

## Allergic Rhinitis Patient Characteristics in Dr. Hasan Sadikin General Hospital Bandung Indonesia

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### Abstract

**Background:** Allergic rhinitis affects 500 million people worldwide, especially children and adolescents. This disease interferes with daily activities and productivity, leading to decreased quality of life. Allergic rhinitis is often accompanied by co-morbid conditions such as asthma, conjunctivitis, rhinosinusitis, urticaria and othersthat may worsen the disease. This study aimed to investigate the characteristics of patients with allergic rhinitis during the period of 2010-2011 in Dr. Hasan Sadikin General Hospital Bandung.

**Methods:** This study was a descriptive study with a cross-sectional design using medical records of allergic rhinitis patients who visited the allergy clinic of the Otorhinolaryngology & Head and Neck Surgery ( ORL & HNS ) Department of Dr. Hasan Sadikin General Hospital Bandung.

**Results:** There were 167 patients diagnosed as suffering from allergic rhinitis during the study time with more women (53.3%) affected compared to men (46.7%). Most of them were in the age group of 18-34 years old (52.7%) and their were student (53.3%). Most were suffered from moderate-severe persistent allergic rhinitis based on the Allergic Rhinitis and its Impact on Asthma-World Health Organization (ARIA-WHO) classification (52.7%). Co-morbid conditions were found in 73.7% of subjects and the allergic conjunctivitis (59.9%) was the most common.

**Conclusions:** Allergic rhinitis is most commonly found in people at school age and productive age. Most allergic rhinitis patients are classified into persistent moderate/severe, showing that the rhinitis symptom has already interfered with their daily activities and decreased their quality of life. [AMJ.2014;1(2):75-80]

**Keywords :** Allergic Rhinitis, Co-morbid condition, school age

## Karakteristik Pasien Rinitis Alergi di Rumah Sakit Dr Hasan Sadikin Bandung Indonesia

### Abstrak

**Latar Belakang:** Rinitis alergi memengaruhi 500 juta orang di seluruh dunia, terutama anak-anak dan remaja. Penyakit ini mengganggu kegiatan dan produktivitas sehari-hari serta menyebabkan kualitas hidup menurun. Rinitis alergi sering disertai dengan penyakit penyerta seperti asma, konjungtivitis, rhinosinusitis, urtikaria dan lain-lain yang dapat memperburuk penyakit. Penelitian ini bertujuan untuk mengetahui karakteristik pasien dengan rinitis alergi periode 2010-2011 di Rumah Sakit Dr. Hasan Sadikin Bandung.

**Metode:** Penelitian ini merupakan penelitian deskriptif dengan desain potong lintang dengan menggunakan rekam medis pasien rinitis alergi yang mengunjungi klinik alergi Departemen Telinga, Hidung, Tenggorokan - Kepala dan Leher (THT-KL) RS Dr. Hasan Sadikin Bandung.

**Hasil:** Ada 167 pasien yang didiagnosa menderita rinitis alergi selama usia sekolah. Perempuan lebih banyak yang terkena dampak (53,3%) dibandingkan dengan laki-laki (46,7%). Sebagian besar dari mereka berada di kelompok usia 18-34 tahun (52,7%) dan mereka adalah siswa (53,3%). Berdasarkan klasifikasi Organisasi Allergic Rhinitis and its Impact on Asthma-World Health Organization (ARIA-WHO) (ARIA-WHO) sebagian besar menderita rinitis alergi persisten sedang-berat (52,7%). Kondisi co-morbid ditemukan di 73,7% dari subyek dan yang paling umum adalah konjungtivitis alergi (59,9%).

**Simpulan :** Rinitis alergi paling sering ditemukan pada orang di usia sekolah dan usia produktif. Sebagian besar

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pasien rinitis alergi diklasifikasikan menjadi persisten sedang/berat. Hal ini menunjukkan bahwa gejala rinitis telah mengganggu kegiatan sehari-hari dan menurunkan kualitas hidup mereka. [AMJ.2014;1(2):75-80]

**Kata kunci :** Rinitis alergi, Kondisi Co-morbid, usia sekolah

## Introduction

Allergic rhinitis is an inflammatory process that occurs in the nasal mucosa after allergen exposure. It is mediated by immunoglobulin E. Nasal symptoms usually include sneezing, nasal congestion, runny and itchy nose.<sup>1</sup> This disease is a systemic inflammatory disease and its clinical manifestations are not only confined to the nose but can extend to other organs located near the nose such as eyes, sinuses, and ears. This condition interferes with daily activities and productivity, leading to decreased quality of sleep, hence decreased quality of life.<sup>2</sup>

The prevalence of allergic rhinitis has increased over the last 50 years. There are more than 500 million people around the world that are affected by this condition.<sup>1</sup> The incidence of allergic rhinitis peaks in childhood and adolescents.<sup>3</sup> In some countries, more than 50% of adolescents have symptoms of allergic rhinitis.<sup>1</sup>

Allergic rhinitis is often accompanied by other diseases, which is also referred as co-morbid conditions. The most frequent co-morbid condition is asthma; however, the presence of other co-morbid conditions, such as conjunctivitis, nasal polyps, rhinosinusitis, and otitis media, are also quite often. The presence of co-morbid diseases has been linked to chronic inflammatory reactions and, also, complicated the disease.<sup>4</sup>

Currently, there are still many who have not been diagnosed with allergic rhinitis because most people do not go to the doctor when they consider the symptoms are not too severe. Allergic rhinitis can be a predisposition for certain co-morbid diseases.<sup>5</sup> In addition, allergic rhinitis treatment is quite expensive. Allergic rhinitis can also affect a person income due to the disruption of their work performance.<sup>1</sup>

Therefore, this study aimed at understanding the characteristics of patients with allergic rhinitis based on sex, ages, occupation, classification, and presence of co-morbid conditions in patients seeking treatment at Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Dr. Hasan Sadikin General Hospital Bandung in the period of 2010-2011.

## Methods

This study was a descriptive study using the cross-sectional method. Patient characteristics were obtained from medical records. The study was conducted at the Dr. Hasan Sadikin General Hospital, Bandung, Indonesia with data from allergic rhinitis patients who visited the Allergy Clinic of the ORL -HNS Department during the period of 1 January 2010-31 December 2011. The inclusion criterion was patients diagnosed with allergic rhinitis. Data were excluded if the medical records were not complete. From 195 cases of allergic rhinitis during the period, 28 were excluded. The data were further analyzed and frequencies were calculated using SPSS version 17 and Microsoft Excel 2007.

## Results

The incidence of allergic rhinitis was higher in women (53.3%) compared to men (46.7%) with the highest incidence found in the age group 18-34 years old (52.7%), followed by the age group of ≤ 17 years old (27.5%). The number of events continued to decline starting from the age group of above 34 years old. By occupation, the highest incidence of allergic rhinitis was found in school/college students (53.3%).

Most of the allergic rhinitis cases were classified into the persistent moderate-severe (52.7%) category, followed by mild persistent (22.2%), mild intermittent (15.6%) and intermittent moderate-severe (9.6%) categories.

Co-morbid conditions were found in 73.7% of patients with allergic rhinitis. Most patients experienced conjunctivitis as a co-morbid condition (59.9%). The second most frequently found co-morbid condition was asthma (24.6%), followed by urticaria (22.2%) and rhinosinusitis (9.6%). Otitis media and chronic bronchitis were rare (0.6%).

Most patients with asthma (56.1%), conjunctivitis (55%), rhinosinusitis (56.3%), and urticaria (64.9%) were classified into the classification of allergic rhinitis moderate-severe persistent based on the ARIA - WHO Classification.

**Table 1 Characteristic of Allergic Rhinitis Patients Based on Sex and Occupation**

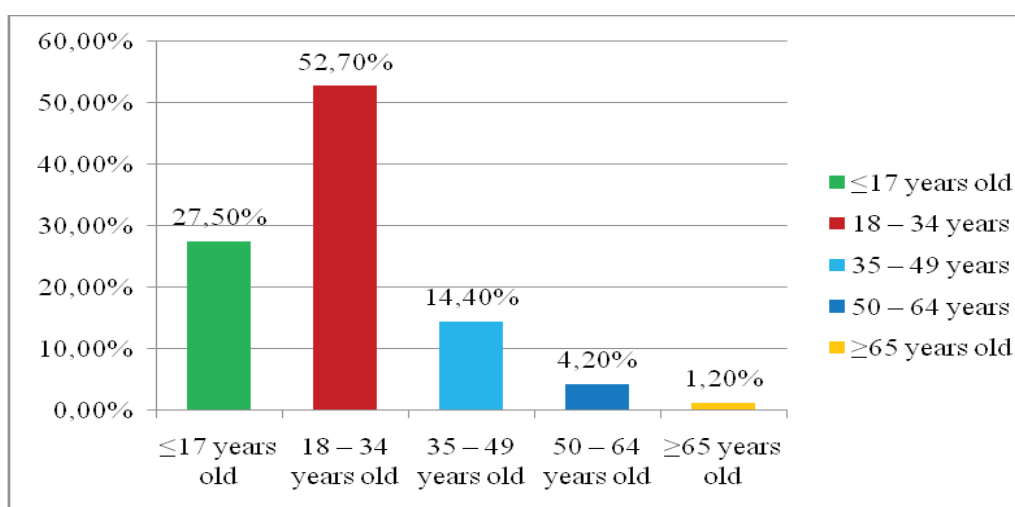
| Characteristic          | Frequency | Percentage |
|-------------------------|-----------|------------|
| Sex                     |           |            |
| Male                    | 78        | 46.7%      |
| Female                  | 89        | 53.3%      |
| Occupation              |           |            |
| Student/College Student | 89        | 53.3%      |
| Civil Servant           | 31        | 18.6%      |
| Private Employee        | 29        | 17.4%      |
| Housewife               | 14        | 8.4%       |
| Others                  | 1         | 0.6%       |
| Not working             | 3         | 1.8%       |

**Discussion**

In this study, the incidence of allergic rhinitis was higher in women (53.3%) than in men (46.7%). This is similar to a previous study performed in Dr. Hasan Sadikin General Hospital during the period of 2007–2009 which observed that 53% of patients with allergic

rhinitis treated at Dr. Hasan Sadikin general Hospital were female.<sup>6</sup> By age, the largest number of patients belonged to the 18–34 years old age group with 88 patients (52.7%). The incidence rate continues to decline with age. Similarly, an earlier study found that 58.2% of patients with allergic rhinitis were in the age group 10–29 years old.<sup>6</sup> It appears that patients with allergic rhinitis are mostly classified into school age and productive age groups. Allergic rhinitis can occur at any age, but its prevalence is higher among children and adolescents.<sup>1</sup> This is because the immune response in children works more rapidly and also because there are a lot of new allergen stimulus for a child presented to the nasal passage.<sup>7</sup> As for the young adults age, it is assumed that high incidence of rhinitis among young adults is caused by symptoms that are disturbing and causing a lower productivity, making many young adults patients in their productive age seek for treatment from the clinic.

In terms of occupation, the incidence of allergic rhinitis is higher among students with 89 cases (53.3%), followed by the civil servants with 31 cases (18.6%), private sector employees with 29 cases (17.4%), housewife with 14 cases (8.4%), other occupation with 1 case (0.6%), and 3 cases of unemployment (1.8%). This is similar to the results of an earlier study in 2010 which found that 51.1% of patients with allergic rhinitis were students,



**Figure 1 Characteristic of Allergic Rhinitis Patients Based on Age**

**Table 2 Characteristic of Allergic Rhinitis Patients Based on ARIA – WHO Classification**

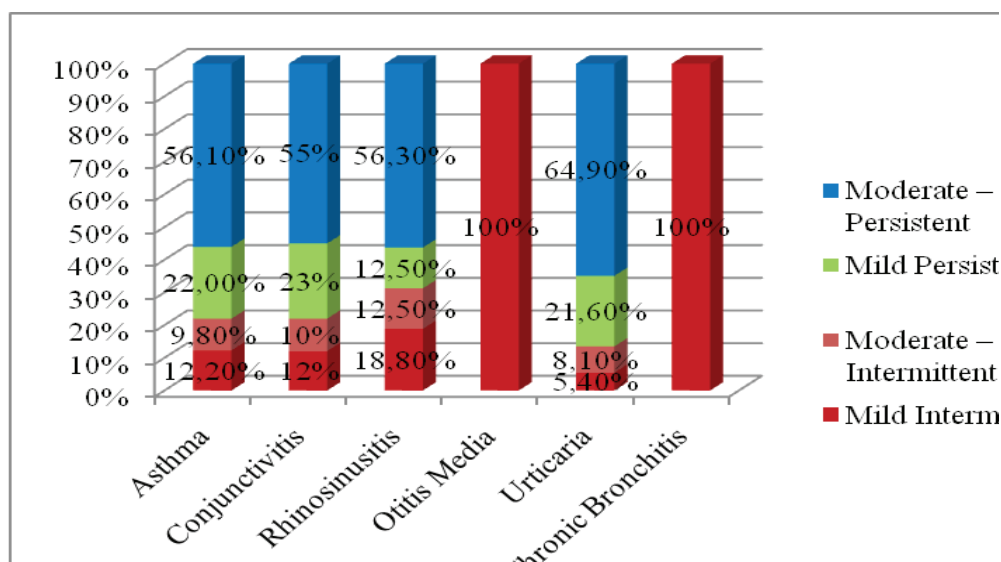
| Classification    | Intermittent |            | Persistent |            |
|-------------------|--------------|------------|------------|------------|
|                   | Frequency    | Percentage | Frequency  | Percentage |
| Mild              | 26           | 15,6%      | 37         | 22,2%      |
| Moderate – Severe | 16           | 9,6%       | 88         | 52,7%      |

followed by civil servants (26.5%).<sup>6</sup> This correspondence with the age group with the highest incidence, which is the age group of 18-34 years old, followed by the age group ≤ 17 years old, because most patients in those age groups are students.

The severity of allergic rhinitis is reflected in reduced quality of life of the patients and, also, the duration of the symptom.<sup>1</sup> The results of a study by Bousquet<sup>8</sup> that included 3,052 respondents in France showed that mild intermittent rhinitis was diagnosed in 11% of the patients, while mild intermittent rhinitis was found in 35%, mild persistent allergic rhinitis in 8% and persistent moderate in 35%. Based on a previous research in Dr. Hasan Sadikin General Hospital Bandung on 729 patients, it was found that 41.3% allergic rhinitis cases were classified as moderate-severe persistent rhinitis, 28% were mild persistent, 20.6% were mild intermittent,

while 9.8% were classified as moderate-severe intermittent.<sup>6</sup> Similarly, this study showed that the highest number of cases, 88 patients (52.7%), belonged to the moderate-severe persistent classification, while 37 cases (22.2%) were classified as persistent-mild, 26 cases (15.6%) were mild intermittent and 16 cases (9.6%) were moderate-severe intermittent. According to Bousquet, the high percentage of patients with severe persistent allergic rhinitis in this study might be due to the fact that patients with moderate-severe persistent rhinitis tend to seek treatment to the doctor compared to those milder allergic rhinitis symptoms.<sup>8</sup> A general population-based study by V. Bauchau found that most allergic rhinitis cases found were classified as mild-intermittent allergic rhinitis.<sup>2</sup>

The ARIA -WHO estimates that about 200 million people with allergic rhinitis also have asthma as a co-morbid condition.<sup>1</sup> Prevalence

**Figure 2 Characteristic of Allergic Rhinitis Patients Based on Co-morbid Conditions and ARIA – WHO Classification**

**Table 3 Characteristic of Allergic Rhinitis Patients Based on Co-morbid Conditions**

|                                 | Frequency | Percentage |
|---------------------------------|-----------|------------|
| Presence of Co-morbid Condition |           |            |
| With Co-morbid Condition        | 123       | 73,7%      |
| Without Co-morbid Condition     | 44        | 26,3%      |
| Co-morbid Conditions            |           |            |
| Asthma                          | 41        | 24,6%      |
| Conjunctivitis                  | 100       | 59,9%      |
| Rhinosinusitis                  | 16        | 9,6%       |
| Otitis Media                    | 1         | 0,6%       |
| Urticaria                       | 37        | 22,2%      |
| Chronic Bronchitis              | 1         | 0,6%       |

of people with asthma without rhinitis is typically <2%. Meanwhile in patients with rhinitis, the prevalence ranges between 10–40%.<sup>3</sup> In this study, asthma was found in 41 patients (24.6%) and is the second most frequent co-morbid condition. Josefine found that 42% of patients with allergic rhinitis also have symptoms of allergic conjunctivitis.<sup>9</sup> In this study, conjunctivitis was the most common co-morbid condition, which was found in 100 patients (59.9%). The conjunctiva is 2–10 layers of cells containing mucin-producing goblet cells to hydrate the ocular surface with a layer of tears. There are also mast cells located around blood vessels and lymphatic glands of the conjunctiva. Exposure of a person to allergens causes an allergic reaction and degranulation of mast cells as well as the emergence of eosinophils, basophils and CD4, leading to conjunctivitis symptoms.<sup>10</sup>

Based on a study in the United States, 12.5% of rhinitis patients also experience rhinosinusitis as a co-morbid condition.<sup>11</sup> This is thought to be caused by the inflammation of the nasal mucosa by an allergic reaction that leads to the congestion in the nasal mucosa; thereby disrupting the drainage of mucus in the osteomeatal complex. In addition, it was also suspected that allergens entering the nasal mucosa penetrates deeper into the sinus mucosa and causes an allergic reaction and congestion as well as mucus evacuation.<sup>12</sup> In this study, 16 patients with allergic rhinitis also had rhinosinusitis.

Based on the results of a study by Alexandrapaulosh, 28.1% of allergic rhinitis patients also had urticaria.<sup>13</sup> In this study, 47 people (22.2%) with allergic rhinitis also had urticaria. This is assumed to be caused by the fact that a person with a history of atopy is at

a greater risk for developing allergic reactions in other organs such as skin.<sup>1</sup> Allergic rhinitis is often found with otitis media, especially in children under 15 years old. In children with allergic rhinitis, 21% were found with otitis media. Based on a study by Tutie at Dr. Sardjito General Hospital Yogyakarta, the risk of otitis media effusion is 21 times higher in people with allergic rhinitis.<sup>14</sup> However, in this study only 1 (0.6%) patient was found with otitis media. There was also one patient with chronic bronchitis (0.6%). No study, to our knowledge, examines the relationship between allergic rhinitis with chronic bronchitis.

Most allergic rhinitis patients with asthma (56.1%), conjunctivitis (55%), rhinosinusitis (56.3%) and urticaria (64.9%) are classified as moderate-severe persistent allergic rhinitis based on the ARIA-WHO classification. This reflects the situation that co-morbid conditions decrease the quality of life of these patients.

Allergic rhinitis is often accompanied by the presence of co-morbid conditions that can further decrease the patient's quality of life. Hence, a diagnosis of co-morbid conditions should not be left out during the examination of allergic rhinitis patients. Although rhinitis is often considered as a mild disease, a proper treatment is needed to prevent the quality of life of the patients from decreasing further.

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