

Allergy in Irish adults: a survey of referrals and outcomes at a major centre

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Abstract

Background There is an increasing demand for specialist public allergy services across Ireland. Little data exist on the patterns of allergic disease in Irish adults. The limited resources available require innovative strategies to ensure quality care delivery.

Aims This study aimed to review the types of allergy referrals and diagnostic outcomes at a major Irish centre, and to establish an efficient method of communication with non-specialist practitioners.

Methods Demographic data, referral characteristics and diagnostic outcomes from one hundred consecutive new allergy referrals were identified. Additionally, communications to a pilot email service were reviewed over a 12-month period and user satisfaction assessed.

Results Requests for the investigation of food allergy accounted for 71 % of referrals. Despite this, the main diagnostic outcome in this cohort was a non-allergic condition, chronic spontaneous urticaria (56 %). Immunoglobulin E (IgE)-mediated food allergy was definitively diagnosed in only 9 % of patients, with the majority of these presenting with anaphylaxis. The allergy advice email service received 43 requests for assistance over 12 months, mainly for help in the interpretation of an allergy clinical history. Feedback on the email service was universally positive.

Conclusions The majority of patients in this cohort did not have IgE-mediated allergic disease. Increased

awareness of the features that differentiate allergy from non-allergic conditions such as food intolerance or chronic spontaneous urticaria is required. The allergy advice email service should be developed further to play a key role in education and care delivery in partnership primary care.

Keywords Allergy · Anaphylaxis · Angioedema · Atopy · Immunoglobulin E · Urticaria

Introduction

Allergic disease represents an important and growing healthcare burden [1, 2]. Studies suggest that as many as 25 % of Irish children complain of at least one atopic disease [3]. A significant proportion of these children will have multiple allergy-related health problems including combinations of asthma, allergic rhinitis, eczema and food allergy [3, 4]. Little data exist on the prevalence and patterns of allergic diseases in Irish adults.

Allergy in adults is complex. In addition to atopic diseases, conditions such as food intolerance, chronic spontaneous urticaria and/or angioedema and anxiety, may all present with features suggestive of an allergic disorder [5]. These disorders are distinct from the classic and reproducible immunoglobulin E (IgE)-mediated type I hypersensitivity reactions. Such cases require careful evaluation to minimise spurious diagnoses and to implement appropriate management strategies.

The diagnosis of allergy relies on a detailed clinical history supported by carefully selected tests [6, 7]. Skin prick and specific IgE testing are the main diagnostic strategies that are used to validate suspicions raised in the clinical history. Ultimately, formal challenge with supervised patient exposure to the suspect agent may be required

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[8]. Selection of testing strategies and assistance in the interpretation of ambiguous histories often requires specialist input.

In Ireland, consultant clinical immunologists based in Dublin and Galway are currently tasked with providing specialist allergy care to adults across the public health system. We examined the characteristics of one hundred adult patients newly referred to the clinical immunology service in St. James's Hospital to determine the case-mix attending a major Irish referral centre. In response to initial findings, an email-based allergy advice service was established and pilot usage figures and satisfaction ratings are presented here.

Methods

One hundred consecutive new patients classified on initial assessment as having an allergic condition or a related disorder were identified by analysis of St. James's Hospital Immunology Clinic records. Retrospective interrogation of patient charts was carried out to identify patient and referral characteristics. Data collection was fully anonymised. Patients with immunodeficiency, vasculitis and other immunological conditions attending the same service were not included in this study.

Following the survey, an email-based advice service (allergyadvice@stjames.ie) was established for non-specialist practitioners as part of a quality improvement program within the Department of Immunology. Potential users were advised of the new service via a postal alert. In addition, an advisory comment advertising the service was added to all specific IgE results released from the St. James's Hospital Immunology Laboratory.

The primary aim of the service was to offer guidance on diagnosis and management of allergic disorders with educational pointers to non-specialists, in a responsive and reliable fashion. In this way, specialist guidance could lead to a direct improvement in patient care. Email referrals were not accepted and identifying patient details were not requested or required. Records of emails were maintained on the hospital secure server. Advice requests over a 12-month period (July 2012–June 2013) were examined retrospectively. A survey of users was carried out to determine satisfaction with the service (SurveyMonkey, CA, USA). Users were asked a series of questions regarding the email advice service, the quality and usefulness of advice received and opinions about the continuation of the service.

Ethics committee approval was not required for this fully anonymised survey of standard practice. Graphical presentation of results utilised GraphPad Prism v6.0.

Table 1 Demographic details and referral characteristics of newly referred allergy patients ($n = 100$)

Mean age, year (range, year)	40 (15–75)	
Male:female n (ratio)	23:77 (1:3.3)	
Referral source	Primary care	62 %
	Secondary care	30 %
	Others	8 %
Referral request	Identify a causative allergen	63 %
	Exclude allergic aetiology	24 %
	Management advice—known allergen	7 %
	Management advice—chronic urticaria	5 %
Main referral concern	Food allergy	71 %
	Drug allergy	14 %
	Aeroallergy	8 %
	Chronic urticaria	5 %
	Venom allergy	1 %
	Latex allergy	1 %
	Others	
Main presenting feature	Urticaria/angioedema	61 %
	Allergic rhinitis/asthma/eczema	10 %
	Anaphylaxis	13 %
	Isolated GI symptoms	4 %
	Others	
Emergency department attendance	39 % (34 % resulting in medical admission)	

Results

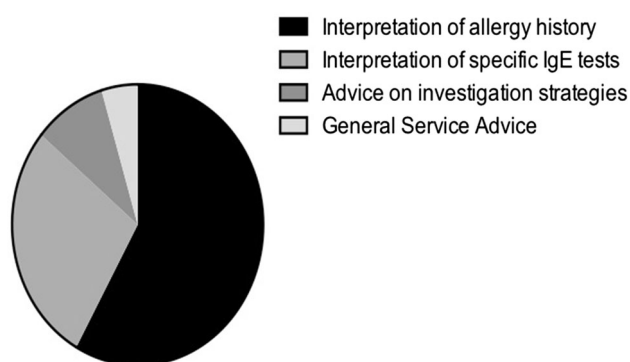
Patient demographic and referral characteristics are shown in Table 1. 77 % of patients were female, giving a female: male ratio of 3.3:1. The average age was 40 years with an age range from 15 to 75. 62 % of referrals came from general practitioners, 30 % from hospital practitioners and 8 % were accepted from other sources including qualified dentists, dieticians and other health care professionals.

The most frequent referral theme encountered in this cohort was a request to identify an allergen responsible for the presenting symptom complex (63 %) (Table 1). In 24 % of cases, the exclusion of an allergic trigger was sought. In a minority of cases, advice was sought on the management of patients with an established diagnosis. This group included patients with an established primary care diagnosis of chronic spontaneous urticaria (5 %).

The most common main presenting complaint was with urticaria and or angioedema, occurring in 61 % of referred patients (Table 1). Life-threatening allergy, determined as anaphylaxis by the referring clinician, was present in a 13 % of cases [9]. Food, medications and insect venom were all considered possible triggers of these severe

Table 2 Diagnostic outcomes in 93 allergy patients attending the St. James's Hospital Immunology Clinic

Diagnostic outcomes	% (n = 93)
Chronic spontaneous urticaria $\pm$ angioedema	56
Food intolerance/irritable bowel syndrome	13
Drug allergy/intolerance	11
Aeroallergy	9
IgE-mediated food allergy	9
Anxiety disorder	1
Chronic fatigue syndrome	1

**Fig. 1** Allergy advice requests over a 12-month period

reactions by the referring clinicians. Patients with isolated gastrointestinal symptoms such as bloating, accounted for 12 % of this adult cohort. Notably 34 % of patients had been admitted to hospital with their symptoms, with a further 5 % attending an emergency department, but not requiring admission.

Diagnostic outcomes were available in 93 % of patients. In the remaining 7 %, no diagnosis was clear or there was inadequate follow-up. The majority of patients (56 %) in whom outcome information was available were diagnosed with chronic spontaneous urticaria or angioedema (Table 2). The next largest diagnostic group was food intolerance/irritable bowel syndrome, accounting for 13 % of diagnosed patients. 11 % of patients were given a diagnosis of a drug allergy or intolerance. Only 9 % of the cohort were ultimately diagnosed with IgE-mediated food allergy. Of note, the majority of these adult patients with food allergy presented with anaphylaxis.

Noting these findings, an email account was set up to facilitate interaction between specialist immunology and primary care physicians. 43 emails from general practitioners were received over a 12-month period. The majority of the email requests were for assistance in the interpretation of an allergy history (Fig. 1). A significant proportion of requests were also to examine and interpret allergy

results (Fig. 1). A survey of satisfaction of users had a 35 % response rate. 100 % of responding users found the email response service 'very helpful', with universally positive additional comments. 58 % of respondents felt that access to clinical allergy services in Ireland was 'below average' or 'poor'. All (100 %) of the respondents felt that the allergy advice email service should be continued.

Discussion

There is a paucity of data on patterns of allergic disease in Irish adults presenting to specialist centres. This information deficit is particularly important as there is a current disconnect between demand for specialist allergy/immunology services and the funding and availability of such services.

This study aimed to characterise a group of patients referred to a major centre for the investigation of presumed allergy. Such information has the potential to inform healthcare planning and to improve the experience of patients with allergic disorders requiring specialist input.

The largest single diagnostic category in this cohort was chronic spontaneous urticaria (with or without angioedema) (Table 2). This condition, defined as hives or swellings occurring in a recurrent or episodic fashion is a common, yet often misunderstood disorder [10]. Current estimates suggest that the prevalence of chronic spontaneous urticaria may be as high as 1 % [10, 11]. Despite this, a clinical diagnosis of chronic spontaneous urticaria was only established in 5 % of cases prior to referral. In many cases, the reason for referral was to pursue the identification of an allergic trigger (Table 1). This suggests that awareness of chronic spontaneous urticaria as a diagnostic entity, distinct from the acute allergic causes of urticaria, is poor in the non-specialist setting. Incorrect reinforcement of food allergy as a cause for chronic spontaneous urticaria can result in a difficulty for specialists in overcoming false beliefs regarding the nature of the disorder. An increased understanding of chronic spontaneous urticaria might reduce unnecessary referral and investigation and lead to the rapid adoption of management strategies advocated by international guidelines [12, 13].

Food allergy was a frequent concern for practitioners referring patients to our service (Table 1). However, despite a request for food allergy investigation being made in over 80 % of referral letters, a definitive diagnosis of IgE-mediated food allergy was detected in just 9 % of cases (Table 2). Notably, however, anaphylaxis was a feature in 7 of these cases. These figures are in line with a large UK study indicating that IgE-mediated food allergy is uncommon amongst referrals to a regional adult allergy service [14]. Increased awareness amongst non-specialists

of the features that discriminate between IgE-mediated food allergy and other related conditions could facilitate more streamlined management strategies. To this end, practitioners should be aware of the recent position statement on the investigation of food allergy and intolerance available through the Irish Food Allergy Network [15].

In the light of these findings, an allergy advice email service was established with a view to increasing contact with primary care users to offer specialist advice on cases, test selection and management. In this pilot phase, significant numbers of requests for assistance with test interpretation and review of clinical histories were received (Fig. 1). These requests focused on the interpretation of allergy case histories and the interpretation of specific IgE results. The need for assistance with these basic skill-sets may point to an educational deficit among Irish doctors.

A survey of email advice users received a small but universally favourable response. While selection bias is a possibility, ongoing experience suggests the service continues to be well received. There is a limited literature on email-based interventions in the setting of atopy. A combined web tutorial and email support service resulted in fewer specialist interventions for atopic dermatitis [16]. We were unable to document an impact on referral numbers for our service, which continue to increase exponentially (unpublished internal audit data 2009–2014). Future work will include assessment of the impact of the email advice service on the decision to refer and the impact of timely management on the patient experience. Further developments of web-based services, such as that presented here, in partnership with primary care, are required to continue to improve quality of care for adult patients with allergic disorders.

This is the first study to assess the patterns of referral to adult allergy services in Ireland. Recognition of these cohort characteristics will help with service development with a particular focus on the timely management of conditions such as chronic spontaneous urticaria. The increasing demands on Immunology and Allergy services are well recognised. Even in countries with well-developed clinical allergy services, the need for new models of care delivery is appreciated [17]. The main Irish Clinical Immunology centres will need to continue to innovate in partnership with community caregivers and healthcare education providers to ensure timely, high quality and cost-effective care is available for public adult patients into the future.

Conflict of interest None.

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