

Original article

Management of allergic rhinitis: a common part of practice in primary care clinics

Background: Allergic rhinitis (AR) is an extremely common disease worldwide and one of the top-ten reasons for a visit to primary care clinics. This study aimed to investigate the understanding of current guidelines and concepts of management for AR among general practitioners (GPs) in Singapore.

Methods: A postal questionnaire was designed to survey the dispensing practice and understanding of current guidelines in the management of AR among Singapore GPs.

Results: Two hundred GPs completed the questionnaire. AR was estimated to be 10–40% of total patient visits in 50% of the primary care clinics surveyed. There was no significant difference in diagnosis and management of AR among GPs practicing solo, as a group or in polyclinics. The use of allergy tests (skin or *in vitro* tests) was <50%. Most physicians understood correctly the efficacy, side-effects, and cost effectiveness of first and newer generation H1-antihistamines and nasal glucocorticosteroids. However, first generation H1-antihistamines and oral/nasal decongestants are commonly used to reduce the cost of medication and to achieve quick relief from nasal obstruction.

Conclusion: Management of allergic rhinitis is common in primary care clinics. Quick symptomatic relief with low-cost medications is a major concern for GPs in the management of AR, as it will affect a patient's compliance and perception of efficacy. However, inappropriate use of decongestants and other nonevidence-based therapies should not be recommended. Implementing the current evidence-based international guidelines for AR needs to be improved.

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Key words: allergic rhinitis; management; primary care clinic; international guidelines; evidence-based therapy.

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Accepted for publication 25 August 2003

Allergic rhinitis (AR) is an extremely common disease worldwide, affecting 10–25% of the population (1). It is one of the top-ten reasons for a visit to primary care clinics (2). During the last few years, international guidelines and consensus statements for the management of AR which are evidence based have been developed to enhance the effectiveness and quality of management of AR patients (1, 3, 4). However, the impact of these guidelines on the physician's management of AR patients in primary care clinics needs to be further assessed.

In Singapore, our recent community survey study showed that the prevalence of rhinitis was approximately 13.1% (5). Only 53% of rhinitis subjects sought medical help, 71% visiting a GP and 20% an otolaryngologist. The majority of patients considered the effectiveness of treatment unsatisfactory, because they had only partial or no relief with the medications prescribed. Based on this study, we conducted a survey to investigate the management of AR among GPs in Singapore.

Methods

A postal questionnaire was designed to survey the diagnostic and treatment practices for the management of AR among GPs in Singapore. The questionnaire covered the following information:

- *Type of practice:* solo, group, or polyclinic (government-sponsored outpatient clinic).
- Years of practice.
- Age and previous experience in otolaryngology.
- Percentage of AR patient visits in their clinic.
- Common symptoms associated with rhinitis.
- Definition of AR by symptoms of itchy nose, sneezing, rhinorrhea and nasal obstruction.
- *Criteria for the diagnosis of AR:* medical history, clinical examination and allergy tests using skin or blood tests.
- *Treatment of AR:* antibiotics, first and newer generation antihistamines, oral or nasal glucocorticosteroids, oral or nasal decongestants, allergy avoidance, and immunotherapy.
- Understanding the efficacy, cost effectiveness and side-effects of the first generation antihistamines, newer generation antihistamines, and nasal glucocorticosteroids.
- *Duration of treatment using common therapies:* antibiotics, antihistamines, oral glucocorticosteroids, nasal glucocorticosteroids.

- steroids, oral decongestants, topical decongestants, allergy avoidance and immunotherapy.
- Understanding possible adverse reactions [e.g. cardiac abnormalities, central nervous system (CNS) disturbances, sedation, and weight gain] of commonly used antihistamines.
 - Criteria for referring patients to an ear–nose–throat (ENT) specialist.
 - Sources of information for the international guidelines in the management of AR.

A questionnaire, accompanied by a letter explaining the aim of this study and a return-stamped envelope was mailed by the Singapore College of Family Physicians to their members (approximately 1000).

Data are presented as descriptive (absolute number and percentage). In addition, statistical tests were carried out using two-tailed tests at the 1% level of significance in order to correct for multiple comparisons. The calculations were performed using the SPSS software package for windows (release 10.0.5–27 November 1999; SPSS, Inc., Chicago, IL, USA). Chi-squared tests were performed to examine the frequencies of the values taken by discrete variables (e.g. patient load, diagnosis, and choice of treatments) in various groups of GPs (e.g. type and year of practice, age range, and previous experience in otolaryngology).

Results

The questionnaire was completed by 200 GPs (20% of surveys mailed), their age ranges were < 30 years (*n* = 18, 9%), 30–44 years (*n* = 109, 55%), 45–60 years (*n* = 59, 29%), and over 60 years (*n* = 14, 7%). Their type of practice and estimated percentage of patient visits with AR are shown in Table 1.

Diagnosis and treatment of AR

The most common symptoms of AR as reported by the GPs are rhinorrhea (70%), nasal congestion/blockade

Table 1. Demographic information of GPs (*n* = 200) surveyed

	Number of GP (%)
Type of practice	
• Group practice	88 (44)
• Solo practice	86 (43)
• Polyclinic	26 (13)
Years of practice	
• <5 years	47 (24)
• 5–10 years	45 (22)
• >10 years	108 (54)
Previous experience in otolaryngology*	
• <6 months	59 (32)
• 6 months	26 (16)
• None	111 (58)
Percentage of AR patient visits in their clinic†	
• <10%	84 (42)
• 10–20%	66 (33)
• 21–40%	34 (17)
• >40%	14 (7)

* Four missing data; † two missing data.

(67%) and sneezing/itchy nose (63%). The definition of AR by symptoms as understood by GPs is listed in Table 2.

The reasons for referring patients to an ENT specialist were: (a) abnormality on examination of the nasal cavity, e.g. polyps, sinusitis, deviated nasal septum (*n* = 177, 89%); (b) resistant cases (after several attempts of treatment) (*n* = 176, 88%); (c) patient's insistence (*n* = 169, 85%); (d) for other treatment (e.g. immunotherapy) (*n* = 102, 51%); (e) further investigation e.g. allergy testing and blood investigations (*n* = 101, 50%).

Treatment regimes and duration as commonly used are shown in Table 3. The possible adverse effects with newer generation antihistamines as understood by GPs are listed in Table 4. It seems that the known cardiac side-effects, possibly caused by astemizole and terfenadine are not known to every physician.

In this study, all GPs were asked to assess the efficacy, cost effectiveness and side-effects of the first and second generation antihistamines and nasal glucocorticosteroids (Table 5). There is no statistically significant difference in ranking these common treatment regimes among GPs in various groups (e.g. age, type and year of practice).

The source of information for diagnosing and treating AR is indicated in Table 6. Attending lectures, courses

Table 2. Definition of AR (characterized by sneezing, itchy nose, rhinorrhea and obstruction on most days) and routine diagnostic methods

	Number GP (%)
Definition of AR was understood as:	
• One or more symptoms	29 (14.5)
• Two or more symptoms	71 (35.5)
• Three or more symptoms	47 (23.5)
• All four symptoms	53 (26.5)
Common diagnostic methods used:	
• Medical history	199 (99.5)
• Physical examination	200 (100)
• Blood test (RAST)	51 (25.5)
• Skin test	40 (20)

Table 3. Treatment regimes employed by GPs (*n* = 200)

Therapeutic agent	Number of GP (%)	Duration of treatment (weeks) % of GPs			
		<1	1–2	2–4	>4
H1-antihistamines	199 (99.5)	17	35	19	28
Oral decongestant	193 (96)	42	38	11	9
Nasal glucocorticosteroids	191 (95.5)	7	14	14	64
Nasal decongestant	165 (83)	65	23	5	7
Allergen avoidance	162 (81)	10	8	2	80
Oral glucocorticosteroids	106 (53)	83	15	1	0
Antibiotics	40 (20)	60	37	2	0

Table 4. The use of old and newer generations of H1-antihistamines among GPs ($n = 200$)

	Number GP (%)	Possible adverse effects understood by GPs (%)*			
		CA	CNS	Sedation	Weight gain
<i>First generation</i>					
Chlorepheniramine	182 (91)	—	—	—	—
Hydroxyzine	119 (60)	—	—	—	—
<i>Newer generations</i>					
Loratidine	162 (81)	16	16	16	14
Clarinase	149 (75)	—	—	—	—
Cetirizine	137 (69)	7	21	33	14
Ebastine	58 (29)	22	19	16	11
Astemizaole	47 (24)	63	25	26	32
Terfenadine	34 (17)	74	34	31	23

* Numbers under adverse effects indicate the percentage of physicians who were expecting these side-effects, i.e. sedation.

CA, cardiac abnormalities; CNS, central nervous system disturbances; –, not included in survey questions.

Table 5. Rankings (mean) among the commonly used therapeutic regimes regarding to their efficacy, side-effects and cost effectiveness

Therapeutic regimes	First generation antihistamines	Newer generation antihistamines	Nasal glucocorticosteroids
Efficacy	2.1	1.4	1.5
Side effects	1.4	2.3	2.4
Cost effectiveness	1.4	2.1	2.2

1, most; 2, moderate; 3, least (e.g. 1 means most effective, or most cost effectiveness, and or most side-effects).

Table 6. Sources of information for AR

Sources	Number of GP (%)
a. Talks, courses, seminars	170 (85)
b. Journals, guidelines	141 (71)
c. Drug representatives or brochures	123 (62)
d. Reference books	89 (45)
e. Conferences	60 (30)
f. Internet	43 (22)
Intention to attend future talks on AR	151 (75)

and seminars appear to be the most common ways for GPs to update their knowledge about AR.

Comparisons of management of AR between different types of GPs

The frequency of AR patient visits between the three different types of primary care clinics was the same ($P = 0.287$) and previous ENT experience did not affect the management of AR.

Physicians in polyclinics performed allergy skin tests more often (42%) than those in solo (23%) or group

practice (10%) ($P = 0.001$). Furthermore, it is performed more often by junior physicians (40% for those in practice <5 years), than senior physicians (18% for those in practice 5–10 years, 12% for those in practice >10 years). Physicians ($n = 14$) >60 years of age did not perform allergy skin tests.

Nasal decongestants were frequently prescribed by all physicians; 96% in practice <5 years, 86% in practice 5–10 years and 77% in practice >10 years ($P = 0.015$). First generation of H1 antihistamines (i.e. hydroxyzine and chlorpheniramine) were comparatively ($P = 0.025$) more frequently prescribed by senior physicians over 60 years of age (60%) or 30–60 years (68%) than physicians younger than 30 years of age (35%). Terfenadine was still considered to be one of the treatment options for allergic rhinitis by 60% of physicians of over 60 years of age, but none of the physicians aged <30 years ($P < 0.001$).

Discussion

The first point of contact for most patients presenting with allergy symptoms is the GP (2). The standard of management for AR among GPs is thus a key outcome assessment for implementation of international guidelines. A recent study in France showed that the habits of medical practice (by GPs) are often, but not always, consistent with the most recent international consensus reports (6). Poor compliance and self-medication by patients were also documented, which confirms our previous community survey study in Singapore (5).

This study shows that AR is estimated to be the primary complaint in 10–40% of patient visits for half of the physicians surveyed. Although the number of GPs surveyed ($n = 200$) in this study represents only a portion of GPs who are practising in Singapore, they represent the distribution of various groups of GPs in similar proportions to the grand total (e.g. age range, type and year of practice) who are practising in the major residential areas of Singapore. It provides valuable information of their opinions and the impact of international guidelines on their management of AR patients. Our initial question was whether current concepts of AR management as recommended by international guidelines have been understood and implemented in primary care clinics? Secondly, we wanted to identify the confounding factors which may result in poor compliance by AR patients.

A standard diagnostic approach, as recommended by the 'Allergic Rhinitis and its Impact on Asthma' (ARIA) workshop report, is a careful medical history, a nasal examination and allergy tests (skin tests, *in vitro* tests or even nasal challenge) to confirm or exclude an allergic etiology (1). As a result of the lack of availability and cost, allergy tests are not commonly (<50%) performed by GPs. However, allergy testing is

considered a primary reason for referring patients to specialists by 50% of GPs in this study. It is commonly felt by physicians that allergy testing does not alter the choice of treatment, as nasal glucocorticosteroids are considered the first-line therapy for adults with moderate to severe allergic and nonallergic rhinitis. It has been argued that the common nasal allergies can be diagnosed with a careful study of symptoms and the response to initial treatment (7). This is a controversy that will affect significantly the standardization of allergy diagnosis. Data from this study shows that there is no uniform understanding among physicians on the definition of AR based on nasal symptoms (Table 2). It is also not possible to differentiate the type of rhinitis (infectious, allergy or other origins) based solely on symptom measures especially for persistent allergic rhinitis. The number of AR patients seen by GPs in this study provides only an estimate, as >50% of patients did not have an allergy test (either skin or serological tests). However, it is recommended that allergy skin tests be carried out by trained health professionals because of the complexity of its performance and interpretation (1). A consensus should be arrived at by multidisciplinary medical organizations (e.g. allergology, otolaryngology, and GPs) in order to avoid inconsistent or mistaken diagnosis of AR.

Single or combined treatment using newer generation antihistamines and nasal glucocorticosteroids are recommended as standard pharmacologic agents in the treatment of AR (1). In practice, this concept has not always been accepted worldwide. It has been reported that only 45% of patients are treated with nasal glucocorticosteroids, compared with >90% with oral antihistamines (8). In this study, almost all GPs (99.5%) indicated that they would prescribe H1-antihistamines (especially first generation) and nasal glucocorticosteroids (95.5%) in the treatment of AR. However, the cost of the new H1-antihistamines is 200–300 times greater than the first generation H1-antihistamines. Nasal steroid sprays are also expensive, which is an important concern for patients with persistent (perennial) rhinitis who need long-term medication. Our previous study showed an unexpected low use of nasal glucocorticosteroid sprays (3%) and antihistamines (6%) in community AR patients (5). Nasal glucocorticosteroids are effective anti-inflammatory drugs. However, mechanisms of therapy, appropriate use of nasal sprays and the onset of clinical effectiveness need to be thoroughly explained to the patients.

In Singapore, persistent allergic rhinitis (PAR) is almost exclusively the pattern of AR seen, because of a typical tropical climate which is hot and humid throughout the year. Patients with PAR require treatment the year round which may affect the choice of treatment and cost of therapy. Most patients expect

quick symptomatic relief with low-cost medications. In Singapore, as well as in many other countries, GPs are expected by the insurance companies and patients to provide both an office visit and medications for a nominal fee. As a consequence, physicians must see a large number of patients to meet their overheads and do not take time to inform individual patients about their disease or to give lengthy instructions on how to use medications properly. It may also explain why nasal decongestants are commonly used in order to get quick relief of nasal blockage. However, the prolonged use of topical nasal decongestants can actually be harmful, because of the risk of developing rhinitis medicamentosa (9). It should only be used for a short course (<7–10 days) to reduce severe nasal blockage, while co-administration of other drugs such as nasal steroids (1, 3, 4).

In order to reduce costs and to improve patient compliance by using effective drugs, it is recommended that educational programmes be improved for physicians and patients as to the most effective treatment strategies leading to optimal outcomes. Physicians need to be updated with the current knowledge of AR and evidence-based documentation regarding diagnostic methods and treatment available. It is their responsibility to give patients a clear explanation as to the nature of AR and the current stand on diagnosis and treatment of allergic disease. This study shows that most GPs were up-to-date with the current progress in clinical allergy and pharmacologic research. They understood the efficacy, side-effects and cost effectiveness of first and newer generations of H1-antihistamines and nasal glucocorticosteroids fairly well (Table 5). However, implementing the current guidelines which are AR needs to be improved.

In conclusion, this study shows that management of AR is a major part of practice for primary care clinics. It is important that international guidelines have clear criteria for diagnosis of AR and practical recommendations for effective treatment. Local modifications may need to be made, but the standard for diagnosis and effective therapy of AR should not be compromised. Appropriate patient education by physicians with a good understanding of the nature of rhinitis and the available treatment options will maximize patient compliance and improve treatment outcomes.

Acknowledgements

This study is supported by a grant from the National Medical Research Council (NMRC/0292/1998) of Singapore. The authors wish to thank Dr. Shen Liang, Biostatistician in Clinical trial & Epidemiology Research Unit of Singapore, for kindly performing statistical analysis for this study.

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