥ 60 kg), or placebo for 16 weeks (NCT03054428). Clinically meaningful responses were defined as: $\geq 50\%$ improvement in Eczema Area and Severity Index (EASI-50) score, Peak Pruritus Numerical Rating Scale (NRS) score improvement ≥ 3 , Children's Dermatology Life Quality Index (CDLQI) score improvement ≥ 6 . A composite endpoint was defined as clinically meaningful response in ≥ 1 of the three endpoints.

Results

Of 251 randomized patients, 69/84 (q4w), 62/82 (q2w), and 83/85 (placebo) patients had IGA >1 at Week 16. Among these patients at Week 16, 44.9%/48.4%/10.8% achieved EASI-50; 30.4%/43.5%/7.2% had Peak Pruritus NRS improvement ≥ 3 ; and 43.5%/51.6%/16.9% CDLQI improvement ≥ 6 (q4w/q2w/placebo groups, $P < 0.001$ vs placebo for all). 55.1% q4w, 74.2% q2w vs 21.7% placebo patients

achieved the composite endpoint at Week 16 ($P < 0.0001$). Dupilumab was generally well tolerated with an acceptable safety profile.

Conclusions

Among dupilumab-treated adolescent patients with IGA>1 at Week 16, a majority achieved clinically meaningful improvement in AD signs, symptoms, or quality of life vs placebo.

P093

Re-audit of the Anaphylaxis NICE Guideline in the paediatric department of Whittington Hospital, London.

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Objectives

Our team investigated whether there have been any improvements following our audit in 2018. The audit looked at whether the paediatric staff at Whittington Hospital, London have been following the NICE 2011 guidelines in regards to the assessment, management and referral process of children treated for anaphylaxis.

Method

Over a 7 month period, 13 children (up to the age of 16 years old) were identified that had an adrenaline auto-injector for anaphylaxis. Their clinical notes were reviewed to assess the presence of the key criteria points of the guideline. The Anaphylaxis NICE data collection tool was used. Data was then analysed and compared to the Trust's standards to assess level of compliance.

Results

Good compliance (>95%) was demonstrated in the following: documentation of acute symptoms and circumstances before onset; admitting patients for observation; offering appropriate adrenaline autoinjector to take home. There was acceptable compliance (75% - 94%) in documenting the time of onset of symptoms and referring patients to an allergy service. There was poor compliance (<74%) in the following: information provision to patients and parents on anaphylaxis follow-up and self-management. Comparing to the previous audit there has been an improvement in documentation of the event but no improvement on information provision to patients and parents.

Conclusions

In general, there is good adherence to the anaphylaxis NICE guideline. However, there are some areas for improvement. It was observed that the use of the anaphylaxis discharge checklist document was not taken up since the last audit. Improving departmental education and increasing awareness of the checklist to be filled in may improve guideline adherence.

P094

Antibiotic drug challenges in children; reporting on a safe and effective secondary care protocol

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Objectives

Presumed beta lactam antibiotic allergy, associated with the presentation of maculopapular or urticarial rash is commonly reported in children, whilst on a course of antibiotics.

We report retrospectively on our drug provocation challenge (DPC) outcomes describing a safe, time and cost effective local protocol adapted from the BSACI 2015 guidelines.

Method

Primary care referrals for possible beta lactam antibiotic allergy were reviewed from 2015/2016 and 2018/19. Children with a clinical history indicating an unknown or delayed hypersensitivity reaction underwent skin prick testing (SPT) for the major/minor determinants of Penicillin (DAP PPL/MDM) and intravenous preparations of Amoxicillin, Co-amoxiclav, Flucloxacillin or macrolide. A single top dose DPC of the index antibiotic was performed on the same day followed by a further 5 day course. DPC were organised approximately x3 per year, in clusters of 8 children per day. A telephone review (2019) to confirm antibiotic usage was conducted.

Results

57 children (mean age 7.72, range 2-15 years) were investigated for suspected antibiotic allergy. 3.5% (2/57) had positive SPT and 12.3% (7/57) did not attend. 84.2% (48/57) DPC were performed. DPC performed were Penicillin V 47.9% (23/48), Amoxicillin 33.3% (16/48), Augmentin 4.2% (2/48), Flucloxacillin 6.3% (3/48) and macrolide 8.3% (4/48). 4.2% (2/48) patients had possible delayed reactions on completing courses of Amoxicillin and have not had further beta lactam antibiotics. 54.4% (31/57) patients were successfully contacted with no further reported adverse reactions to antibiotics and 35.5% (11/31) recall definite use of the DPC antibiotic without further reactions.

Conclusions

The majority of children with presumed beta lactam antibiotic allergy do not have a confirmed allergy. This has important public health implications including prevention of future refusal of these antibiotics to treat infections.

Our adapted protocol provides a safe, cost and time efficient method of managing these children.

P095

Trial of Eczema allergy Screening Tests feasibility trial: quantitative findings

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Objectives

The aim of the study was to determine the feasibility of conducting a trial comparing test-guided dietary management versus usual care, for the management of eczema in children.

Method

Children aged over 3 months and less than 5 years with mild to severe eczema were recruited via 17 GP surgeries in the West of England. Participants were randomised 1:1 to intervention or usual care. The intervention comprised structured allergy history and skin prick tests (SPTs) for cow's milk, hen's egg, wheat, peanut, cashew and codfish. Based on the findings, intervention participants were advised to include or exclude one or more foods from their diet, including oral food challenge and home dietary trial where appropriate. All participants were followed-up for 24-weeks with 4-weekly questionnaires and an end-of-study assessment. Trial registered ([ISRCTN15397185](https://www.isrctn.com/ISRCTN15397185)) and protocol published, DOI: [10.1136/bmjopen-2018-028428](https://doi.org/10.1136/bmjopen-2018-028428).

Results

Of 1268 potentially eligible children, 97/215 of those excluded by their GP had a prior confirmed or suspected food allergy. Replies were received from 206/1053 invitation letters, of which 141 were potentially eligible. 84 children were randomised (mean age 33 months, range 8 to 58 months). 36/42 intervention participants had no parent-reported symptoms of food allergy and had normal SPTs. 6/42 reported possible allergy symptoms and/or had equivocal or positive SPTs (4 egg, 3 peanut, 3 milk, 1 cashew, 1 wheat). Three participants were advised regarding 1 food and 3 regarding 2-4 foods: 6 home dietary trials of exclusion, 3 exclusions and referral to an allergy clinic and 1 oral food challenge.

Conclusions

This is the first trial exploring test-guided dietary management for treating eczema in a primary care setting, where most children with eczema are diagnosed and managed in the UK. Follow-up will finish in August 2019 and information on participant retention and adherence will be presented at the October meeting.

P097

Review of outcomes and referral criteria for baked egg and baked milk oral food challenges in a paediatric allergy service.

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Objectives

To review outcomes of baked egg (BE) and baked milk (BM) oral food challenges (OFC) and explore risk-stratification criteria for BE/BM OFC in our central-London teaching hospital.

Method

Retrospective medical records review of BE/BM OFC performed between 2016- 2019. Referrals from adolescent clinic, fellows and supervised feeds were excluded to ensure a similar case-mix. Four referring consultants were surveyed on their risk stratification criteria.

Results

109 BE and 62 BM OFC were requested. Median age 2.24y (20m-4y). Excluding inconclusive OFC 104(88%) BE+BM OFC passed. Thirty (12.5%) BE failed, 5(38%) with anaphylaxis. Five (5%) BM failed, none with anaphylaxis.

Of the 5 BE-anaphylaxis cases: mean SPT-size (mm) to egg extract 4.06(3-6.5) and raw egg white 10(7-13.5); 2 had previous anaphylaxis; 3 previous wheeze (2 aeroallergen-sensitised); 1 previous mild BE-reaction, 1 had no history of anaphylaxis, wheeze or BE-reactions.

The referral rates as a proportion of total challenges per consultant ranged from 6-25% for BE and 4-12% for BM, a ~4-fold and 3-fold difference respectively. The 4 consultants risk stratification criteria varied: 2 considered SPT size (>5mm, >20mm); 3 considered previous anaphylaxis, previous BE-reactions, poorly controlled asthma; 1 defaulted to BE/BM via OFC, unless evidence of some tolerance; 4 agreed older patients were at increased the risk of severe reactions.

Conclusions

As expected the failure rate of BE/BM OFC was low. However, the high proportion of BE anaphylaxis was unexpected and requires further analysis. Four (80%) of the 5 BE-anaphylaxis had either perceived risk factors for more severe reactions or previous BE-reaction. Currently there is lack of standardised guidelines and no reliable pre-challenge predictive-test for BE/BM tolerance. Variation in practice reflects this.

OFC are a limited resource and standardisation of practice for BE/BM OFC where the pass rate is high, may increase capacity and reduce waiting times for our patients. Further review including home-introduction and supervised feeds to BE/BM is warranted.

P098

Sibling sets within a Joint GI-allergy Clinic

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Background

Here we describe a case-series of sibling-pairs sharing a diagnosis of non-IgE mediated GI-allergy, where the presentation of non-specific symptoms in infancy and resolution in early childhood is typical. No diagnostic investigations exist and clinical diagnosis in the absence of objective evidence is characteristic in current clinical practice.

Case series presentation

Over one year, within our tertiary GI-allergy clinic, 5 sibling-pairs (19%) were identified. Older siblings (OS) were 10.6y (8-15y); and younger siblings (YS), 8.2y (7-10y); one pair were dizygotic twins. All cases presented in infancy, symptoms included: feeding difficulties, vomiting, loose stools and pain. The pairs showed remarkable similarity in suspected food triggers and response to food reintroductions. There was diversity of objective measures: 2/5 OS had positive skin prick tests (SPT), all YS SPT were negative; OS were more likely to have had endoscopies and histological abnormalities than YS; there was little concordance of atopic/non-atopic co-morbidities.

In the absence of significant co-morbidities, a good quality of life with little negative impact in comparison to the other patients was reported. Families generally felt well-practiced at managing dietary-restrictions which had resulted symptom resolution.

Discussion

Complex interactions between the environment and genotypes are thought to determine allergic endophenotype. Variations are evident even between monozygotic twins. This case series suggests that psychosocial factors also contribute significantly. Psychological factors include cognitive biases in parental perception and recollection following frightening experiences; and the children's own beliefs. Social factors include practical considerations around meal preparation.

Conclusions

These siblings may know little of alternatives to living with a restricted diet and therefore may have found it easier to adjust. The perceived risks of reintroductions may outweigh any difficulty in managing a restricted diet that has kept the children symptom-free. Careful and individual history is needed to separate the experiences of siblings and families value and require regular support from the MDT.

P099

Is there additional benefit in using raw egg and fresh milk in skin prick test as predictors of oral food challenge outcome?

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Objectives

To examine the validity of raw egg and fresh milk skin prick tests (SPT) compared to commercial SPT extracts as predictors of oral food challenge (OFC) outcomes to baked and cooked egg, and baked and fresh milk.

Method

Data was collected retrospectively from a database containing the results of OFC to baked and cooked egg, and baked and fresh milk, performed at the Whittington Hospital over 2 years, with their respective SPT results of commercial extracts and raw products undertaken in paediatric allergy clinics.

Results

Data was analysed from 108 baked egg, 97 cooked egg, 62 baked milk, and 46 fresh milk completed OFC. There was no significant association between raw egg SPT and results of baked egg OFC (p 0.12).

Following multiple logistic regression no significant association was found between raw egg SPT (p 0.76) and cooked egg OFC.

There was no significant association between fresh milk SPT and outcome of baked milk OFC (p 0.51).

Fresh milk SPT (p 0.005) provided similar diagnostic performance as milk extract SPT (p 0.008) in predicting fresh milk OFC, however it was not a better predictor following a multiple logistic regression test.

Significant associations were found between the commercial extracts SPT and OFC outcome to baked egg (p 0.001), cooked egg (p <0.001), baked milk (p 0.02), and fresh milk (p 0.008).

Conclusions

In our cohort, raw egg SPT was not a reliable predictor of the outcome of baked or cooked egg OFC. Fresh milk SPT was not a reliable predictor of baked milk OFC, and not better than milk extract SPT to predict fresh milk OFC. Egg and milk extracts SPT were reliable predictors of OFC outcome.

P100

Exercise-induced anaphylaxis (EIA) in two siblings

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Background:

In some children, exercise can produce a spectrum of allergic symptoms from erythematous, irritating skin eruption to a life-threatening anaphylactic reaction. EIA is uncommon, potentially serious condition in which anaphylaxis can occur with physical activity.

Case presentation

Case 1.

A 12 year-old girl with asthma and hay fever collapsed while playing football. She felt sick, developed urticarial and angioedema before collapsing. She was hypotensive, and was treated with IV antihistamines and bronchodilators, but not given adrenaline. Of note, she had eaten pasta an hour before. She had two further episodes of EIA without any correlation with food intake. She developed spontaneous urticaria on 5 occasions despite avoiding wheat.

Her total IgE was raised, but tryptase and Sp-IgE (wheat) were normal. SPT revealed sensitisation to *Alternaria* and wheat. She was reviewed in clinic and treated with antihistamines and Montelukast.

Case 2.

A 7 year old boy, non atopic younger sibling, presented with four episodes of anaphylaxis. He felt dizzy, developed urticaria and fainted whilst playing football with no correlation to food intake prior to the game. He complains of feeling a lump in his throat when he vigorously runs around. His investigations were normal. He was also treated with antihistamines and Montelukast.

Discussion:

Both siblings are active athletes and symptoms are directly related to exercise. The initial reaction in the female sibling was related to wheat intake, while subsequent reactions were mainly exercise-induced. In the male sibling, symptoms were non-food dependent.

Conclusions

Diagnosis of EIA is usually based on a thorough history and examination. Management includes awareness of co-precipitating factors, optimisation of antihistamines, awareness of need for adrenaline and exercise restriction. Lack of awareness can potentially result in wrong diagnosis and severe anaphylaxis. More importantly, these two cases showed how addition of a leukotriene receptor antagonist contributed to control of symptoms.

P101

A snapshot of practice of anaphylaxis management in a DGH

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Objectives

To audit the management of children with anaphylaxis presenting to the Emergency Department of a District General Hospital based on current NICE guidance, to identify potential areas for improvement.

Method

Data collection from medical notes between January 2017– June 2018 and analysed using descriptive statistics.

Results

A total of 14 paediatric patients (age <18 years) were identified over a period of 18 months who were seen and treated in ED for anaphylaxis. After applying clinical criteria (1) only 8 were considered to have clinical features of anaphylaxis. The recommendations in NICE guidance (2) were used as the standard for comparison. We analysed the results on the 12 points covered in NICE recommendations. We found that only 37.5% patients were offered an adrenaline auto-injector (AAI) prior to discharge. Of those offered AAI, only 50% were given a demonstration of how and when to use it. Only 12.5% of patients were observed for the required 6-12 hours. Information on the risk of biphasic reactions was documented in 12.5% of children.

The majority (75%) of patients were given advice on suspected trigger avoidance. However, only 50% were referred to a specialist allergy service or advised to see their GP to request a referral. Based on these results we have developed a 5-point checklist discharge proforma which will be introduced in our ED and paediatric ward and will require completion by the discharging doctor. We have also provided additional training for relevant staff.

Conclusions

These results highlighted that the present practice of anaphylaxis management (as observed in paediatric patients in our ED) is not optimal and needs to be improved to ensure safe patient care and discharge, including follow up and appropriate referral.

P102

An audit of the emergency management of anaphylaxis in children in secondary care

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Objectives

There is an increasing incidence in anaphylaxis reported globally and in the UK. Due to this, there is raised anxiety in our local population around the management of anaphylaxis, especially in light of the shortage of adrenaline auto-injector pens last year.

The aim of this audit project is to assess the management of paediatric patients presenting with anaphylaxis to the Paediatrics Emergency Department (PED) and Children's assessment Unit (CAU) and whether they are managed in accordance with current NICE and local guidelines.

Method

We reviewed the notes of patients who present to PED and CAU from June 2018 until January 2019. Patients were identified through search words such as "anaphylaxis" and "allergic reaction" in coding. The notes were reviewed and data collected using the Anaphylaxis Audit Proforma.

Results

26 patients were identified based on the keyword search. 6/26 patients (19 months – 15 years) fulfilled the diagnostic criteria of anaphylaxis; however, only 2/6 had clearly documented diagnosis of anaphylaxis. All 6 were treated with Chlorphenamine; 4/6 had IM adrenaline; and 2/6 had IV Hydrocortisone. 3/6 patients did not have an identifiable allergen trigger, all of whom did not have a tryptase level taken. 5/6 had minimum recommended time of 6 hours of observation. At discharge, 4/6 patients had an auto-injector prescribed and training provided. All patients had documented safety-advice given, with an anaphylaxis action plan provided to 4/6. Overall, specific documentation pertaining to information on discharge, including risk of biphasic reaction (1/6), was poor. Reassuringly, all patients were referred to the allergy clinic.

Conclusions

This audit identifies the need for further education on recognition, correct diagnosis and management of anaphylaxis, with emphasis on clear documentation especially of safety-net information given at discharge. Promoting use of the Anaphylaxis Proforma and guideline aims to improve safety and standardise the care of patients presenting with anaphylaxis.

P103

Exploring the effectiveness of a self-help website for parents of children with food allergy: Results from the Parental Support for Children with Allergies (PASCAL) Trial.

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Objectives

Caring for a child with food allergy (CwFA) detrimentally impacts parental quality of life (QoL). The mechanisms for improving QoL in parents of CwFA are not well understood, but recent studies suggest that information provision can enhance self-efficacy, and in turn QoL. The present study developed an online self-help website that aimed to improve QoL and psychological wellbeing in parents of CwFA.

Method

This was a single blind randomised controlled trial (RCT) of a self-help website for parents of CwFA. Participants completed outcomes (Food Allergy Quality of Life-Parental Burden, depression, anxiety, stress, intolerance of uncertainty and self-efficacy) before being randomised to the intervention (immediate website access) or waiting list control. Outcomes were completed again at 1- and 3-months. Qualitative feedback on website content and data on engagement were also analysed (clinicaltrials.gov identifier NCT03529747).

Results

A total of 205 participants (112=intervention, 93=control) completed baseline measures (97% female, 91% white, mean age 38.95 years (SD=6.89), 78% educated ≥degree level, 70% employed) of which 92 (44.9%) completed 3-month outcomes. No significant differences at baseline indicated successful randomisation. No significant differences were found between intervention and controls at any time point on any outcome. Subgroup analysis showed that the intervention reduced QoL impairment for participants meeting the clinical threshold for depression (n=15), but this did not remain significant after correcting for multiple comparisons. Participants reported the website content as useful and accessible, despite low levels of use, and suggested it may be most helpful to those with a newly diagnosed CwFA.

Conclusions

This is the first RCT of a web-based self-help intervention for parents of CwFA. No significant intervention effects were observed. Furthermore, adherence data indicated that website engagement was infrequent, despite participants praising the accessibility. These findings suggest that the intervention may not be suited to the needs of the broader population of caregivers of CwFA.

P104

Does leukocyte telomere length at early in life reflect an elevated risk for preschool asthma development?

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Objectives

The allergic-disease development is associated with the exposure to prenatal maternal stress, and the oxidative stress is presumed to mediate the relationship. In this study, we have evaluated the association of the leukocyte telomere length (LTL), a marker for exposure to oxidative stress, the exposure to prenatal maternal stress, and the asthma development of preschool children.

Method

We had previously measured the LTLs from cord-blood samples and those of 1-year peripheral blood of a sample of birth-cohort participants. We gathered the followed-up data on those subjects' clinical courses of physician-diagnosed asthma or recurrent wheezing in their preschool period. Finally, we verified whether the LTLs differ significantly according to the exposure to maternal stress and later development of preschool bronchial asthma.

Results

There existed 84 cases that had available data on either LTLs of cord blood or 1-year peripheral blood, and on the presence of bronchial asthma. A total of 14 subjects presented signs of bronchial asthma between ages 2 to 4. Subjects exposed prenatal stress presented marginally-increased odds of asthma development (4/41 versus 10/43, $p=0.097$). The odds for asthma development did not increase in subjects with shorter cord-blood LTLs. Only in subjects with both high prenatal stress and the short cord-blood LTLs showed marginally increased odds of asthma development (3/8 versus 11/76, $p=0.096$).

Conclusions

In this pilot study, the risk for asthma development was not significantly increased among subjects with shorter LTLs. Shorter LTLs could marginally reflect the elevated risk of preschool asthma development among those with exposure to prenatal maternal stress.

P105

An Interventional study evidencing need for specialist allergy dietetic advice, providing safe nutritional guidance for parents of children with suspected food allergy, awaiting definitive management

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Objectives

- Provide safe interim nutritional advice to facilitate a correct diagnostic pathway for timely, optimal management, to parents who have contacted Allergy UK's helpline
- Gather evidence of parent experience pre and post intervention evaluating whether the intervention results in improved outcomes for families
- Analyse data from returned GP's questionnaires evaluating their satisfaction with this service

Method

Children 0-5 year's resident in England with symptoms suggestive of food allergy, not previously referred to a dietitian.

- Telephone consent taken by Allergy UK clinical team
- Parents completed 3 questionnaires pre and post intervention capturing emotional, psychosocial and financial burden on families
- Qualitative and quantitative data collected.
- Intervention- telephone consultation providing specialist allergy dietetic advice, a report with best practice information for parents and GP
- GP sent a service evaluation questionnaire with their copy of the report
- 12 month data collection period

Results

124 pre-intervention and 87 post intervention questionnaires completed

23 completed GP questionnaires

86% of parents reported stress caused by their child's symptoms

60% of parents feel their child experiences emotional distress.

52% of parents reported their child's symptoms prevented them carrying out everyday activities, reducing to 23% post intervention.

30% of parents reported little confidence in their ability to manage symptoms of suspected food allergy whereas only 5% reported this post intervention.

50% of parents reported their child received a diagnosis of food allergy post intervention.

87% of GP's reported a need to integrate a paediatric specialist allergy dietitian in the primary care setting.

87% of GP's confirmed the intervention improved the treatment pathway needed to manage food allergy in children

Conclusions

Allergy UK's dietitian service has supported families and established itself as an innovative much needed solution to an unmet need until further specialist management is available.

Ideally, this model could be translated within the NHS

P106

Food and Drug Challenges in a UK Rural General Hospital

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Objectives

Following the death of a child during a baked milk challenge we reviewed our oral challenges. We challenged 84 children aged 1-17years over a 13 month period from May 2018 until end May 2019 to see if lessons could be learned.

Method

Challenges commenced with a Skin Prick Test (SPT) and prick-to-prick test to foods. Children were given increasing doses of foods (usually eight stages) followed by a one hour observation period. Drugs were given as a one off dose and observed for an hour. Antibiotics were given for a further 5 days.

Results

The challenges comprised drugs 15, nuts 52 and other foods 17. 69 were successful challenges and 15 failures (17.9%) with 11 reactions (13.1%) 2 delayed.

Anaphylaxis did not occur. 4 challenges were aborted; three because children refused the foods (peanut (2) and hazelnut), and one after developing an atypical skin prick test (SPT) histamine response. The commonest challenge failure food was egg (n=4; 2 baked, 2 lightly cooked -67% of the egg challenges). Other failed challenges were wheat (100%), penicillin (17%), garden pea (100%), baked milk (50%), peanut (4%), hazelnut (11%) and cashew nut (25%).

Failed challenges to egg had SPTs of 4mm (x2) and 6mm against a positive control of 3mm and specific IgE of 0.21 kUa/L. Reactions comprised rash, wheeze, swelling, itching and vomiting. In contrast the two successful challenges to baked egg (biscuit) SPT were 2mm or negative.

Other failed challenges SPT were <3mm or specific IgE <0.35 kUa/L. Some of the successful challenges has SPT 10mm and positive SptIgE 20.1 (lentil). Peanut was the commonest food challenged with one failure in 25 challenges (4%).

Conclusions

This demonstrates an acceptable overall reaction rate and successful challenge rate to peanut. Egg challenges were less successful and higher challenge thresholds should be considered in future. Challenges should be carefully selected, planned, instigated and reviewed. Currently no consistent guidance as to how these challenges should be completed yet exists making standardisation comparisons difficult and scrutiny of practice essential.

CATEGORY PRIMARY CARE

P108

A retrospective analysis of extensively hydrolysed formula (EHF) and amino acid formula (AAF) prescribing in three GP Surgeries in Sheffield over a 6 year period.

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Objectives

To determine concordance with local and national guidelines, we retrospectively assessed EHF and AAF prescriptions in primary care and calculated the cost of unnecessary prescriptions. We also determined if there was a link between appropriate prescribing and dietetic input.

Method

Medication reports run at three Sheffield GP practices identified prescriptions of all EHF and AAF prescribed over a 6 year period (2013-2018 inclusive). Prescriptions for Pepti Junior, not prescribed for cow's milk protein allergy, were excluded. Data was collected on: age at formula initiation, year of prescription onset, initial prescriber, type and brand of formula prescribed, appropriateness of prescription in line with current guidelines, dietetic involvement, when the prescription was discontinued and the number of issues of inappropriate prescriptions.

Results

160 prescriptions were analysed (123 patients). 68% of prescriptions were for EHF and 32% for AAF. Inappropriate prescriptions accounted for 24% of the total number, 5% for EHF, and 12% for AAF. In total, 36% of all prescriptions were stopped with no information regarding the reason or ongoing advice. Where information was given, Dietitians gave 54% of this. Dietetic input was recorded for 54% of all prescriptions. The number of total prescriptions and inappropriate prescriptions peaked in 2015, thereafter the number of inappropriate prescriptions has fallen each subsequent year, a trend not seen in total number of prescriptions. The estimated spend on inappropriate prescriptions was £22,157.45, assuming that all patients inappropriately prescribed AAF would have tolerated EHF.

Conclusions

Inappropriate prescriptions of hypoallergenic formulas account for substantial NHS costs, however the numbers are decreasing despite increasing numbers of total prescriptions. Involving a Dietitian is likely to ensure that appropriate formula is prescribed initially, and discontinued when appropriate. Continuing breastfeeding remains first line advice, however it was not possible to include this data as these patients may not have appeared in the original report.

P109

Penicillin allergy de-labelling- have we made an impact on our patients?

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Objectives

Penicillin allergy de-labelling after appropriate testing could potentially improve patients' safety and outcomes. We aimed to assess the impact of de-labelling penicillin allergy after appropriate allergy testing at the Allergy Centre, Wythenshawe Hospital.

Method

All the patients with confirmed tolerance to penicillin between October 2015 and September 2016 were selected (n=43). A paper questionnaire was sent to their GP in August 2018. Key questions included:

1. Has the label of penicillin allergy been removed from your electronic record after the investigation?
2. Has the patient received any penicillin-based antibiotic after the investigation?

Results

We received 34/43 (79%) replies. Penicillin allergy labels were removed in 21/34 patients (62%). The reported reasons for not removing the labels include: no clear instruction on the letters (n=4), no receipt of discharge letters (n=3), still coded as allergy to specific penicillin which was not tested (n=2), administrative error (n=1), a technical issue with electronic system (n=1), a patient who still had a few episodes of angioedema since the investigations (n=1), and no specific reason given (n=1).

The survey also demonstrated that penicillin antibiotics were not prescribed to 20/34 patients (59%). The reported reasons were that penicillin antibiotic was not required (n=15), penicillin allergy label was not removed (n= 4) and no specific reason (n=1).

Conclusions

This survey showed that the penicillin allergy status of some patients was still retained in their primary care records despite tolerance confirmed after challenge at the allergy centre. One of the reasons was the lack of clear instructions on the discharge letters. We have therefore started including a clear "Actions for GP" item in our letters, specifying de-labelling, to improve communication between secondary and primary care.

It also showed that penicillin allergy de-labelling after appropriate tests allowed patients to subsequently receive these first-line antibiotics in the community.

P110

Diagnosis and management of cow's milk protein allergy in primary care

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Objectives

BSACI is dedicated to improving the standard of allergy services in Primary Care and supports Primary Care Allergy Training Days in Sunderland.

Cow's milk protein allergy (CMPA) is one of the most common food allergies in the developed world, affecting 7% of formula or mixed-fed infants. Children present to Primary Care with symptoms including gastro-oesophageal reflux, colicky abdominal pain, crying, vomiting, loose stools, bloody stools, and failure to thrive.

We aimed to assess General Practitioner's (GP's) knowledge of CMPA and explore their experience and preferences for prescribing specialist milk formulas.

Method

We carried out a Primary Care Allergy Training Day to present the BSACI Guidelines for the Diagnosis and Management of CMPA in children. A post-course questionnaire was issued.

Results

20 GP Speciality Trainees and 3 GP's returned the questionnaire. 95%(22) felt comfortable in differentiating IgE mediated from non-IgE mediated CMPA. 100%(23) knew the name of at least one amino acid formula (AAf) and one extensively hydrolysed formula (eHf) and were aware of their prescription-only status. 70%(16) knew of >1 AAf and 78%(18) >1 eHf. 74%(17) had previous experience in prescribing eHf and 52%(12) AAf. 22%(5) indicated that it would be OK to have a single choice of each on the CCG formulary; 52%(12) preferred a choice of 2 of each. Given choice, 22%(5) would prescribe the cheapest formula. 95%(22) would refer suspected CMPA in a child to a Paediatric Dietician.

Conclusions

95% of GP's felt comfortable differentiating IgE from non-IgE mediated CMPA and 100% could name at least 1 AAf and 1 eHf, post training. A choice of specialist formula is preferred. Prescription is influenced by cost. Training GP's in BSACI CMPA Guidelines can empower GP's to recognise and manage CMPA in children in the community.

CATEGORY UNDERGRADUATE

P112

Patients sensitised to the wheat lipid transfer protein Tri a 14 do not cross react with omega-5 gliadin

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Objectives

Lipid transfer proteins (LTPs) are a group of allergens present in many fruits, nuts and cereals. The cross-reactivity between LTPs from different sources is well described. Patients often present with a complex pattern of food sensitisation and cofactor induced allergy. We investigated a cohort of patients who are sensitised to Tri a 14, an LTP present in wheat, to characterise the presentation of the allergy and how it relates to omega-5 gliadin hypersensitivity

Method

We compared symptoms and sensitisation patterns between 15 LTP-sensitised patients – 7 males and 8 females, aged between 9 and 67 years. The median ages at presentation and diagnosis were 33 and 34 respectively. Using ImmunoCAP assay, we compared specific IgE levels against Tri a 14, omega-5 gliadin and other relevant foods, specific to patients' history of allergic reactions.

Results

All patients were sensitised to Tri a 14, with IgE levels ranging from 0.4 to 33 kUA/l. The median level of IgE was 3.96 kUA/l. The symptoms experienced were diverse, the most common being urticaria, facial angioedema and wheeze. 6 out of 15 patients described exercise as a cofactor. All patients presented with a complex co-sensitisation pattern to a variety of LTP-containing foods. The most clinically relevant allergy was peanut allergy. None of the patients tested positive to omega-5 gliadin.

Conclusions

Sensitisation to LTP protein can present as food dependent, cofactor mediated allergy. This was the case in the majority of our patients. There did not seem to be any cross-reactivity with the classical wheat dependent, cofactor induced allergy to omega-5 gliadin. All patients presented with additional co-sensitisation to other fruits, nuts and seeds in keeping with established cross-reactivity among LTP sensitised patients.

P113

Delivery and safety of a drug allergy challenge service: results from a prospective quality improvement project

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Objectives

National and European allergy guidelines recommend thorough documentation of treatment and aftercare in all positive drug challenges. However, the existing documentation form used in the Adult Allergy Challenge Clinic at Guy's Hospital was found to lack a suitable designated space for noting treatment and aftercare in positive drug challenges. The aim of this quality improvement project was to ensure that by March 2019, all patients with a positive drug challenge reaction had treatment and aftercare suitably recorded on the drug challenge proforma.

Method

Baseline audit data was collected for all patients with positive drug challenge reactions between August 2016 and August 2018. Their drug challenge proformas were assessed to identify whether treatment and aftercare were documented in a dedicated area. The proforma was updated based on the audit findings. Two PDSA cycles were carried out between November 2018 and March 2019, collecting data prospectively to identify potential improvement. Our primary outcome measure was completion of treatment prescription and aftercare documentation.

Results

The first PDSA cycle showed 4/4 patients with a positive drug reaction in the period between 10th October 2018 and 14th December 2018 had treatment and aftercare documented (100% of our primary outcome measures). The results after the second PDSA cycle showed 2.5/3 proformas complete (83%) from 14th December 2018 to 6th March 2019. Overall, we have had 6.5/7 proformas completed successfully (92.9%).

Conclusions

We found an overall improvement in completion of treatment and aftercare documentation from 0% to 92.9%. We highlight the benefit of a quality improvement initiative in improving the delivery and safety of a drug allergy challenge service.

P114

A case control study of the role of SPINK5 and filaggrin mutations in the occurrence and remission of food allergies

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Objectives

This study aims to explore the association of SPINK5 variant rs9325071 and FLG-LOF mutations with food allergy in the Isle of Wight cohort. It also aims to explore a potential difference in persistent and transient food allergies with relation to SPINK5 and FLG-LOF mutations.

Method

The Isle of Wight birth cohort (n=1536) gave DNA samples which were then genotyped for SPINK5 variant rs9325071 (A→G) using qPCR method. Phenotype data was collected from the cohort over an 18 year period. FA diagnosis was based on recognized allergic reactions within 4 hours after exposure to known food allergens. The cohort had already been genotyped for FLG-LOF and this data was available. Association between SNPs and outcome was tested using chi-squared tests and logistic regression using SPSS.

Results

The association between SPINK5 variant rs9325071 (A→G) and food allergy at 18 was statistically significant ($p=0.034$, $OR=2.097$, 95% CI 1.059-4.154). No association was found with food allergy at 10 years. We found that the presence of either skin barrier defect was also associated with food allergy at 18 ($p=0.009$, $OR=2.390$, 95% CI 1.245-4.592), and presence of both defects was not associated with food allergy at 18 ($p=0.057$, $OR=4.511$, 95% CI 0.957-21.263) due to a type II error (n=16).

Conclusions

We can report, for the first time, the association between SPINK5 variant rs9325071 (A→G) and food allergy past infancy. We have provided further evidence of the importance of the skin barrier in food allergy development. The skin barrier defects were associated at age 18 but not 10, suggesting that they are more closely associated with persistent food allergies. Joint analysis of FLG-LOF and SPINK5-LOF gave further evidence to support the link between skin barrier dysfunction and food allergy. However, it is not clear that this association occurs via sensitisation. Further analysis is required to clarify.

P115

The rate of new nut allergies and sensitisations in children under 6 years of age presenting to tertiary allergy clinics

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Objectives

A retrospective review of children <6 years of age presenting to allergy centres was performed to determine the rate of new nut sensitisation and allergy over 2-4 years. We assessed whether incomplete skin prick testing (SPT) was a significant factor in the development of sensitisations and allergies to ≥ 1 new nut. We also analysed how many became poly-sensitised (sensitised to ≥ 4 nuts), or poly-allergic (allergic to ≥ 4 nuts).

Method

153 children <6 years old presented to 4 allergy centres (Addenbrookes, Guy's and St Thomas' Hospital (GSTT), The Portland Hospital (TPH), and St Peter's Hospital (SPH)) and followed up over 2-4 years. Patients were separated into 2 groups based on centres; group 1 (Addenbrookes), and group 2 (GSTT, TPH, and SPH). They were further split into 2 groups: incomplete SPT data (tested 4-9 nuts); and complete SPT data (tested 10 nuts). We defined sensitisation as SPT ≥ 3 mm. Allergy was defined as SPT ≥ 8 mm, or positive food challenge, or SPT ≥ 3 mm plus history of clinical reaction.

Results

Within group 2, there was no significant difference in the number of children with incomplete SPT data that developed new nut sensitisations (48.8%;n=20/41), or allergies (26.8%;n=11/41) compared to children with complete SPT data that developed new sensitisations (68.4%;n=13/19), or allergies (21.1%;n=6/19).

We then compared patients with incomplete SPT data from 2 cohorts; cohort 1 (seen 1992-2004), and cohort 2 (seen 2003-2013). The rate of developing new nut allergies were significantly higher in cohort 2 (26.8%;n=11/41), than cohort 1 (9.7%;n=9/93).

Conclusions

Incomplete SPT data was not a significant factor in development of new nut sensitisations and allergies over 2-4 years. Results were mirrored in the rate of poly-sensitisation and poly-allergy. Comparing both groups one decade apart suggests that more children are developing new nut sensitisation and allergies in the last decade than in the previous decade.

P116

“The GP knew nothing about this treatment!” – experiences of patients with severe hay fever from a single specialist centre

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Objectives

Previous studies have shown significant improvement in symptoms and medication use after specific immunotherapy (SIT) in patients with grass pollen allergy. We sought to understand the impact of hay fever on patients who had completed SIT at the UHNM and their experience of allergy services.

Method

17 patients were identified and 11 were interviewed using a structured questionnaire with some open-ended questions. The RQLQ, a standardised quality of life (QoL) questionnaire, was used to understand the impact of SIT. Qualitative responses were analysed thematically using inductive and deductive coding.

Results

Just over half (55%) of patients had received subcutaneous SIT. All patients showed significant benefit from SIT and valued the treatment highly. Most patients described their hay fever before SIT as 'debilitating', adversely affecting work, social and personal life. However, they felt that the general public and, occasionally, GPs could be very dismissive of the symptoms. Just under half stated that their GP was unaware of SIT and they had to carry out their own research to secure a referral. Some GPs were reluctant to refer patients to secondary care. Most patients describe waiting long periods of time to be seen by specialists.

Conclusions

The results show how positively patients who have gone through the desensitisation pathway view the service. Patients with hay fever describe considerable discomfort due to the condition which can affect most aspects of their life. The study also sheds light on barriers within the treatment pathway – primarily concerning GPs awareness of the treatment and their unease of referring patients on to it. More should be done to improve the care pathway for patients with hay fever.

P117

An audit into the long-term management of children and adolescents prescribed an adrenaline autoinjector

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Objectives

While there are numerous studies into the acute management of anaphylaxis, there seems to be a large gap in the literature pertaining to the long term-management of patients with an adrenaline auto-injector (AAI - Dhimi et al 2017).

This study aimed to investigate whether the guidelines from various governing bodies (EACCI, EMA, NICE, RCPCH and WHO) with regards to adrenaline auto-injector prescriptions (AAI) were met in patients under 25. This group is most at risk of fatality (Turner et al, 2012) so the aim was to indicate gaps in the management with relation to adolescent patients.

Method

An audit was undertaken in a busy Norwich based GP practice. Patients under 25 and prescribed any AAI were included ($n=24$).

The audit gathered data on whether patients have had a review in the past year, if they have received AAI training in the last year, if they have ever been given an allergy action plan, how many AAIs they are prescribed and whether or not they were on the correct dose of adrenaline.

Results

Patients aged 0-5yrs, 60% had been reviewed in the last year, whereas those aged 21-25yrs 0% had had an annual review. 25% of patients were prescribed the incorrect dose according to their weight.

30% of patients had no record of ever being shown how to use an AAI, and 80% hadn't had refresher training in the last year. 30% had no record of ever being given an allergy action plan.

Conclusions

Overall, as age increases, the input and guidance given to patients with an AAI drastically decreases. This could indicate why the fatality rate is higher in adolescent patients, but further research is need in other areas of the country.

The audit indicated a need for more long-term management in patients with an AAI, which could be carried out at a GP level.

P118

Investigation of the awareness and implementation of iMAP guidelines among healthcare professionals in the diagnosis, treatment and management of cows' milk allergy (CMA) in infants.

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Objectives

CMA affects approximately 2-6% of infants. The large majority of CMA presents in primary care setting and most infants can be managed there. The updated 'International Milk Allergy in Primary Care' (iMAP) guidelines and milk ladder were published in 2017 with the aim to improve early recognition, diagnosis and management of mild to moderate non-IgE mediated CMA in infants in primary care. The objective of this study was to investigate the awareness and implementation of the iMAP guidelines among a sample of healthcare professionals in Ireland.

Method

A questionnaire was distributed to healthcare professionals (n=112). Participants were recruited at face-to-face meetings held in primary healthcare setting and at two allergy dedicated seminars.

Results

Of the 112 participants, (general practitioners (GP's) 39%, paediatricians 21%, doctors 17%, nurses 15% and dietitians 8%), 75% reported to have a very good/good knowledge of CMA. Overall, 25% of participants received allergy training, with 7% of these being GP's.

Over half of the participants felt confident diagnosing and treating CMA (61%, 69% respectively). Furthermore, 47% of participants were aware of the iMAP guidelines and 31% of participants were unfamiliar with how to use them.

Among GP's, 30% were aware of the iMAP guidelines and 23% of all GP's had a good awareness of their use.

When presented with an infant with suspected CMA, 72% of participants reported making a hospital referral often or occasionally and 35% reported never referring to the iMAP guidelines.

Overall, 66% of participants were familiar with the milk ladder and 52% reported using it often.

Conclusions

This study suggests limited use of the iMAP guidelines. It highlights the need for education on the iMAP guidelines and the milk ladder, particularly among GP's to encourage their use and implementation for diagnosis, treatment and management of CMA in primary care.

P119

Improving Eden Unit's desensitisation clinic to combat challenges of staffing, space and patient safety that increasing demands pose on the service

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Objectives

- To design a strategy to cope with increasing number of patients.
- To ensure wellbeing of staff members and to enable them to continue to provide a high quality, safe service to the increasing numbers of patients attending this clinic both directly for desensitization.
- To improve data collection and documentation so record keeping enables good quality care and enables future audits

Method

- Data collection and creation of a process map.
- Use of a PDSA improvement cycle, such as adjusting a pro-forma sticker to standardise documentation and creating a template on a central database to record reactions.

Results

- Analysis of referral patterns indicate that the clinic will be beyond current capacity at the end of the year.
- By adjusting the scheduling of appointments to allow breaks, the clinic flow improved without reducing patient numbers
- Dose recording and documentation was also improved with the new pro-forma sticker and template.

Conclusions

- The need for additional capacity was identified by analysis of referral rates. The major limiting factors on capacity in the clinic were the number of staff and seat availability for patients.
- The strategy of allowing a staggered lunch break and differentiated roles for the various nurses staffing the clinic enabled increased efficiency in the clinic. This new model for care delivery could be adapted into other clinic days and may be adaptable for other departments in the hospital to use.

P120

Is tahini a superior alternative to commercial sesame allergen in skin prick testing?

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Objectives

The allergy team at a secondary centre were concerned about small skin prick test (SPT) wheal size in known sesame allergic children. Appel et al. 2018, found greater sensitivity and specificity in a sesame flour preparation compared to commercial extract. Therefore, we wanted to compare the results of SPT to sesame extract and tahini.

Method

All children where sesame SPT was indicated were included. Standard controls were used, and both commercial sesame and tahini were administered. Participants were also asked their history of sesame exposure and eczema.

Results

19/50 children had a positive response (≥ 3 mm) to sesame and/or tahini. 10 had positive reactions to sesame and tahini, 9 were only tahini positive.

13 individuals had clinical history of sesame allergy. Ten tested positive for sesame and/or tahini. 5 of the 10 individuals tested positive only for tahini SPT, not for sesame. There was no comparative difference seen in response to tahini in those children with eczema ($n=26$, $t=0.296$, $p>0.05$).

The difference in reaction size between tahini and sesame was larger in those that have previously reacted (mean=2.19) compared to those that never tried/empirically avoided sesame (mean=0.17) ($t=3.45$, $p<0.05$).

Conclusions

The results show greater reaction to tahini vs sesame, in the number of positive responses, and average size of response wheal. Importantly, the wheal size appears to be greater in those who have a history of a previous reaction to sesame compared to those who have avoided sesame. Those with eczema did not produce a greater mean difference between tahini and sesame wheal size, suggesting tahini is not acting as an irritant.

From our results, tahini appears to be a superior solution for skin prick test and our team will now use this as an alternative to sesame extract.

P121

Addressing the food challenges waiting list - introduction of supervised feeds.

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Objectives

Our allergy service has been looking at ways to address long waiting lists for oral food challenges (OFC). A local tertiary unit has implemented a risk stratification for food provocation testing providing a shortened version of OFC 'a supervised feed' (SF) for children at perceived lower risk of allergic reaction.

Using the same criteria, we aimed to establish whether they would be transferable to our centre.

Method

All children attending for a food challenge between 18/04/2018 and 19/12/2018 were included. The results of SptIgE and SPT prior to the challenge were analysed to establish whether they would fit the criteria for SF, FC or home introduction (HI).

Under the protocol, children must fulfil cut off values for SPT and SptIgE to qualify for OFC, SF or HI groups. Different thresholds exist for different foods.

Results

196 food challenges were conducted, 14.3% (28) were positive.

93 children had both SptIgE and SPT. In 55 (59%) the tests did not correlate and would have stratified them into different groups.

Of those with correlating SptIgE and SPT, across all food groups, 5 qualified for HI, 1 (20%) reacted. 19 qualified for SF 3 (16%) had reactions. 12 would have been assigned to OFC, 3 (25%) reacted.

93 individuals had both SptIgE and SPT, the most conservative grouping was applied. 42 were assigned OFC, 9 (21%) reacted. 45 assigned to SF, 4 reacted (9%). And 6 assigned to HI, 1 (17%) reacted.

Conclusions

As a group, we agreed a reaction rate of 10% for SF seemed reasonable. Using the stratification of patients by results used at our local tertiary centre, the expected reaction rate to SF (using most conservative number of SPT and SptIgE) would have been 8.88%, an acceptable reaction rate.

P122

Are allergies more common in boys?

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Objectives

To determine the impact of gender on the prevalence of allergies amongst UK children

Method

We obtained GP recorded diagnoses using The Health Information Network (THIN) database for UK children (aged ≤17yrs) between 1995-2015. Logistic regression was done using Stata 15 with allergy diagnosis as the dependant variable and gender, socioeconomic status and age as the independent variables.

Results

Data on over 1.5 million children (51% boys; n=769,491) was analysed. Of these 7.5% had allergic rhino conjunctivitis (n=112,131), 10.1% (n=152,454) were diagnosed with asthma and 0.8% (n=12,719) with a food allergy.

The odds of asthma prevalence in our data-set were 42% higher for boys (95% CI: 41.8-42.9). Boys also had 38% higher odds of being diagnosed with rhino conjunctivitis (95% CI: 37.5-39.1), and 38% higher odds of food allergy diagnosis (95% CI: 1.368-1.383) compared with girls after correcting for age and socioeconomic status.

Conclusions

There was a higher prevalence of all allergies in boys as compared to girls in UK. The reasons for this disparity are unclear but may be relevant to understanding the overall increase in allergy prevalence within the general population.

P123

Tricking and treating; parental experiences of using nasal medications with their young children

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Objectives

To explore the difficulties parents face during administration of nasal medications using a qualitative analysis of public posts found in online discussion forums.

Method

This qualitative study applied thematic analysis on parental written discourses from asynchronous online discussion forums on the topic of administration and use of nasal medications to young children. For ethical reasons we used only online forum that could be accessed without having to sign in, i.e. the information was in the public domain for anyone to access.

Results

The administration of nasal medications can be very challenging for some families; it generates child resistance, parent-child conflict, together with psychological distress in some parents. In on line forum parents share their experiences and difficulties and the approaches they adopt to achieve adherence to the recommended treatment. The presentation will include verbatim quotes from the discussion fora.

Conclusions

The on-line discussions identified highlighted some parental distress, lack of preparedness and understanding of administration of nasal medication. Whether real or perceived, these parents sensed there was inadequate information and training provided by health care professionals. These parents were resorting to seeking non-professional support for managing the administration of medication to their children. Whilst our research method does not enable us to estimate the prevalence of this problem it highlights the parental frustrations and lack of skill administering nasal therapies, and reminds us as health care professionals that our responsibilities extend beyond the prescribing of medication.

P124

Adrenaline auto injector legislation and its uptake in schools

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Objectives

In 2017, the UK Government passed legislation allowing schools to keep spare adrenaline auto injectors (AAI) in order to administer potentially life saving doses of adrenaline to children in emergency situations. This project looked at how aware local schools were of the new legislation, whether they took any action following it being introduced and asked the question whether we should be managing the availability of emergency medication differently.

Method

A 13-question survey was created and distributed to all schools via local government office. The survey contained open and closed questions to ensure both quantitative and qualitative information was gained.

Results

33 schools engaged with the survey which was a 20% response rate. Of the surveyed schools, 24 had heard of the new legislation but only 16 had visited the legislation website with all finding it either very or quite useful. The schools were asked about current students with allergy plans; 42.4% had between 1-5 allergy plans in place, 54.5% had more than 5 plans and only 3% did not have students with allergy plans. Of all allergy plans, 87.1% included an AAI and 3 schools had had to use a AAI. Only 7 schools reported a spare AAI however 17 additional schools would consider getting one. Twenty-four schools were open to discussion about managing medication differently.

Conclusions

Amongst local schools, there was widespread awareness of the legislation change but most schools did not take any follow up action after its implementation. The majority of the cohort had children with allergy plans including AAI's, therefore obtaining a spare AAI would be beneficial in the case of anaphylactic emergency. Assisting schools to obtain spare AAI's could prevent paediatric mortality and morbidity.