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Spring/Summer 2021

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Prof Jurgen Schwarze,
Chair of Child Life and Health,
The University of Edinburgh

Dr. Rosan Meyer,
Honorary Senior Lecturer,
Imperial College

Dr Helen A Brough,
Consultant and Reader in
Paediatric Allergy

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Thirty years of supporting people living with allergy

Allergy UK is the operational name of the British Allergy Foundation. We are the leading charity for people living with allergic disease, providing support and advice about all kinds of allergic conditions. We act as the 'voice' of the millions of people who live with allergies, representing the concerns and healthcare needs of those affected by this multi-organ disease.

Our strategy for the next five years is centred on a new Mission:
"For everyone in the UK to take allergy seriously"

With our Vision that:
"No-one should die from allergy"

The allergic community is at the heart of everything that we do and our work is focused on improving the lives of people who live with allergic disease.

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Foreword

Professor Adam Fox
Chair of the Allergy UK Health Advisory Board
Consultant Paediatric Allergist, Evelina London Children's Hospital

Welcome to this edition of Allergy Today.

In my Foreword to the last edition of Allergy Today, when the Covid pandemic was in its second wave in the UK, I referred to the vaccination programme that was starting to be rolled out as the 'light at the end of the tunnel'. Four months later and that light has become considerably brighter with nearly 34 million people in the UK having received their first vaccination. This world beating programme continues at a considerable pace into the Summer, as lock down eases and we navigate the RoadMap set out by government.

For individuals and families living with allergies this has, and continues to be, an exceptionally anxious time. Their feelings of vulnerability because of conditions such as asthma have been exacerbated by worries about access to clinical support and the medications they need and, above all, about their own potential susceptibility to the virus. Now the good news about vaccinations brings with it a further fear about the risk of a serious reaction to the vaccines being administered.

Addressing these fears relies on the provision of clear and consistent information to guide and reassure. Allergy UK has been working with the BSACI to provide this information through its various channels, including the Helpline, addressing all the questions that come through to the charity with clinical accuracy. It is completely understandable that many in the allergic community are cautious about having a vaccination, given their experiences of reactions to allergens in the past. But we must help to ensure, as far as we can, that those who are able to have a vaccination safely do so for their future protection from this life threatening disease. At the same time, as we anticipate further news of a possible vaccine 'passport', we must seek to get a better understanding of the implications for those people whose allergic conditions mean that they cannot have the vaccine and ensure that these people are fairly represented in the proposal.

Once again, this issue of Allergy Today contains articles from leading experts on a range of allergic conditions, including a timely piece which focuses on learnings around meeting the needs of allergy patients of allergy patients in primary care one year on from the start of the pandemic. I hope you find this, and all the articles in this edition useful and informative in the care of your allergy patients.

Welcome

A year on from our first lockdown in the UK, it has proved to be an unprecedented year of challenge but also of new ways that we can continue to provide information and support to our allergic community, answering their questions about COVID-19 and responding to their feelings of anxiety and concern about the ways in which the virus is impacting their lives. Our Helpline is at the heart of this, supported by our recently extended Clinical team who work tirelessly to ensure that all our calls are answered with accurate information and guidance. Our community has needed us more than ever during this difficult time and continue to do so as the roll out of the vaccination programme causes real anxiety about the risk of allergic reactions. We continue to do everything we can to support them.

The start of a new financial year means that we have also been working on the new projects that will expand our resources to help improve the lives of people living with allergic conditions, including projects on skin, respiratory conditions and food allergies. With this year seeing the launch of our new digital strategy many of these resources will be easily accessible on video and online.

Our Masterclass programme for 2021/2 is also in place now and you will find details of these in this issue. The Webinar format is proving to be incredibly successful with registrations reaching the 500 mark for each Masterclass and feedback consistently 'excellent'. We continue to strive for interesting and informative content to help knowledge/awareness base in the clinical workplace. You can find our last three online Masterclasses on our website.

After a year that has been dominated by COVID-19 we look forward to developing new resources and working on the campaigns and initiatives that will make a difference to the millions of people living with allergic disease in the UK.

In this edition of Allergy Today we have articles on allergic rhinitis, venom allergy and pollen fruit syndrome, as well as an article on the pharmacist's role in managing allergy patients, a precursor to a Masterclass planned for autumn this year specifically for pharmacists. And Dr. Liz Angier has contributed an article on managing allergy patients in primary care during a pandemic which includes insights and learnings from the last year. We very much hope you will enjoy reading this issue.

Carla Jones, CEO

Amena Warner, Head of Clinical Services

News Focus

New research on the refining of pollen forecasting

Part of the PollerGEN Research Project

New research which brings together healthcare data with ground-breaking ecological techniques could point the way for refining pollen forecasts in the future. Pollen forecasts are vital for people living with allergic asthma and hay fever because these forecasts play an important role in the management of their symptoms. However, current forecasting relies on measuring the total load of grass pollen in the atmosphere but does not distinguish between pollen from different types of grass. This research, led by Bangor and Exeter Universities, has revealed a potential link between particular grass species and respiratory health issues which could mean that pollen forecasting in the future could be more specific to types of pollen.

At certain times of the year, between May and mid-August, grass is the most important hay fever and asthma triggering outdoor airborne allergy. This work matched two years of records of public health data (asthma-related hospital admissions and GP prescribing of respiratory and nasal allergy medications) with the eDNA (Environmental DNA) monitoring data for pollen from different grass species compiled at 14 locations throughout the UK.

Dr. Francis Rowney from University of Exeter who led the health data portion of the work says: "Though this is certainly early days it was fascinating to discover that certain grass species may have greater impacts on respiratory health than others. Proteins in the pollen are what trigger allergic reactions and there are common allergenic proteins between some grass species. We need to better understand the molecular

basis of the allergens and allergic reactions to further investigate what are the most allergenic species and whether there are differences in reactions between different individuals."

Dr. Georgina Brennan, based at Bangor University's School of Natural Sciences, was one of a team who pioneered the applications of environmental DNA monitoring. She says: "Pollen grains from different grass species look almost identical, even under a microscope, and before the advent of eDNA and molecular tools it was not possible to identify pollen from different grass species and explore whether different grasses cause a greater allergic reaction. Now we can see a future where a global network of autonomous pollen samplers, able to discriminate and quantify airborne pollen, would allow sensitive biomonitoring of important aeroallergens. It may be that what we need is not just a total grass pollen count forecast, but also forecasts for the most allergenic types of grass pollens."

This research is part of the larger PollerGEN research project which is funded by the Natural Environment Research Council and led by Professor Simon Creer of Bangor University. It is seen as the first step and theoretical 'proof of concept' of this major research project which could lead to more precise pollen forecasts for different allergen types to the considerable benefit of those living with respiratory allergic conditions.

Allergy UK News

Allergy UK has welcomed two new members to expand its Clinical Team - Margaret Kelman and Laura Phillips. Working with our Head of Clinical Services, Amena Warner, and Nurse Advisor, Holly Shaw, Margaret and Laura will work on the development of a range of campaigns and projects, including our Masterclass programme, and provide further support for our Helpline:

Margaret Kelman, Specialist Allergy Nurse

Margaret Kelman is a specialist nurse living and working in Scotland with experience in providing care to children, young people and adults with both dermatological and allergic conditions, with a special interest in young people and food allergy, eczema and urticaria. Margaret studied Allergy at the University of Southampton and has worked within NHS Scotland as the allergy advisor / programme manager for CYANS the Children and Young People's Allergy Network Scotland NMCN, more recently she was involved in the development of a unique project with the University of Edinburgh, funded by Allergy UK, to integrate research and development into everyday practice, through the development of novel nurse led allergy clinics within primary care and for this work was very fortunate to be awarded the Barry Kay award for excellence in allergy care and research in primary care at the BSACI conference this year. Margaret took up a post as specialist allergy nurse with Allergy UK in August 2020.

Laura Phillips, Paediatric Allergy Dietitian

Laura qualified as a dietitian from the University of Surrey in 2003. She found a passion for working in paediatric allergy having gained a job at St Mary's Hospital, London in their tertiary MDT allergy clinic. For the last seven years she has worked at Colchester Hospital, Essex in MDT and dietetic led allergy clinics. Laura took up a Dietetic Clinical Advisory post alongside this in September 2020 at Allergy UK.

To download past editions of **Allergy Today** please visit our website **www.allergyuk.org**

Allergic Rhinitis and Respiratory Allergy

Glenis Scadding

Honorary Consultant Physician at the Royal National ENT Hospital and Honorary Senior Lecturer in the Division of Immunity and Infection at University College London

Glenis was President of the British Society for Allergy and Clinical Immunology (BSACI) 2009-12. In 2006 she won their William Frankland Award for outstanding contribution to clinical allergy in the UK and in 2020 she gave the Jack Pepys lecture at the BSACI Annual meeting. She was Allergy UK Allergist of the Year in 2011 and was awarded British Medical Association (Walter Jobson Horne for ENT research), European Academy of Allergy and Clinical Immunology (Clemens von Pirquet for Research in Allergy) and WAO prizes (Outstanding Clinician) in recent years.

Currently she is Scientific Chief Editor for the Rhinology Section of Frontiers in Allergy, Lead for Allergic Rhinitis at EUFOREA and lead author of the BSACI Rhinitis Management Guidelines.

Dr Scadding's research interests include rhinitis, rhinosinusitis and their co-morbidities, including asthma, particularly non-steroidal anti- inflammatory- exacerbated asthma (N-ERD).She is the author of over 300 peer – reviewed scientific publications. In her spare time she is a gardener, eco- warrior and novelist with a first book, "Colchicum- a Cure for Dementia?"

Introduction / Prevalence

Hay fever, or seasonal allergic rhinitis (SAR), is an immunological disorder [1] which now affects around a quarter of the UK population; having been a rare disease of the upper classes two hundred years ago. The reasons for this increased prevalence, though not entirely known, appear to be both genetic and environmental. The latter probably relate mainly to the microbiome and its effects upon the direction of immunity, but factors such as atmospheric pollutants may also be relevant [2-4].

Symptom recognition

The symptoms are those of nasal running, blocking, sneezing and itching. The eyes are also involved in 70% of sufferers, with redness, itching and weeping. However these symptoms are the tip of the iceberg[5]. AR significantly reduces quality of life (QoL) [6,7] and also reduces sleep quality.[8] This leads to impairment of mood and cognitive ability [9], decreases in school/work performance [10,11] and reduced driving safety [12]. Both allergic rhinitis and inhalant atopy during childhood can predispose to asthma later in life and can reduce control of existing asthma [13].

AR management

a) Diagnosis

The EUFOREA Allergic Rhinitis (AR) Pocket Guide is the most recent and most comprehensive AR guideline. Its algorithm (Figure 1) gives a blueprint for AR management[14]. Many long- term sufferers self- diagnose and self-treat, recognising the association between their symptoms and the pollen season. De novo hay fever may be initially misdiagnosed as a summer cold. The major differences between hay fever, summer colds and COVID-19 are shown in Figure 2.

Figure 1: Treatment algorithm for AR as proposed by EUFOREA, taking into account the reality of patient phenotypes and existing international guidelines

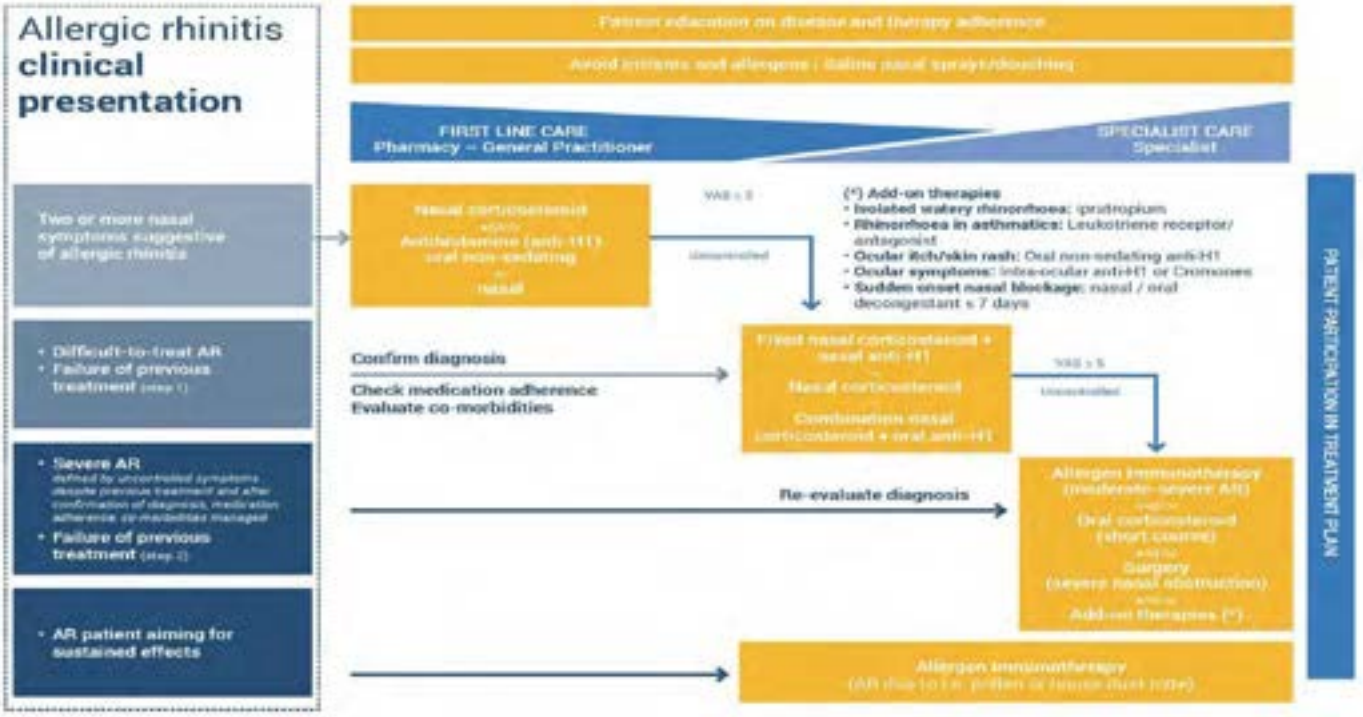
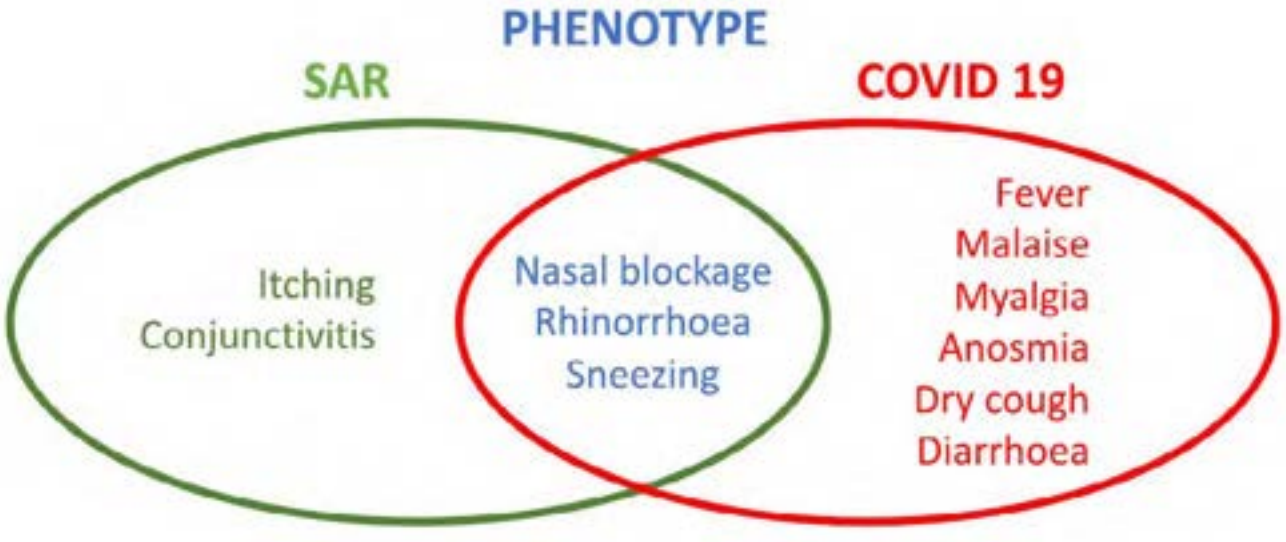


Figure 2: Similarities and differences between seasonal allergic rhinitis and COVID-19 symptoms



The diagnosis of SAR can often be made on the history of seasonal symptoms. If necessary it can be confirmed by demonstration of pollen – specific IgE, either by skin prick or blood tests. False positives and false negatives occur- so such tests should always be read in the light of the history. Rarely pollen – specific IgE may be confined

to the nose (local allergy) and then only nasal allergen challenge will provide the diagnosis. Use of more detailed tests to identify the IgE recognition of specific allergenic molecules, rather than whole allergens, currently has no place, other than in research, in pollen allergy.

b) Treatment

All sufferers, including the young, the pregnant and the old should benefit from avoidance of allergens and pollutants [15]. The use of a mask covering the nose and mouth not only protects against COVID-19, but also reduces pollen/pollutant ingress. Since asymptomatic COVID-19 is common, especially among young people one quarter of whom have hay fever, it is likely that the two conditions will coincide in some individuals. Mask wearing is very important to reduce COVID spread, which can be extensive after a sneeze, so is preferable to intranasal blockers like balms or petroleum jelly [16].These could be used additionally inside the nose, if wished.

Another universally applicable simple measure is that of nasal saline. This reduces symptoms and the need for other medications. Nasal saline irrigation, also called douching, can be performed using a saline nasal spray or wash which are available from pharmacies. Regular daily or twice daily use can be supplemented by additional nasal douching after allergen exposure to prevent the ensuing allergic reaction. If extra sodium is a problem, such as in hypertensive or pregnant patients, then the saline which goes down the back of the nose can be spat out rather than swallowed.

Mild SAR still symptomatic despite the above measures can be largely controlled with antihistamines (oral or nasal, but never use sedating ones). More severe symptoms, especially if congestion is prominent, warrant regular, accurate use of an intranasal corticosteroid spray (INS) (see Figure 3). Those with symptoms despite this might benefit from a combination spray containing both INS plus intranasal antihistamine, which needs a prescription. Other possible additional treatments are mentioned in Figure 1.

Hay fever sufferers whose quality of life and ability to function are compromised despite pharmacotherapy should be referred for consideration of allergen specific immunotherapy (AIT). This may alter the course of disease, reducing progression to asthma[17].

Figure 3:

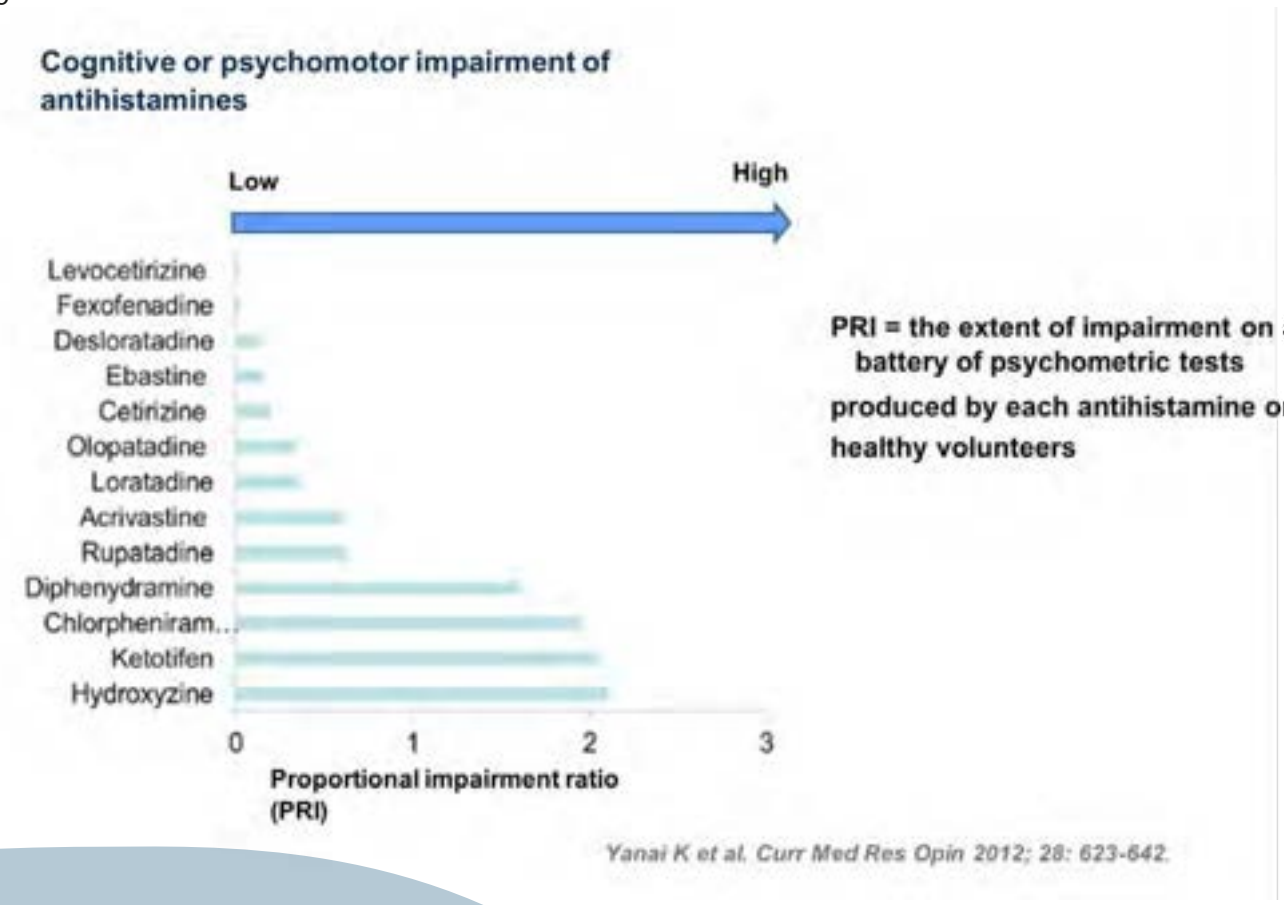
1. Shake bottle well
2. Look down
3. Using right hand for left nostril put nozzle just inside nose aiming towards outside wall
4. Squirt once or twice (2 different directions ↗→)
5. Change hands and repeat for other side
6. Breathe in gently through the nose

Special considerations

In pregnancy the risk benefit ratio of treatment needs careful consideration. If nasal saline plus allergen/ pollutant avoidance fails to control symptoms then a non- systemically bioavailable nasal corticosteroid, such as mometasone furoate or fluticasone furoate or propionate, is likely to be the safest option, given that inhaled corticosteroids, with greater bioavailability, are regularly continued in asthma without problems.

Sedating antihistamines are particularly likely to harm the young (where syrups containing them are available over the counter) and the very old (in whom they can contribute to dementia) and should be completely avoided. Figure 4 shows the sedative properties of various antihistamines.

Figure 4:



Link between AR and asthma

AR is a risk factor for poor asthma control in those with both conditions and a risk factor for future asthma development in those with rhinitis only. Analyses revealed an association between daily count (continuous) of grass pollen and adult hospital admissions for asthma in London, with a four to five-day lag. When grass pollen concentrations were categorized into Met Office pollen 'alert' levels, 'very high' days (vs. 'low') were associated with increased admissions two to five days later, peaking at an incidence rate ratio of 1.46 (95%, CI 1.20–1.78) at three days[18].

Thunderstorm asthma, in which grass allergens are fragmented and more deeply inhaled, has provoked sudden severe asthma, sometimes fatal, in a few SAR sufferers who have previously only had upper airway symptoms. Remaining indoors during summer storms is sensible[19]. If unusually breathless, SAR sufferers should contact medical help quickly.

When to refer

Monitoring of symptoms can now be done by the patient using a mobile phone app [20]. SAR subjects with poor symptom control need referral to an allergist for detailed investigation of their allergies and consideration of allergen specific immunotherapy.

Others with symptoms such as pain, bleeding, unilateral problems, unresponsive congestion need expert opinion from an ENT surgeon. Those with orbital cellulitis or sudden asthma need urgent referral.

Relevant guidelines

The EUFOREA guideline is available at *www.euforea.eu* under "New."
The BSACI guideline is available at *www.bsaci.org* under "Guidelines".

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Figure legends

1. The EUFOREA Allergic Rhinitis Management Algorithm- courtesy of EUFOREA.
2. Similarities and Differences between AR and COVID-19, from reference 16. Courtesy of World Allergy Organization Journal.
3. How to use an intranasal spray, from reference 15, Courtesy of Clin. Exp. Allergy and BSACI
4. Differences in sedating effects of oral antihistamines. From Yanai K et al. Curr Med Res Opin 2012; 28: 623-642 with permission.

Meeting the needs of allergy patients in primary care post pandemic:

One year on what we have learned, what we need to know and where to find it.

Dr Liz Angier,
portfolio GP Hampshire

Liz Angier is a portfolio GP who works in both the community and hospital settings. She also works for her local CCG representing primary care. She gained her MSc in allergy at Southampton in 2019 and is planning to do further research in her area of interest anaphylaxis and adolescents and young adults. She is a member of the BSACI primary care group and Chair of the EAACI working group in primary care.

She has been involved in guidelines and allergy and trying to improve the care of allergy in primary care for many years. She is passionate about education and making good quality allergy care accessible in the community.

Adjusting to new ways of working

The events of the previous year with the COVID-19 pandemic have fundamentally changed the way that we deliver health services. Few would have predicted a year ago that our lives would change so dramatically. Many of us reading this article have had different stresses in our lives in the last year. That could be a change in working conditions, illness ourselves or within our families and an increase in caring responsibilities. Our home routines and ways of working are different and may remain that way for some time.

Primary care has, as always, responded flexibility and with agility to the changes.

The changing landscape of healthcare delivery

I'd like to consider in this article the different ways that the health system has adapted to delivering services during the pandemic with a particular focus on allergy, although some aspects are more generic. For patient and staff safety reasons, care was shifted early on from face-to-face to total triage of patients virtually and then the options to be seen face-to-face in different settings. GPs have in some areas created a structure of 'hot hubs' where patients with COVID-19 symptoms are seen separately. Patients with potential COVID-19 symptoms are also advised by the 111 system. There was little time for consultation on this as it was a response to the emerging pandemic. Both staff and patients found this transition difficult although some patients felt more comfortable having the ability to access services via video or phone consultation.

There has been and is an ongoing concern about the possibility of COVID-19 infection whilst visiting healthcare facilities. The need for social distancing has also affected the utilisation of clinical areas.

Utilising digital technology for patient engagement:
Many clinical commissioning groups and healthcare providers have invested in digital solutions to deliver care safely. Many patients and staff prefer face to face consultations and getting the balance right whilst still in the pandemic is an ongoing debate. There is the recognition that some cases will always need to be seen and examined clinically.

"Most people agree that we will retain some aspects of remote consultation moving forward"

but we need to work on training to deliver this for both staff and patients. We also need to ensure equality of access and that patients and their families are given options that are right for their circumstances. At times it can be difficult for patients to know how to get access to the right services and advice. Digital exclusion is also a concern that needs further work.

Many GPs have been using the secure platform accuRx which has ability to consult via phone and video consultation and also text information or documents to patients. Photos can be viewed, and some versions allow up to four people to join a consultation opening up the possibility of joint consultations. Hospital outpatients similarly have used different platforms such as 'attend anywhere' to facilitate remote consultations where possible due to repurposing of clinical areas and the need for social distancing. The use of rapid turnaround advice and guidance from specialist units to the community or local hospitals has been an area that has supported quick decision making and is a component that many trusts will retain.

The professional body for Allergy and Immunology in the UK, The British Society of Clinical Allergy and Immunology (BSACI) has published guidance on modification of allergy services for both adults and children highlighting priority areas and changes that can be instigated. These may be helpful for referrers in the community to be aware of :-
https://www.bsaci.org/modifications-for-adult-allergy-services-during-COVID-19-pandemic/

https://www.bsaci.org/modifications-for-paediatric-allergy-services-during-COVID-19-pandemic/

It has become apparent that after the pandemic there will be longer waiting lists in hospitals for many areas. This will be a focus for the restoration and recovery work. The vaccination program is currently being successfully being deployed and we are now able to look at what has worked well and what we could use going forward for delivery of the care of allergy. Questions that have arisen about allergy care include how to assess previous allergies that have been poorly documented, how to deliver ongoing care for new and pre -existing allergies, the best ways to communicate between hospitals and the community with advice and guidance, questions on suitability for vaccines and the management of acute anaphylaxis in the vaccine sites or at home.

Fortunately, as the mainstay of allergy treatment is a good clinically focused allergy history this element can be done remotely and, in some areas, patients may be initially asked to fill in questionnaires. The temporal relationship of any reaction is always a key question alongside possible triggers and threshold ingested and the symptoms observed, and any treatments given. Reproducibility is another important question if the patient has come across the trigger again. IgE-mediated reactions tend to be rapid in onset, within 20 minutes to 2 hours, whereas non-IgE-mediated reactions tend to be delayed, after several hours to 2-3 days later. The National

Institute for Health and Care Excellence (NICE) has a clinical guideline on Food allergy in under 19s: assessment and diagnosis which can be accessed here https://www.nice.org.uk/Guidance/CG116

Unfortunately, many food intolerances and normal drug side effects can be recorded in GP and hospital medical records as allergy alerts. This may cause confusion when looking at the records as the details of any possible previous reaction and its severity are sometimes not clear for the reviewing clinician.

In general practice part of our remit is gathering the information and pattern recognition to understand what else we need to do. We may be more familiar with this in areas such as rhinitis and asthma, but food allergy, anaphylaxis and COVID-19 vaccines may need more support.

An evolving situation- COVID-19 vaccination programme

The COVID-19 vaccination program has created a situation where GPs and patients may need advice before proceeding. Unsurprisingly, the advice about the vaccine from statuary bodies has changed as we understand more. The current advice may change again. This caused some confusion amongst community health practitioners early on when they were unsure of which patients would be suitable for the vaccine. Now that the advice is clearer, many more patients can be reassured and there will be a smaller group of patients that will need the input of specialist units. The priority is that GPs can access this advice quickly to ensure deployment of the vaccine across the population. The advice is being reviewed as we know more, and the green book chapter 14a will have the latest updated advice.

GPs can advise about common questions about food allergy and venom allergy by checking this. The allergy charities also have a frequently asked questions resources on their websites overleaf.

Some patients have reported to patient organisations supporting people living with allergic disease about variable advice received from Health Care Professionals about whether they can safely receive the vaccine which has understandably created concern amongst the allergic community. Hopefully now that the community has more access to resources and advice and our understanding is better this should improve. Fortunately, there are very few individuals who cannot receive the Pfizer BioNTech, Moderna or AstraZeneca COVID-19 vaccines. Our understanding about the different vaccines is under regular review with new information shared as it emerges.

Guidelines and information to support decision making:

Where there is doubt, rather than withholding vaccination, appropriate advice should be sought. For advice and guidance this is mainly concerning patients who are deemed to be high clinical concern due to either a history of allergy/ anaphylaxis or a possible allergic reaction to first dose of COVID-19 vaccine. Key questions include.

1. Which COVID-19 vaccine can I give?
2. Where should the vaccine be administered, community or hospital?
3. Should the patient be advised to take an antihistamine pre-vaccination?

When considering the approach, the best place to start is the green book. The following tables guide you through the different scenarios as of April 2021: These figures 1 and 2, are from chapter 14 a of the green book and consider firstly the management of patients with a possible allergic history, and secondly a flowchart of the management of possible allergic reactions to the COVID-19 vaccine.

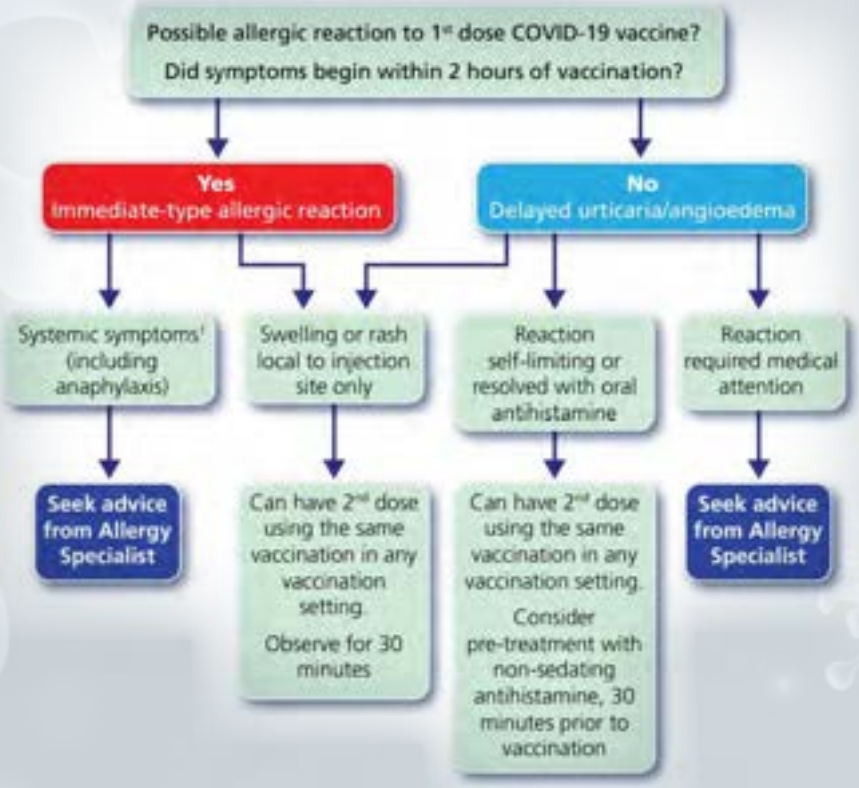
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/955548/Greenbook_chapter_14a_v6.pdf.

Green book Figures

Figure 1 Management of patients with a history of allergy

	Proceed with vaccination	Special precautions	Vaccination contra-indicated
PATIENT CHARACTERISTICS	• previous allergic reaction (including anaphylaxis) to a food, insect sting and most medicines (where trigger has been identified) • family history of allergies • previous non-systemic reaction to a vaccine • hypersensitivity to non-steroidal anti-inflammatory drugs e.g. aspirin, ibuprofen • mastocytosis	• history of immediate anaphylaxis to multiple, different drug classes, with the trigger unidentified (this may indicate PEG allergy) • history of anaphylaxis to a vaccine, injected antibody preparation or a medicine likely to contain PEG (e.g. depot steroid injection, laxative) • history of idiopathic anaphylaxis	• prior systemic allergic reaction to the COVID-19 vaccine • for an mRNA-based COVID-19 vaccine, prior allergic reaction to another mRNA vaccine • prior allergic reaction to a component of the vaccine, including PEG
ACTIONS	• proceed with vaccination as normal, according to local guidelines	• discuss with allergy specialist and consider possibility of PEG-allergy • consider observation for 30 minutes if vaccination proceeds (see precautions) • some patients may benefit from pretreatment with antihistamine, however this may mask initial symptoms of a reaction	• do not give vaccine in question • refer to allergist

Figure 2 Flowchart Managing patients who have allergic reactions to the first dose of COVID-19 vaccine



Other helpful resources include:
The allergy charities Allergy UK and Anaphylaxis Campaign, in partnership with the BSACI, have grouped together to create a frequently asked questions sections on their website: *https://www.allergyuk.org/about/latest-news/1374-allergy-and-the-coronavirus-covid19-vaccine.*

The Royal College of General Practitioners alongside Public health England and the BSACI have also produced a document about anaphylaxis in the acute scenario: https://www.resus.org.uk/about-us/news-and-events/rcuk-publishes-anaphylaxis-guidance-vaccination-settings.
List of BSACI allergy clinics BSACI website : *https://www.bsaci.org/workforce/find-a-clinic/*

Some of the BSACI primary care group members are also writing a guidance on adrenaline prescribing in the community to help support primary care workers identify and manage anaphylaxis which will be published soon. This is timely as patients with anaphylaxis benefit from prompt diagnosis and ongoing support and regular training in adrenaline devices.

Risk assessment and decision making on vaccine suitability:
An example of good practice for advice in this area is Southampton where, after discussion with the local medical committee and local GPs, an Ardens template for GP computer systems was created by the local allergy unit to submit for COVID-19 vaccine advice and guidance. This template helps GPs ask the relevant questions so that the unit's COVID-19 vaccine MDT can risk assess whether that person can receive the vaccine in the community or in a hospital centre and which vaccination would be best for them. GPs are not used to taking drug allergy histories or working out which drug excipients are involved in different preparations. However, they can assist with helping to provide information from their systems. Not all systems may have this documented clearly although sometimes patients have recorded this themselves.

Here are some tips for some of the information that is helpful for your local allergy units to have for any vaccine or drug reactions enquiries:

- Details of the approximate date of any reactions, the manufacturer, route and dose of these vaccine or drug are helpful to allow the specialist team to look into the possibility of an excipient reaction. Excipients may vary between manufacturer, route and dose as well as the year of manufacture of some medications. The COVID-19 vaccine multidisciplinary teams or advisors will be especially interested in patients' safety and it is a high priority for them to be made aware of any severe adverse drug reaction to any vaccine, depot steroids, depo-hormone injections, cancer drugs, monoclonal antibiotics and other biological drugs. These drugs are ones they need to know about because they in particular may contain one or other or even both the excipients found in either the Pfizer or Astrazenica vaccines so warrant very close attention. Some laxatives may also contain the excipients.

- Some excipients being considered include: PEG (Polyethylene glycol) or "macrogol" of e1521 is one known excipient in the Pfizer vaccine.

Polysorbate 80 is an excipient in the AZ/Oxford vaccine.

- For any reaction, the following information is also helpful: symptoms, documented use of adrenaline, location of reaction/management (own home/GP/A&E/inpatient).

- A detailed current and succinct past medical history, current and past medications and former vaccinations and any listed allergies.

- A record of whether or not they have they been seen by allergy unit before or been an inpatient in hospital is helpful so records can be checked for any previous allergy or reactions or diagnosis and tests.

Anaphylaxis:
Anaphylaxis should be defined according to the World Allergy Organisation and Resuscitation Council definitions of anaphylaxis:

Anaphylaxis is a serious systemic hypersensitivity reaction that is usually rapid in onset and may cause death.

Severe anaphylaxis is characterized by potentially life-threatening compromise in airway, breathing and/or the circulation, and may occur without typical skin features or circulatory shock being present. Anaphylaxis is a clinical diagnosis; a precise definition is not important for the emergency treatment of anaphylaxis.

With the information provided, the allergy unit can discuss and contact the patients to allocate a place of administration if they have all the relevant information. They will advise on the venue they feel provides the required level of safety to meet individual needs whilst being able to keep their services running. Their ability to respond to queries in a timely manner will be dependent on the level of information that they receive.

Many local GPs have also mentioned that patients in the vaccination centres have mentioned allergies not previously documented. This brings uncertainty on the day if a complex history is presented. It is understandable that those patients may be delayed until further advice is given for safety reasons. Vaccines centre staff have all undergone anaphylaxis training. Fortunately, there has not been many reported cases of anaphylaxis after the COVID- 19 vaccine in this country.

Educational initiatives to drive improvements in allergy care
The BSACI has recently created an educational strategy on allergy and how that can be delivered across different healthcare professional groups. NHS England policy is that many new staff members will be joining primary care networks, as part of the additional roles reimbursement scheme. Primary care networks are units of practices covering populations usually of between 30-50,000. They will be essential delivery units and building blocks of care. Staff members include pharmacists, care navigators, physiotherapists, paramedics, mental health workers, physician associates and dieticians. It is important that all the staff are aware of potential allergy problems and can advise accordingly. These staff could also be involved in ongoing care. The dieticians, pharmacists, paramedics, and physician associates if they have the relevant competencies and support could assist with adrenaline auto injector device training, and management of long-term conditions, triaging and acute presentations. Primary care networks could design and deliver allergy services across practices with support from specialist units and trained primary care staff or rotating specialist nurses and GP with extended roles. The Universities of Southampton, Imperial College, London and Newcastle all train health care professionals in allergy. Supported self-management will be a key component

going forward and some practices have invested in different platforms such as myasthma or other digital tools to empower patients and give accessible care.

For the patients who are presenting with new allergies or unclear previous ones the non-COVID-19 advice and guidance if available for different allergy units can be sought and if necessary, sent through to outpatients with the usual safety netting. For those patients with anaphylaxis or at risk of this that had not had a specialist review they will need referral for investigations and confirmation of diagnosis and management with the usual safety netting following NICE guidance and can also be managed via non-COVID-19 advice and guidance for an early response.

Patient education key:
As always when patients are seen with adrenaline auto-injector devices, they should be reminded to carry these at all times and the healthcare professional should check that they are in date and that they know how and when to use them. The allergy charities such as Allergy UK and Anaphylaxis Campaign are a very good source of patient information and support and patients should be signposted to their resources. The BSACI vaccine working group is also working on an information sheet which should be available on their website shortly.

The pandemic has given the opportunity to redesign health services. This should now continue and be co-designed by the patients themselves drawing upon their experiences so far and their future needs. The care of patients in the community can be supported by the specialist units. Better agile communication across the system that supports prompt quality risk assessment, individualised care and self-management is key.

Venom Allergy

Dr Nicola Brathwaite MBChB, FCPaed(SA), FRCPCH
Consultant Paediatric Allergist

Dr Nicola Brathwaite is a Consultant Paediatric Allergist at Kings College Hospital, London, appointed in 2005. She completed her specialist training in Paediatrics and Paediatric Allergy in Cape Town, South Africa. Her interests include all aspects of paediatric allergy especially food allergy, the role of allergy in asthma, allergic rhinitis, drug allergies and allergen immunotherapy.
She is Honorary Secretary of the British Society for Allergy and Clinical Immunology (BSACI) and serves on the BSACI Standards of Care Committee. She represented the Royal College of Paediatrics on the NICE technology appraisal of Pharmalgen for venom immunotherapy and worked on the RCPCH Allergy Care Pathways project for the Drug, Latex and Venom allergy pathways. She is joint Lead for the Respiratory and Allergy Module and International Child Health modules of the KCL Advanced Paediatrics MSc.

Prevalence

The venom of stinging insects from the Hymenoptera order is an important trigger of systemic allergic reactions including anaphylaxis, which may be fatal. Stings from honey bees and wasps are the most common cause of insect venom allergy in the United Kingdom. In a study of fatal anaphylaxis in the UK from 1992-2001, a quarter of the deaths where the cause could be determined were due to insect stings. The time from sting to death was typically 10-15 minutes.[1]

Hymenoptera insects

Classification: The Hymenoptera order is divided into two superfamilies, the Apidae which includes honey bees (apis mellifera) and bumble bees (bombus sp) and the Vespidae which includes wasps (Vespula), hornets (vespa) and paper wasps (polistes). Paper wasps are not seen in the UK and stings from hornets are an infrequent cause of allergic reactions.

Venoms

There is limited specific IgE cross reactivity between bee and wasp venoms due to the hyaluronidase component and this is rarely clinically relevant. The major allergens for bee phospholipase A2 and Mellitin are specific to bee venom and for wasp the major antigen ves v 5 is not found in wasp venom. There is high IgE and clinical cross reactivity between wasps and hornets.[2]

Identification of the insect

Wasp stings are a more common cause of systemic allergic reaction than bee stings, but most people are stung infrequently. 56-94% of people will experience at least one sting during their lifetime.(3) By contrast bee keepers are frequently stung by bees and most bee venom allergy occurs in bee keepers and members of their household. Allergic reactions to bee sting are more common in earlier years of bee keeping.

Wasps are active in the warmer months from March to October. They have a smooth yellow abdomen with black bands. Wasps do not lose their sting after stinging and may sting several times.

The amount of venom released per sting is 2-17mcg

Honey bees have a striped brown/black abdomen covered with short dense hair. They are active from March to October but may also sting on warm winter days. The bee sting is barbed and typically lost during stinging.

The amount of venom per sting is greater at 50-140mcg.

Allergic reactions to hymenoptera venom

Both bee and wasp stings typically cause intense local pain, redness and a small (1cm) area of oedema. These minor reactions are normal and do not need further investigation. Large local reactions can be more troublesome with swelling of >10cm developing over several hours, pruritis and erythema. These reactions typically peak by 24-48 hours then subside. The risk of systemic reaction after a large local reaction is low and where it does occur is typically mild.

Systemic reactions are rapid in onset within minutes of the sting. Severity ranges from minor urticaria, pruritis, through to life threatening anaphylaxis including laryngeal oedema, asthma, hypotension, collapse. Cutaneous symptoms are common, but there may be sudden hypotension and collapse with no other features. A sense of impending doom is often described. Fatal reactions are rare, but likely under-recognised. Severe reactions occur at all ages, but the average age for fatal venom anaphylaxis is 50 years.
Non allergic reactions due to toxicity with multiple stings resulting in high envenomation include haemolysis, nephropathy, coagulopathy and neurological symptoms.[2]

Natural history of venom allergy

A high proportion of people who experience a systemic reaction to sting will have no reaction on subsequent sting (20-100% in different studies)[3]. For children with mild systemic reactions 81% did not react on subsequent sting and none experienced a more severe reaction than the original reaction.[4]

This has been demonstrated in both field stings and in sting challenges in the placebo group of Venom Immunotherapy trials. One study showed subsequent systemic reaction in adults with mild/moderate reaction to be reduced in

45%, similar in 43% and more severe in 12%.

Reasons for the variable outcomes are not well understood. Many of the studies are decades old and done before measurement of baseline serum tryptase was included as a predictor of risk.

Investigation

Patients with a systemic allergic reaction to insect sting should be investigated in a specialist allergy service.[5] Accurate diagnosis is needed to inform management.

Large local reactions do not require further investigation.

The British Society for Allergy and Clinical immunology (BSACI) Guideline on the diagnosis and management of hymenoptera venom allergy details common errors in diagnosis. Accurate identification of the relevant trigger is essential for planning treatment.[2]

Common errors include:

1. Incorrect identification of the insect by the patient – a detailed history including where stung, time of year, insect features is essential
2. Double positive serum specific IgE to bee and wasp due to cross reactive carbohydrate components and hyaluronidases. True double positivity is rare and skin testing and component testing for the major bee venom (Api m1) and wasp venom (Ves v 5) allergens can help.[6]
3. Difficulty in interpreting skin tests
4. False negative serum IgE/Skin tests

Diagnosis

Skin testing is the gold standard investigation and provides better discrimination between bee and wasp sensitisation than serum specific IgE. Standardised venom extracts for bee and wasp are used with histamine positive control and saline negative control tests. A weal diameter greater than three millimetres

larger than the negative control indicates the presence of specific IgE. If skin tests are negative with a clear clinical history, intradermal testing may be needed. Skin testing should always be done by experienced personnel with treatment for anaphylaxis immediately available.

Serum specific IgE can be used as an adjunct to skin testing. A reaction greater than or equal to 0.35kU/l is positive. This should always be correlated with the clinical history. Where double positivity to bee and wasp venom occurs, component resolved diagnosis may be helpful.

VIT is 95-100% successful in preventing future systemic reactions to wasp and 80% to bee

Baseline tryptase should be measured in all patients. A significant proportion of patients presenting with anaphylaxis may have elevated baseline tryptase which suggests an underlying mast cell disorder.[7]

Management

Acute:

1. Minor local reactions can be managed with oral antihistamine. Large local reactions may require oral steroids. Patients should be advised to take antihistamine immediately with future stings.
2. Systemic reactions should be managed according to severity. Severe reactions with airway, respiratory or cardiovascular involvement should be managed with intramuscular adrenaline and by following anaphylaxis protocols. Mild reactions can be treated with antihistamines.

Patients should be discharged with a management plan for self-treatment. All patients with a systemic allergic reaction and those with elevated baseline tryptase should be prescribed self-injectable adrenaline injectors and trained to use these. With children a management plan for school or early years settings will be needed.

Venom Immunotherapy (VIT)

Venom Immunotherapy (VIT) is a safe and effective specific treatment for patients with a history of systemic reaction to bee or wasp sting. Treatment is available to honey bee and wasp venom. VIT modulates both T and B cell responses to allergen and this effect is maintained once treatment is completed.

VIT has been shown to significantly improve health related quality of life in patients with both anaphylaxis and mild/moderate severity reactions to wasp sting.

VIT is recommended for all patients with severe systemic reactions and in many patients of moderate severity.[2;8] It is not always indicated for mild cutaneous systemic reactions but the specialist centre will take into account additional risk factors including baseline tryptase, age, likelihood of future stings (bee keepers), remoteness from medical help, effect on quality of life and patient co-morbidities. VIT is not recommended for local reactions, regardless of size or severity.

VIT should be considered in children with severe systemic sting reactions. It is not generally indicated for the majority of children who experience urticaria and angioedema only.

VIT treatment protocols include a series of updosing injections until a maintenance dose is reached. Once the maintenance dose is achieved further four to eight weekly injections are administered for three years. A small number of patients may require longer treatment. VIT is done in a clinic by trained personnel with immediately available anaphylaxis treatment. All patients on VIT should carry an adrenaline autoinjector during updosing. The BSACI venom guideline recommends continuing to carry adrenaline auto injectors for those at continuing risk of multiple stings eg beekeepers, those with elevated baseline tryptase and those who continue to experience reactions during maintenance immunotherapy.

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Pollen Food Syndrome

Margaret Kelman,
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Margaret Kelman is a specialist nurse living and working in Scotland with experience in providing care to children, young people and adults with both dermatological and allergic conditions, with a special interest in young people and food allergy, eczema and urticaria. Margaret studied Allergy at the University of Southampton and has worked within NHS Scotland as the allergy advisor/programme manager for CYANS the Children and Young People's Allergy Network Scotland NMCN, more recently she was involved in the development of a unique project with the University of Edinburgh, funded by Allergy UK, to integrate research and development into everyday practice, through the development of novel nurse led allergy clinics within primary care and for this work was very fortunate to be awarded the Barry Kay award for excellence in allergy care and research in primary care at the BSACI conference this year. Margaret took up a post as specialist allergy nurse with Allergy UK in August 2020.

What is Pollen Food Syndrome (PFS)

Pollen Food Syndrome (PFS) is a hypersensitivity reaction to a plant food such as fruit, vegetable, nuts or cereals, usually causing symptoms in the oral/pharyngeal mucosa, triggered by a cross reactivity between allergens in pollen and allergens in fresh fruit or vegetable.(BSACI 2007)

In PFS the primary sensitisation is the main route responsible for developing an allergic reaction, is through sensitisation in the lungs, ie inhalation of the aeroallergen usually birch pollen triggers sensitisation. This sensitisation can lead to a secondary reaction causing symptoms when physically eating the plant based foods. This secondary reaction is caused by a cross reaction to the plant food antibody and the pollen antibody, this is due to the fact that plant food epitopes (antigens) are very similar in structure to aeroallergen (pollen) epitopes. The immune system recognises and

reacts to the plant food antibody as it would to the pollen antibody, the protein blinds to IgE antibodies on mast cells, triggering a histamine response and causing allergic symptoms eg oral itching when eating the food. This route of sensitisation is different to an IgE mediated food allergy, where sensitisation is primarily through the gut and the allergic reaction occurs as a result of sensitisation to the individual food proteins and therefore commonly provokes more severe systemic allergic reactions.

Who does Pollen Food Syndrome affect?

PFS is a common cause of food allergy in adults, in around approx 2% of the UK population

However this can change by geographic location and prevalence of aeroallergens and some estimates suggest 9.4 % although could be as high as to 35% of the population. PFS is more common in individuals who are poly sensitised to multiple pollens including both grass and tree pollens. It is thought to be more common in individuals with symptomatic hay fever, but it is worth noting that only around 25% of individuals with PFS have seasonal hay fever symptoms and it is possible to have PFS without symptoms of hay fever. (Skypala 2020 & Skypala 2013)

Children can also be affected by PFS and studies have suggested that the incidence may be between 4.75% to 20% of children are affected, especially atopic children with a history of hay fever or pollen sensitivity to grass/tree pollens who often react with itchy skin or worsening of eczema rather than the classic oral allergy symptoms. (Carlson, Coop 2009, & Skypala 2013)

Symptoms

In PFS symptoms are generally rapid in onset, usually occurring within five to 10 minutes of exposure to the offending plant food, with the most common symptoms being mild and mainly affecting the oral/ pharyngeal mucosa.

Symptoms can include:

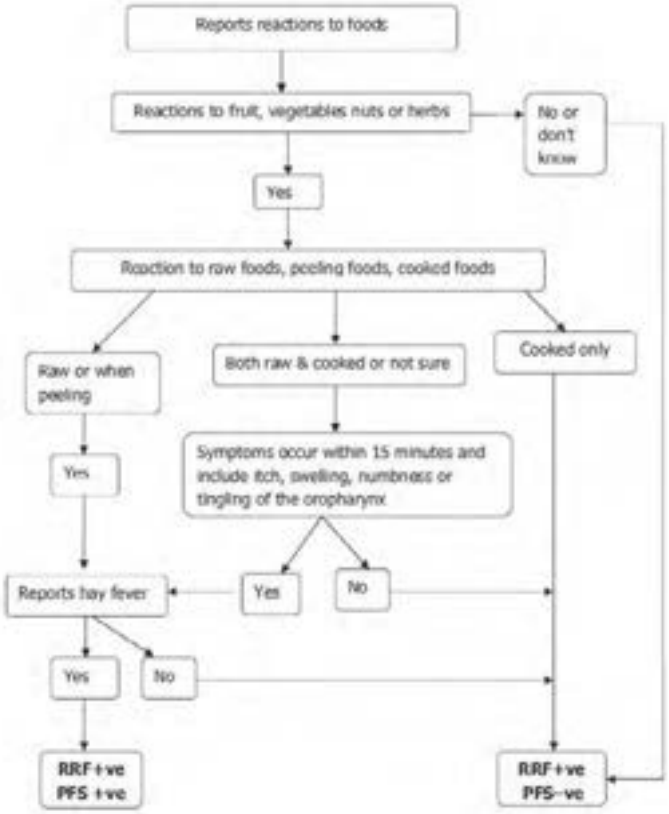
- Redness, mild swelling, itching of the lips, tongue, inside of the mouth, soft palate and ears , Itching and occasionally mild swelling affecting the throat
- Occasionally there can be symptoms in the oesophagus or stomach, causing nausea and vomiting
- Hay fever like symptoms can also occur - Sneezing, runny nose, or eye symptoms can also occur due to tiny amounts of the culprit foods potentially entering the nose or eyes
- Rarely, more severe symptoms such as difficulty in swallowing, and breathing difficulties including anaphylaxis can occur. In such cases, immediate medical help is needed. Oral_ Allergy_Syndrome Factsheet (allergyuk.org)

Whilst most people with PFS will have mild symptoms, occasionally severe allergic reactions including anaphylaxis can occur, research suggests that approx. 1.7% of individuals with PFS experience anaphylactic shock, although this may be as high as 9% depending on what study you read. It is also worth noting that an estimated 3% of patients with pollen food syndrome experience systemic symptoms without oral symptoms. (Carlson, Coop, 2019 & Skypala, 2013)

There are several factors that can increase the severity of a reaction;

- The volume of food ingested, liquid sources of allergen such as smoothies, fruit juices, plant based milks etc contain large concentrated volumes of the raw plant food and can induce more severe reactions
- Polysensitisation with multiple pollens can cause more severe reactions, watch for more severe reactions including abdominal discomfort or breathing difficulties
- Co factors - some reactions only occur with co factors such as
  - Exercise
  - Medication, including anti acid/ gastric acid suppression / NSAIDs
- Certain foods pose a higher risk of systemic reaction - these foods include peanuts, almonds, hazelnuts, soya, apricots, cherries, celery, lentils, peaches, plums, and tomatoes

(Carlson, Coop, 2019 & Skypala, 2013)



Diagnosis and management of PFS

With PFS a meticulous clinical history which includes timing and duration of symptoms, seasonal variations and foods eaten at time of reaction can often detect PFS without need for further testing. Skin prick testing is the most common diagnostic method used but is only useful in conjunction with a clinical history of allergic reactions to the plant food with prick to prick testing with fresh produce to test for individual allergens is probably the most useful diagnostic test, however sensitisation to one or more of birch grass or other tree pollens can be useful markers of PFS. Specific IgE blood test can be useful where skin prick testing is not available and is of more use when testing for tree/ grass pollens as plant food proteins are heat labile and so some of the antigen may be destroyed during the process. Individuals with birch pollen sensitivity with PFS often have very high SpIgE levels to birch pollen. All foods are made up of various proteins, component diagnostic testing is designed to isolate specific proteins that are more likely to cause an immune reaction. This form of testing is the most reliable method of diagnostic testing and can give a more accurate confirmation of sensitivity to plant food allergens but requires training to interpret the results and is often the domain of tertiary allergy centres.

Management of PFS

Management of PFS includes the identification and avoidance of foods causing the reactions, in most cases individuals can continue to eat food cooked with no symptoms as cooking denaturises the protein. It is worth noting that sometimes lightly cooked or steamed fruits and vegetables and cooked nuts can still cause symptoms. With some foods, the peel contains more allergen than the pulp, and so peeling the fruit in order to disguise it can remove much of the allergen present. Some individuals with PFS may be very anxious about introducing new foods into their diet or even eating ones they could previously tolerate due to fear of a reaction, the British Dietetic Association (BDA), BSACI and EAACI have further information and guidance on when and how to challenge or safely introduce foods into the diet in an individual with PFS.

The majority of allergic reactions with PFS are mild and only affect the oral mucosa, therefore if accidental ingestion occurs.

Mild reactions – Recommendation is to rinse the mouth with water to remove any traces of the allergen and take a non-sedating antihistamine if required. (BDA 2016)

The treatment of PFS must include the management of any symptomatic hay fever or asthma symptoms adequately to prevent more severe allergic reactions. Prescribing of adrenaline auto injectors is usually not required and only indicated where a severe allergic reaction including difficulty swallowing, breathing difficulties has occurred or the patient is considered at risk including has unstable asthma or multiple pollen/ food sensitisation with increasing severity in allergic reactions.

Other causes of plant food allergies can include Lipid Transfer Protein (LTP) allergy, this allergy is caused by an allergy to the LTPs in the plant food and often causes more severe allergic reactions including anaphylaxis. LTP is an IgE mediated primary food allergy, with sensitisation generally occurring in the gastrointestinal tract with the allergenic protein being resistant to digestion. So whereas in pollen food syndrome the food can generally be eaten cooked without symptoms, individuals with LTP may state they cannot eat the food in any form raw, cooked heated, juiced canned dried or crystallised without a reaction.

Other factors to consider include;

- Maximising treatment to control hay fever and asthma symptoms especially during peak pollen season
- Referral to an allergy specialist clinician where diagnosis or confirmation of food causing the allergic reaction is not clear from the patient history. There is a history of worsening or severe allergic reactions to plant foods.
- Consider changes to the diet or consider vitamin supplements to meet nutritional needs as nutrients eg vitamin C or fibre may be lower in the diet
- Referral to a dietician – individuals may be avoiding large numbers of fruits, vegetables, nuts and cereal based food in their diet which will increase potential for nutritional deficiency
- Consider management of anxiety surrounding possible reactions and possibility of severity of future reactions
- Adrenaline auto-injectors are only required in a diagnosis of severe systemic allergic reaction/anaphylaxis to pollen food syndrome which is very rare - but can happen
- Note medication can affect the timing of the reaction, especially anti-acid medication which may cause decreased protein degradation and therefore increased severity of pollen food syndrome (Carlson coop 2019)

Comorbidities

The most commonly reported comorbidities in individuals with PFS are atopic conditions including hay fever, asthma and eczema. However it is worth noting that individuals with comorbidities including Irritable Bowel Syndrome (IBS) and Eosinophilic Esophagitis (EOS) may be at increased risk of developing PFS especially if they have Seasonal Allergic Rhinitis (SAR) research by Patel k et al 2020 & Letner et al 2018 suggests that up to 50% of patients with IBS may have PFS and that an estimated 25% of individuals with EOS may have PFS.

Future

Anecdotal evidence suggests that it is possible that with very mild symptoms of only oral itching some patients have managed to potentially desensitise themselves by continued exposure to the food and find that raw foods they could not eat as young adults, can be eaten years later without symptoms. However this is not backed up by any research and would be dangerous to recommend to individuals who have GI or more severe systemic symptoms.

Immunotherapy for birch pollen allergy has been studied, to see if it would reduce or eliminate the reactions to cross-reacting foods. Results have been mixed, with immunotherapy to birch pollen reported to give protection against the development of symptoms to apple, although this effect is often negated once immunotherapy is stopped.
More recently it was shown that successful Sublingual Immunotherapy (SLIT) with birch pollen did not effectively reduce concomitant allergy to apple because the immune response to Mal d 1 (apple) was not significantly altered. The authors concluded that combining pollen and related food allergens in a vaccine may be the way forward.(Carlson, Coop 2019 & Price et al 2015)

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YOUR QUICK GUIDE TO....

Oral Allergy Syndrome or Pollen-food Syndrome

Advice provided by allergyuk.org

foods commonly involved in PFS reactions

Fruit	Vegetable	Nuts / Peanuts	Spices and Other
Apple	Carrot	Hazelnut	
Peach	Celery	Almond	
Pear	Peeling potatoes	Walnut	
Plum	Soy milk	Brazil nut	
Cherry	Tomato	Peanuts	
Nectarine			
Apricot			
Kiwi			
Strawberry			

foods occasionally involved in PFS reactions

Fruit	Vegetable	Nuts / Peanuts	Spices and Other
Orange	Swiss chard	Peanuts	Coriander
Melon	Beans and peas		Cumin
Watermelon	Mange tout		Aniseed
Mango	Bean sprouts		Caraway
Pineapple	Parsley		Mustard
	Fennel		Sunflower seeds
	Cucumber		Honey
	Peppers		
	Courgettes		

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The Role of the Pharmacist in Supporting People with Allergies

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Within the UK the number of people with allergies is increasing.

In 2010, 44% of UK adults had at least one allergy

It is now the most common chronic disease in Europe.[1,2] The result is an increasing pressure on NHS services. In 2004, 6% of general practice consultations and 0.8% of hospital admissions were for allergic disease and treatments for asthma and other allergic disorders accounted for 10% of primary care prescribing costs. The direct NHS costs for managing allergic conditions was estimated at over one billion UK pounds per annum; 17 years on it is expected to be much higher.[3] It is therefore essential that people with allergies are able to receive advice by the appropriate healthcare professional at the appropriate time. Pharmacists working in community pharmacies, GP practices and hospitals all have key roles to play in medicines optimisation in people with allergies, including empowering people to manage their specific allergic condition.

Allergic rhinitis

Under recognition and poor symptom control in Allergic Rhinitis (AR) causes a reduction in quality of life, interferes with attendance/performance at school/work and results in substantial costs to society and healthcare.[4] Community pharmacists are

ideally skilled and easily accessible to assist people, using appropriate questioning and history taking, to manage their symptoms with Over the Counter (OTC) treatments, avoiding the need for GP attendances.

If AR is suspected, pharmacists can collate the symptoms and differentiate when it is not allergy. For example, a runny nose with clear watery discharge, a blocked nose, itchy eyes, sneezing and persistent symptoms over several weeks may indicate AR. Whereas an urticarial rash, thick coloured sputum or a temperature would indicate not AR.

Identifying triggers is important so that tailored avoidance strategies can be recommended. In many cases it is possible to identify possible triggers without the need for allergy testing.

Example questions as part of a history may include:

- Are symptoms present all year or worse at specific times of year? There are inhaled allergen calendars that can help to determine what the potential triggers are.
- Are symptoms worse outdoors?
- Do they have pets? If so, do they improve when away from the pet?
- Are there any other situations where symptoms improve and/or become worse?

Once AR has been identified, pharmacists can reassure and empower people to self-manage their symptoms through sign-posting to information, avoidance strategies and OTC treatments. Long-acting non-sedating antihistamines are the antihistamines of choice. Short-acting, sedating antihistamines such as chlorpheniramine should be avoided.[4] Discussing the rationale with people asking for the latter can help direct them to more appropriate and effective treatments.

Using a stepwise management approach, in line with national guidelines, other treatments such as inhaled corticosteroids can be recommended.[4] Many people can have pre-conceptions about corticosteroid treatments and therefore discussing and understanding these is important to ensure good adherence. Reassuring people that the systemic absorption is negligible with nasal steroids such as mometasone and fluticasone and only modest with others can help. Betamethasone is higher and is only for short term use.[4] People must be taught how to use each device and should be re-educated regularly when collecting prescriptions or purchasing.

Collectively this can reduce the impact on GPs and only people who have symptoms not responding to avoidance strategies and OTC treatments are then referred to their GP practice. Even within GP practices people with AR could be managed by independent prescribing practice pharmacists, using the available national guidance, especially targeting those with co-existing asthma. These medicines optimisation consultations could include ensuring individuals are gaining benefit from treatments, prescribing alternative treatment, assessing adherence, re-enforcing device training and providing general advice on managing their allergies. The impact of these focused assessments would be to reduce both the healthcare and society burden of uncontrolled AR and can prevent secondary care referrals.

Asthma

Allergic asthma is perhaps the most recognised asthma phenotype and is associated with a past or family history of allergic diseases such as AR, eczema or drug and food allergies.[5]

Approximately 70-90% of patients with asthma also have AR.[6]

Specific IgE and skin testing for aeroallergens should not be used in the diagnosis of asthma as not all people with a history of asthma have allergic disease. However these tests can be valuable in identifying potential triggers in patients with allergic asthma that is poorly controlled, in particular to house dust mite and moulds, but must be analysed in the context of each person's respiratory symptoms in relation to allergen exposure.

Allergen avoidance maybe advised, although there is limited evidence that single measures contribute to significant relief of asthma symptoms. Managing damp and mould in homes may have some impact on asthma symptoms, and strategies to minimise exposure to house dust mite and pets may have small impact in childhood asthma. When pollen counts are high, there is some limited evidence that people who are sensitised to pollen may be advised to stay indoors with closed doors and windows, and use air-conditioning to avoid exposure.[5] In contrast the use of regular controller medications such as inhaled corticosteroids and intranasal corticosteroids for AR have good evidence of efficacy.

In patients with allergic asthma, pharmacists can play a role in identifying triggers or highlighting to prescribers when patients are collecting a higher number of reliever medications, such as salbutamol, which may indicate poor asthma control. The management of AR is the same for people with or without a history of asthma, but controlling nasal symptoms in asthma can also help improve asthma control, improve patient outcomes and healthcare burden. Pharmacists should ensure that regular asthma medication is optimised in line with national guidelines.[7]

There are an increasing number of inhaler devices available and, as part of medication reviews, pharmacists in all sectors should regularly assess and optimise each person's inhaler technique, and this includes nasal sprays. Inhaler technique videos for inhaler devices and nasal sprays are available from Asthma UK *https://www.asthma.org.uk/advice/inhaler-videos/*.

"People with poor inhaler technique should be offered an alternative device that they are able and happy to use".

Useful algorithms for choosing inhaler devices are available to guide treatment decisions, and are dependent on each person's ability to inhale quickly and deeply through a dry powder inhaler, or slow and steadily through an aerosol inhaler (such as an MDI or Respimat).[8]

Food Allergies

Food allergies often first appear in childhood but in some instances can present in adults. People suspecting a food allergy may initially discuss this with their pharmacist and it is important that pharmacists are confident to offer advice and signpost when necessary to avoid potentially fatal outcomes. IgE-mediated food allergy usually has an immediate onset after eating. In someone with acute urticaria and/or angioedema, itching, chest tightness, wheeze or anaphylaxis immediately following eating then food allergy should be suspected. In these instances it is important for someone with appropriate training to conduct an allergy-focused clinical history and then based on this if an IgE-mediated reaction is suspected conduct or refer for skin prick testing and/or allergen specific IgEs.

Positive specific IgE only indicates that the individual is sensitised to that allergen and has the potential to react and should only be interpreted alongside a thorough allergy-focused history. Conversely, a negative specific IgE does not exclude an allergy if the symptoms are highly suggestive of allergy. If someone has subsequently eaten the same food with no reaction

then this can be excluded. It is not appropriate to blind test to a wide range of allergens, although people can often request this. Pharmacists can identify possible IgE-mediated reactions, signposting them to their GP and suggesting people complete food diaries whilst awaiting review. Conversely they can also prevent unnecessary referral by identifying when it is not food allergy and providing reassurance, including promoting the avoidance of alternative allergy testing with no evidence base such as hair analysis, kinesiology or specific IgG testing. These tests can lead to unnecessary food avoidance and food anxiety.

Some food allergies can be non-IgE mediated (pruritis, erythema, diarrhoea and abdominal pain) and some people can have food intolerances (unable to digest certain foods leading to bloating, diarrhoea and abdominal pain). In people with eczema, certain food can also trigger flares. These usually have a slower onset of symptoms post ingestion. These are not associated with anaphylaxis. As they are not IgE-mediated, skin testing and specific IgE are not indicated. Pharmacists can promote the use of food diaries to identify potential causes and where appropriate suggest trial elimination (for two to six weeks) and then reintroduction of suspect foods one at a time. Some individuals can eliminate unnecessarily a wide range of foods that can have a significant impact on their nutritional status and therefore it is essential only to suggest this when there is a strong suspicion of the trigger.

Urticaria and Angioedema

Urticaria and angioedema can sometimes not be the result of an allergy. Acute and Chronic Spontaneous Urticaria (CSU) are common and the incidence is increasing but awareness amongst healthcare professionals can be limited. Sufferers will often describe frequent or continuous symptoms where they have been unable to pinpoint a specific trigger. Many are keen to identify their 'allergy' and can request testing or look for unproven alternative testing. Some can eliminate a number of foods they suspect are the cause but continue to have symptoms. Pharmacists can increase awareness of CSU and offer advice on self-management strategies, including sign-posting to information. Long-acting antihistamines are the first line treatment.[9]

Short-acting sedating antihistamines should be avoided.

Higher dose antihistamines (up to four times a day, usually as two twice a day) can be required, pharmacists can provide reassurance on the safety and that in line with national guidelines. This can help to improve adherence. People should only be referred to secondary care if they are unresponsive to high-dose antihistamines.

Anaphylaxis

People with previous anaphylaxis, except a drug allergy, will be required to carry Adrenaline Auto-Injectors (AAI) but in many cases will never have to use it. It is essential that people are able to use these appropriately and, although there are many online resources, regular face to face training should be carried out every time someone is dispensed an AAI, even if they have been

receiving it for years. This is even more important currently due to a number of AAI shortages and switches that mean people may be receiving a device they are not familiar with. Pharmacists should have access to AAI training devices and as part of training they should advise people to carry two pens at all times, to check that clear/colourless by checking window, how to register for expiry alerts and how to dispose of expired AAIs safely. Children should be taught as soon as old enough.

Drug allergies

Pharmacists should play an active role in both identifying drug allergies and preventing inappropriate drug allergy labels. Many individuals can have a number of drug allergies documented on their records, some of which are intolerances or known adverse effects rather than allergies. Pharmacists in all sectors should ensure that the nature of a reaction and the date it occurred is documented in medical records. Although it is appreciated this can be time consuming the impact of inappropriate drug allergy labels on patients and the NHS is high.

Hospital pharmacists as part of allergy teams

Allergy services within secondary care are under increasing pressure due to increased referrals and more treatments being available for the management of patients with allergies. Pharmacists, especially independent prescribers, within the allergy multi-disciplinary teams can help to manage this burden. Following appropriate allergy training, they can independently manage specific caseloads such as people on oral immunotherapy or with chronic spontaneous urticaria and angioedema. They should also be actively involved in supporting drug allergy clinics.

Conclusion

Allergies are long-term conditions with a high prevalence in the UK and have a significant impact on individuals, society and healthcare burden if undertreated. Pharmacists, in all sectors, can play active roles in helping to address the unmet need of people with allergies.

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