

Factors Associated with Allergic Rhinitis in Priest Hospital

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Objective: To study the prevalence and factors associated with allergic rhinitis (AR) in the priest and novices who came for treatment in Priest Hospital

Material and Method: The retrospective study of 110 priests with allergic rhinitis was conducted between January 2006 to June 2007. Questionnaire about allergic history, eosinophile count, prick and intradermal skin test were done.

Results: Most of the priests with the first manifestation of allergic rhinitis were in the age between 14 to 66 years with mean of 28.93 years. Specific factors related to allergic rhinitis were house dust (87.3%), animal dandruff (40.9%), pollen (35.5%) and insects (20%). Allergens that had positive skin test were house dust mite (54.4%), dog dandruff (50%), house dust (48.2%), Bermuda grass (44.5%), Sedge (42.7%), and Para grass (39.1%). Non-specific factors which induced rhinitis symptoms were joss stick (56.8%) and smoke (51.8%).

Conclusion: All of the factors both the specific and non specific were associated with AR. Future clinical management guidelines for AR must take into account from the results of this study. Such guidelines must promote relief from allergen exposure, emotional burden and the negative impact on daily activities. Health education to the priests to eradicate allergen from their living place and maintain strong partnership with healthcare professionals for sustainable result.

Keywords: Allergic rhinitis, Priest, Novices, Allergens, Rhinitis symptoms

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AR is the most common disease in Ear Nose and Throat (ENT) clinics. The prevalence of AR was reported to be 10-20% of the general population worldwide⁽¹⁾. WHO allergy survey in 1982 reported the prevalence of AR in Thailand to be 18.75%. AR was diagnosed both in male and female but in children the disease was more prevalent in boys more than in girls by the ratio of 2:1⁽²⁾. According to AR study in 1992 with the mean age was 33 years, male were more common than female by the ratio of 2:1. Family history was found in 45% of cases. Most of the patients lived in urban areas. The study from England reported that grass pollen was an important allergen while the study from

USA found that ragweed and tree pollen were specific allergens⁽³⁾. Patients with AR suffer from both nasal symptoms (congestion, rhinorrhea, itching, and sneezing) and ocular symptoms (itching, redness, and tearing). The data from Priest hospital between 2001-2003 showed that AR was the most common ENT disease attributed to 20.32% of total cases⁽⁴⁾ and was in the ten most common diseases diagnosed in the hospital. Further more, AR can lead to many complications as sinusitis, nasal polyp, otitis media. Co-morbid diseases such as asthma^(5,6), rhinitis-related sleep problems, mood disorders and depression may also impact significantly on AR. No previous study of factors associated with AR in priests and novices had been done including to compare to general population, so Department of ENT of Priest Hospital conducted the study for factors associated with AR in the priests and novices.

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Table 1. Age range of the priests and novices at first presentation of symptoms

Age of the patients at first presentation (years)	Number	Percent
20 and less	34	30.9
21 – 30	33	30.0
31 – 40	7	6.4
41 – 50	16	14.5
51 – 60	6	5.5
60 and more	3	2.7
Not attributable	11	10.0
Total	110	100.0

Objectives

To study the factors associated with AR in the priests and novices and use as baseline data to improve the management guidelines in the future.

Material and method

Retrospective study of priests and novices with AR in Priest Hospital was done. The predisposing factors both specific and non-specific aggravating factors were identified in the priests and novices who came to AR clinic between January 2006 and June 2007 in Priest Hospital. The inclusions criteria were

- 1) The patients with family history of atopic diseases such as asthma, atopic eczema, allergic conjunctivitis
- 2) The patients with seasonal or annual symptoms (sneezing, runny nose, stuffy nose)
- 3) The patients with signs of nasal mucosal edema, pale nasal mucosa with watery runny nose.
- 4) Laboratory findings of increased eosinophil count more than 3 %
- 5) Positive prick test and/or positive intradermal test.

Table 2. Symptoms of allergic rhinitis

Symptoms*	Number	Percent	Symptoms	Number	Percent
Itching of nose	81	73.6	Itching of eye	52	47.3
Itching of palate	16	14.5	Irritation of eye	44	40.0
Itching of throat	42	38.2	Tearing	41	37.3
Itching of ears	42	38.2	Headache	50	45.5
Sneezing	82	74.5	Nose ache	41	37.3
Running nose	97	88.2	Forehead ache	30	27.3
Stiffy nose	88	80.0	Cough	52	47.3

*some patients had more than one symptoms

The priests and novices would answer the questionnaire which was approved for reliability by the experts. Using Cronback's Alpha, the reliability index was 0.735 from the first 29 cases. Statistical analysis was performed using Pearson correlation.

Results

One hundred and ten priests and novices were included in the study with age range from 14-66 years with mean of 28.93 years and standard deviation of ± 14.70 years (Table 1). which 60.9% of the cases was in the age range between 14 and 30 years. Rhinitis symptoms were varied among patients. The most common symptoms were running nose (88.2%) follow by stuffy nose (80%), sneezing (74.5%) and itchy nose (73.6%) (Table 2). The mean age of the patients at first allergic symptoms presentation was 29 years. For family history of allergic diseases, 68.2% were negative only 31.8% had family history of allergy (Table 3). In the group of positive family history, mother had history of allergy 40% whereas father had only 14.3%, but no different of allergic history between brother and sister (Table 4). The aggravating factors were house dust (87.3%), animal dandruff (40.9%), pollen (35.5%) and insect (22 %) for specific factors. Non specific factors were smoke and weather change (Table 5). Positive prick test was house dust mite which was the most common (16.4%), followed by Bermuda grass (9.1%), Careless weed (8.2%) and house fly (7.3%) (Table 6) Intradermal skin tests were positive in house dust mite (54.5%), dog dandruff (50%), house dust (48.2%), Bermuda grass (44.5%), Sedge (42.7%) and Para grass (39.1%) (Table 6).

Discussion

From the study, there was significant association between genetic factors and rhinitis

Table 3. Family history of allergic diseases (n=110)

Family history of allergy	Number	Percent
Negative	75	68.2
Positive	35	31.8
Total	110	100.0

Table 4. Person in a group of positive allergic family history (n = 35)

Allergic person	Number	Percent
Father	5	14.3
Mother	14	40.0
Grand father	2	5.7
Grand mother	1	2.8
Brother	6	17.2
Sister	6	17.2
Aunt	1	2.8

symptoms. ($p < 0.05$). This was similar to the other report that suggested the complex polygenic inheritance of allergic diseases. There was a report that the child born from father or mother with allergies would have 50% chance of allergic diseases and the chance would increase to 70% if both parents had allergies. In priests and novices, allergic history was closely related to the mother more than the father (40% : 14.5%). There were negative associations between occurrence of allergic disease with their brothers and sisters ($p < 0.01$). The reason may be due to communication barriers between the priests and novices and their relatives since most of them live in the temples.

Patients with positive skin tests would have a higher risk for AR than the negative group. The patients with positive skin tests have the specific IgE to the specific aggravating factors or specific antigen.

However the specific IgE was probably related to genes, race and environmental stimulators. In Asian populations, the environmental factors have more influence than genetic factors and those who relocated in other countries had the same prevalence towards allergic diseases when compared to local population. From this study, priests who had a history of AR, when exposed to specific factors also had positive Prick and intradermal skin test.

There was also significant association between non-specific, aggravating factors and rhinitis symptoms ($p < 0.05$). AR in novices was more prevalent among those who lived in the city compared to those who lived in rural areas (45.7% and 20% respectively). The pollution caused by crust and smoke from automobiles acted as the activators for IgE formation and cytokine secretion. This led to allergic or even pulmonary allergy. In priests and novices, the non-specific factors that induced AR were mostly smoke from joss sticks and cigarettes which were common in the temples. However, changes in climate have a great influence in inducing rhinitis symptoms too.

The age range of allergic disease occurrence in the priests and novices was similar to previous studies⁽⁷⁾. From the previous study⁽³⁾, important allergens in Thailand were house dust mites, cockroaches, cat dandruff, insect, and fungi and the common pollen were Bermuda grass, Paragrass, Sedge, Careless weed.

During allergen exposure priests with AR experience a serious deterioration in health related quality of life (HRQL) which was the same as other study⁽⁸⁾. A high rate of poor well-being and psychological distress in priests suffering from AR especially in young priests and those with relatively short duration were more vulnerable to distress and need further psychological evaluation⁽⁹⁾.

Due to AR were chronic diseases so many medication were used⁽¹⁰⁻¹²⁾ and some would have adverse reaction⁽¹³⁾. There is encouraging evidence

Table 5. Specific factors and non specific factors related to allergic rhinitis

Specific factors	Number	Percent	Non specific factors	Number	Percent
House dust	96	87.3	Smoke from fire	46	41.8
Animal dandruff	45	40.9	Smoke from automobile	57	51.8
Pollen	39	35.5	Smoke of cigarette	57	51.8
Insect	22	20.0	Smoke of joss stick	62	56.4
			Chemical irritant	49	44.5
			Weather change	23	20.9

Table 6. Positive reaction of prick test and intradermal test

	Prick Test		Intradermal Test	
	Number	Percent	Number	Percent
Dandruff/ Miscellaneous				
House dust mite	18	16.4	60	54.5
Dog dandruff	5	4.5	55	50.0
House dust	4	3.6	53	48.2
Cat dandruff	5	4.5	37	33.6
Mixed Household Insects				
Cockroach	7	6.4		
House fly	8	7.3	31	28.2
Mixed ants	4	3.6	43	39.1
Mosquito	5	4.5	20	18.2
Pollents				
Bermuda grass	10	9.1	49	44.5
Careless weed	9	8.2	38	34.5
Kapox	3	2.7	20	18.2
Mixed grass	-	-	44	40.0
Para grass	3	2.7	43	39.1
Sedge	2	1.8	47	42.7
Typhaceae	-	-	28	25.5
Molds				
Aspergillus mixed	1	0.9	18	16.4

suggesting that *P. hybridus* may be an effective herbal treatment for seasonal (intermittent) AR. However, independent replication is required before a firm conclusion can be drawn⁽¹⁴⁾. There were also promising results generated from other herbal products, particularly Aller-7, *Tinospora cordifolia*, *Perilla frutescens*, and several Chinese herbal medicines. Although these results were confined to the paucity of data and the small sample size, confirmation in larger and more rigorously designed clinical trials is warranted⁽¹⁵⁾.

Finally, future clinical management guidelines for AR must take into account the results of this study. Such guidelines must promote relief from the emotional burden of AR and from the negative impact on daily activities, encourage priests' health education to maintain and build on the strong partnership between priests and healthcare professionals⁽¹⁶⁾ for sustainable result.

Conclusion

Predisposing factors both specific and non-specific factors had significant association to rhinitis symptoms. About predisposing factors, mother had more relationship to AR than father. The strong specific allergens causing AR were house dust, dog dandruff,

pollen, insect. Joss stick and smoke were the stronger irritants that aggravated allergic symptoms and the change in climate have much influence in aggravate rhinitis symptoms. Positive intradermal tests were house dust mite, dog dandruff, house dust, Bermuda grass, sedge and Para grass. For sustainable results, priests and novices should clean their places to eradicate predisposing allergens.

References

1. Storms W. Allergic rhinitis-induced nasal congestion: its impact on sleep quality. *Prim Care Respir J* 2008.
2. Rahimi Rad MH, Hejazi ME, Behrouzian R. Asthma and other allergic diseases in 13-14-year-old schoolchildren in Urmia: an ISAAC study. *East Mediterr Health J* 2007; 13: 1005-16.
3. Thoranin B. Allergen causing allergy in Thailand. In: Vichyanond P, Pothikamjorn S, Rakroongtham K. Allergy. Bangkok: Chaowana Print; 1998.
4. Priest Hospital Statistic. Annual report of Department of Medical Services, Ministry of Public Health 2001-2007. Bangkok: Priest Hospital Statistic.

5. Yawn BP. Factors accounting for asthma variability: achieving optimal symptom control for individual patients. *Prim Care Respir J* 2008.
6. Masuda S, Fujisawa T, Katsumata H, Atsuta J, Iguchi K. High prevalence and young onset of allergic rhinitis in children with bronchial asthma. *Pediatr Allergy Immunol* 2008.
7. Faridin S, Britt H. Allergic rhinitis. *Aust Fam Physician* 2008; 37: 203.
8. Petersen KD, Kronborg C, Gyrð-Hansen D, Dahl R, Larsen JN, Lowenstein H. Quality of life in rhinoconjunctivitis assessed with generic and disease-specific questionnaires. *Allergy* 2008; 63: 284-91.
9. Panicker NR, Sharma PN, Al Duwaisan AR. Psychological distress and associated risk factors in bronchial asthma patients in Kuwait. *Indian J Med Sci* 2008; 62: 1-7.
10. Bliss MS. Evolving paradigm in the management of allergic rhinitis-associated ocular symptoms: role of intranasal corticosteroids. *Curr Med Res Opin* 2008.
11. Naclerio R. Intranasal corticosteroids reduce ocular symptoms associated with allergic rhinitis. *Otolaryngol Head Neck Surg* 2008; 138: 129-39.
12. Patel PN, Oyefara B, Aarstad R, Bahna SL. Rhinorrhea not responding to nasal corticosteroids. *Allergy Asthma Proc* 2007; 28: 735-8.
13. Ali I, Goksel K, Ozan B, Gulsen D. Long-term allergen-specific immunotherapy correlates with long-term allergen-specific immunological tolerance. *Adv Ther* 2008.
14. Guo R, Pittler MH, Ernst E. Herbal medicines for the treatment of allergic rhinitis: a systematic review. *Ann Allergy Asthma Immunol* 2007; 99: 483-95.
15. Valovirta E, Myrseth SE, Palkonen S. The voice of the patients: allergic rhinitis is not a trivial disease. *Curr Opin Allergy Clin Immunol* 2008; 8: 1-9.
16. Pochanukul O, Assanasen P. How to prevent allergic disease. 2001-2002. <http://www.rcot.org/article31.htm>. 2007

ปัจจัยที่เกี่ยวข้องกับโรคเยื่อจมูกอักเสบจากการแพ้ของพระสงฆ์และสามเณร

สิทธิชัย รัชฎาภิพัฒน์, แจ่มจันทร์ สินสกวลวัฒน์, อารีย์ ตันธนวัฒน์

วัตถุประสงค์ : ต้องการศึกษปัจจัยที่ทำให้เกิดเยื่อจมูกอักเสบจากการแพ้ในพระสงฆ์และสามเณรเพื่อการดูแลรักษา

วัสดุและวิธีการ : ศึกษาย้อนหลังในพระสงฆ์และสามเณรจำนวน 110 รูปที่มาตรวจที่กลุ่มงานหู คอ จมูก ด้วยโรคเยื่อจมูกอักเสบจากการแพ้ ในช่วงเดือนมกราคม พ.ศ. 2549 - มิถุนายน พ.ศ. 2550 ศึกษาโดยตอบแบบสอบถามเกี่ยวกับภูมิแพ้ เจาะเลือดหาปริมาณ eosinophil และทำการทดสอบ Prick และ intradermal ทางผิวหนัง

ผลการดำเนินการ : พระสงฆ์และสามเณรที่เป็นเยื่อจมูกอักเสบจากการแพ้มีอายุตั้งแต่ 14 - 66 ปี เฉลี่ย 28.33 ปี สาเหตุที่ทำให้เกิดการแพ้ได้แก่ dust 87.3%, animal dandruff 40.9%, pollen 35.5%, และแมลง 20% เมื่อทำการทดสอบทางผิวหนังได้ผลบวกจาก house dust mite 54.4% dog dandruff 50.0%, house dust 48.2%, Bermuda grass 44.5%, Sedge 42.7% และ Para grass ส่วนปัจจัยที่ไม่เฉพาะเจาะจงแต่พบว่ามี ความเกี่ยวข้องมากคือ ควันธูป พบได้ 50.4%

สรุป : ปัจจัยที่เกี่ยวข้องกับโรคเยื่อจมูกอักเสบจากการแพ้มีมากมายทั้งแบบเฉพาะและไม่เฉพาะ การรักษาตามมาตรฐานและแนวทางที่ยอมรับกันทั่วไปจะทำให้พระสงฆ์และสามเณรมีอาการลดลงและมีคุณภาพชีวิตที่ดีขึ้น
