

Incidence and Sociodemographic Characteristics of Allergy, Autoinflammatory, and Autoimmune Skin Disease Patients in Allergy-immunology Clinic of Dermatovenereology Department of Cipto Mangunkusumo General Hospital in 2014-2017

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Abstract: Allergy, autoinflammatory and autoimmune diseases are some of the diseases often found in individuals with certain predisposing genetic susceptibility hence not all individuals have the same risk of allergy and autoimmune diseases. Despite not being included in the top ten fatal diseases, the impact of allergy and autoimmune diseases may severely affect patients' morbidity and quality of life. Allergy and autoimmune diseases itself are complex in terms of its etiopathogenesis, clinical symptoms, and management. Studies regarding the incidence of allergy, autoinflammatory, and autoimmune skin diseases in Cipto Mangunkusumo General Hospital has never been conducted in the past 10 years thus warrant collection of most current data. A retrospective study is needed to calculate the incidence of allergy, autoinflammatory, and autoimmune diseases along with patients' sociodemographic characteristics in the Allergy-Immunology Clinic, Dermatovenereology Department of Cipto Mangunkusumo General Hospital. Cipto Mangunkusumo General Hospital that has been accredited by Joint Commission International in 2016 is a national top referral hospital providing tertiary medical services equipped with 1033 beds. Therefore, cases such as allergy, autoinflammatory, and autoimmune diseases, including those in dermatovenereology are ubiquitous. A study was conducted to determine the incidence and sociodemographic characteristics of allergy, autoinflammatory, and autoimmune patients in Allergy-Immunology Clinic of Cipto Mangunkusumo General Hospital. Chronic urticaria was the leading incidence in 2014, 2015, and 2017. In 2016, contact irritant dermatitis became the leading diagnosis followed by chronic urticaria. Within the last 4 years, the visiting patients were dominated by females with range aged 19-59-year-old.

1 INTRODUCTION

Skin allergy is a bodily reaction induced by allergenic substances and may affect the immune system and may manifest as erythema, swelling, scaling, and itch (Mukesi et al, 2017). Allergies may affect all age groups in various parts of the world. Such condition may be contributed by multifactors including genetics, climate, occupation, sanitation, and personal hygiene El-Khateeb et al, 2011). Meanwhile, autoimmune diseases is a pathological condition marked by tissue damage caused by diminished self-tolerance (Moreira et al, 2017). Autoinflammatory diseases are a number of diseases that occurred as recurrent episodes of systemic

inflammation and there are many cytokines that increase without detectable autoantibodies or auto-reactive T cells (Ray et al, 2012).

Skin involvement is common in allergy, autoinflammatory, and autoimmune diseases. Hypersensitivity reaction (allergy) is the underlying mechanism of several skin diseases such as urticaria, atopic dermatitis, irritant contact dermatitis, allergic contact dermatitis, and cutaneous drug eruption. Several autoimmune diseases with skin manifestations include psoriasis, bullous autoimmune disease, cutaneous lupus erythematosus, scleroderma, and dermatomyositis. Meanwhile, one of autoinflammatory diseases that can be found in Allergy and Immunology Clinic is

Behcet disease. Currently in Indonesia, there is an increasing trend in numbers of cases of allergy, autoinflammatory, and autoimmune diseases. Therefore, with the growing concern regarding this matter, active participation of competent medical personnel and primary, secondary, and tertiary health care facilities is essential as the management of diseases requires comprehensive approach. Nowadays, there has yet to be a national registry of dermatological allergy, autoinflammatory, and autoimmune diseases. Since 2014, care and treatment of atopic dermatitis and psoriatic patients aged 18-59 has been reassigned from the General Dermatovenereology Clinic to the Dermatovenereology Allergy and Immunology Clinic which resulted in a significant increase in numbers of cases compared to the previous year.

The results of this study will provide a baseline data for other studies concerning the disease, patient sociodemographic, and reviews of the management of allergy, autoinflammatory, and autoimmune patients in Indonesia. This study would also provide opportunities for improvement of care provided by Cipto Mangunkusumo General Hospital for its patients and for the general public.

2 METHODS

This study is a descriptive observational study. Data collection began after the approval from The Research Ethics Committee of Fakultas Kedokteran Universitas Indonesia-Cipto Mangunkusumo General Hospital. Data was collected from paper-based medical records and electronic health record of patients that visited the Dermatovenereology Allergy-Immunology Clinic within 2014-2017. Data were then recorded and compiled in a provided study form. Validated data will be analyzed using *Statistical Programme for Social Science (SPSS)* 20.0 and presented as tables according to each indicator. Descriptive analysis of the data is done by categorizing each diagnosis according to gender and age groups. Data analysis will also determine the top ten diagnoses of each year.

3 RESULTS

The number of new patients in Dermatovenereology Allergy-Immunology Clinic Cipto Mangunkusumo General Hospital patients were 648, 563, 515, and 526 in 2014-2017, respectively. The number of new

patients were dominated by females with the percentage of 58.8%, 62.2%, 61.2%, and 54.9% in four consecutive years. In terms of age groups, most of the patients' age between 19 and 59 comprising of 83.3%, 84.4%, 87%, 81.6% of the total group in each year, respectively. Data analysis also revealed the top ten diseases of first visits in each year. Data are presented in the following chart.

Table 1. Percentages by Gender Category in Dermatovenereology Allergy-Immunology Clinic Cipto Mangunkusumo General Hospital, 2014-2017

Year	Gender	
	Male	Female
2014	41.2 %	58.8 %
2015	37.8 %	62.2 %
2016	38.8 %	61.2 %
2017	45.1 %	54.9 %

Other autoinflammatory and autoimmune skin diseases that are not in the top ten diagnoses such as vesiculobullous disease has the incidence rate of 0.35% – 0.70% and Behcet disease has the incidence rate of 0.05% – 0.10 % in 4 years.

4 DISCUSSION

According to the data from Dermatovenereology Allergy-Immunology Clinic Cipto Mangunkusumo General Hospital in 2014-2017 based on gender and age groups, chronic urticaria is the diseases with the highest incidence in almost every year. This finding was similar to a study by Sánchez-Borges (2012) that revealed urticaria as a highly prevalent disease in the world with the rate of 0.3-11% (Sánchez-Borges et al, 2012). Other diseases that are always in the top ten diagnoses each year include irritant contact dermatitis, allergic contact dermatitis, psoriasis vulgaris, atopic dermatitis, acute urticaria, maculopapular type allergic drug eruption, and acneiform eruption. A study by Mukesi (2017) revealed that the top three prevalent allergic skin diseases in Namibian adults were atopic dermatitis with 43.4%, contact dermatitis with 31.3%, followed by urticaria with 13.3% (Mukesi et al, 2017). Atopic dermatitis cases in Cipto Mangunkusumo General Hospital are not only be found in Dermatovenereology Allergy-Immunology Clinic, but are distributed to Geriatric Dermatology Clinic and Pediatric Dermatology Clinic according to the patient's age thus may explain the lower incidence of atopic dermatitis in this study compared to other studies.

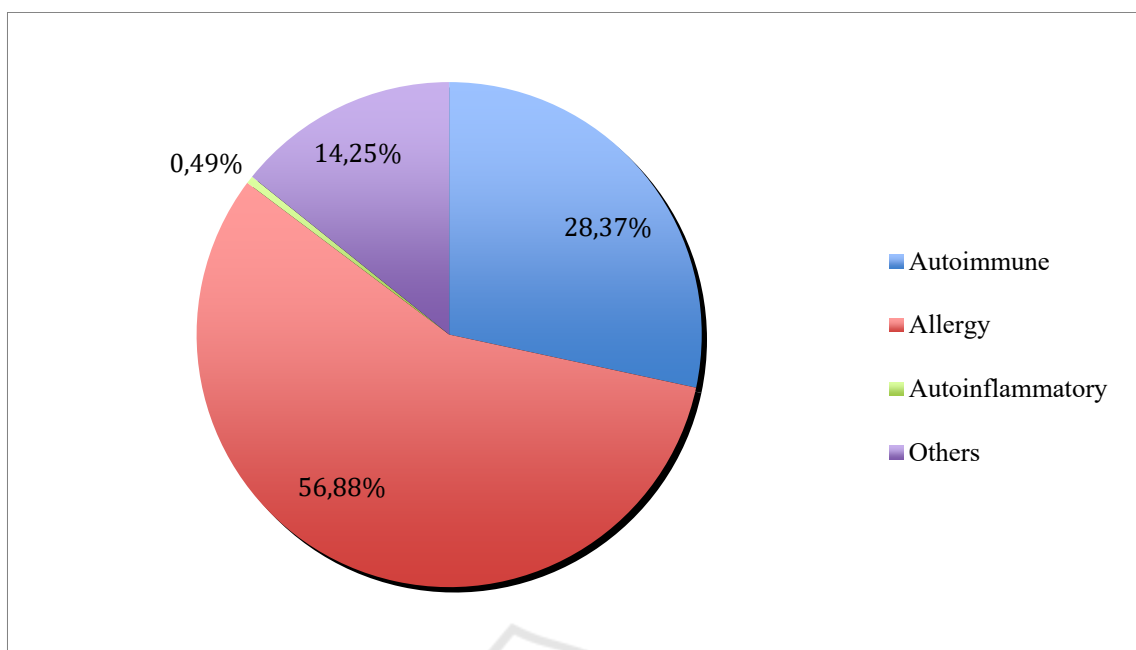


Figure 1. Percentages by Disease Category in Dermatovenereology Allergy-Immunology Clinic Cipto Mangunkusumo General Hospital, 2014-2017

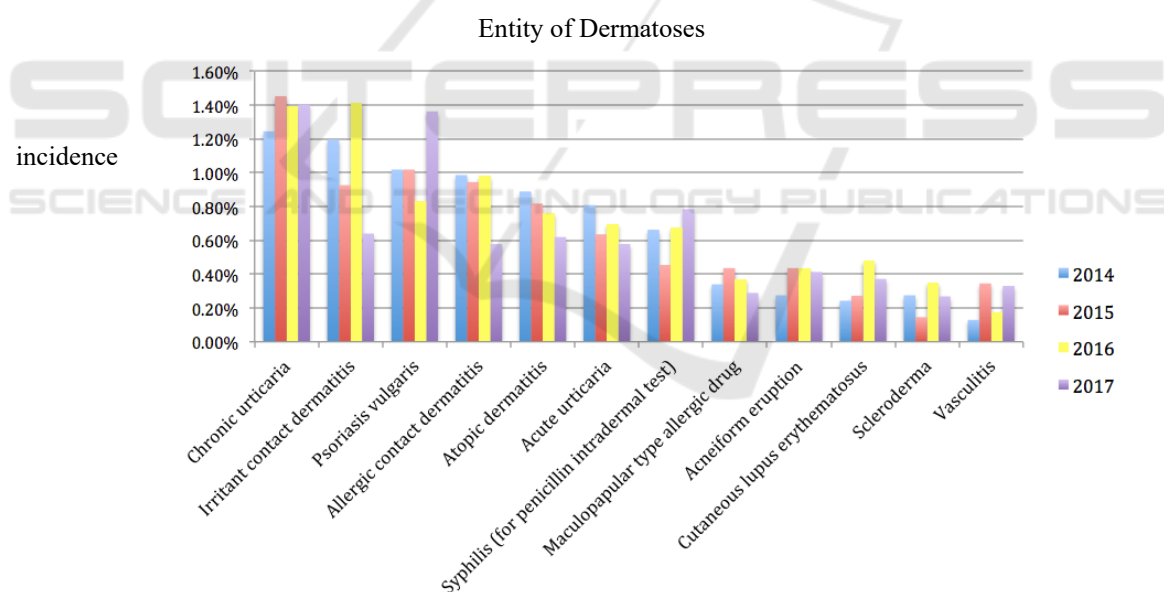


Figure 2. Top Ten Allergy, Autoinflammatory and Autoimmune in Dermatovenereology Allergy-Immunology Clinic Cipto Mangunkusumo General Hospital, 2014-2017

There is an increase in the incidence of psoriasis vulgaris from 2016 to 2017. This may be partially explained by the lack of systemic medications such as methotrexate in other health facilities which causes a surge of psoriasis vulgaris patients in Cipto Mangunkusumo General Hospital. There was also a significant number of syphilis patients that came

into the Allergy-Immunology Clinic. Despite not being one of allergy, autoinflammatory, and autoimmune diseases, syphilis patients were often referred to the clinic for penicillin intradermal testing.

Looking at the diseases incidence distribution, it can be inferred that most of the patients were

between 19 to 59 years old and were females. Similarly, Sánchez-Borges (2012) also found that urticaria were more common in female patients within the age range of 35 to 60 years old. Rosa (2013) also revealed that prevalence of psoriasis risen with age up until the age of 39 years old. The prevalence then fell in the age group of 40-49 years old but came increasing back in patients aged 50-59 years old (Parisi et al, 2013). Accordant to the findings of this study, other studies by Mukesi et al. (2017) discovered that the prevalence of allergic diseases comprises of female patients with 58.7% and male patients with 41.3% (Mukesi et al, 2017). Autoimmune diseases include more than 70 chronic diseases and are significantly more common in females. Several theories that have been suggested to explain the correlation of gender and autoimmune disease incidence include sex hormone fluctuation that accompanies menstrual cycle, pregnancy, and menopause. Several autoimmune diseases would show clinical signs only during pregnancy or after menopause (Markle et al, 2014). Other studies have shown that testosterone have protective effects while estrogen have stimulant effects to the immune system by its direct stimulating mechanism of macrophages through estrogen alpha receptors (ER α) (Calippe et al, 2014). From 2014 to 2016, there has been a decline of in the number of new patients. This may be explained by the enactment of National Health Coverage (BPJS Kesehatan). Therefore patients are redistributed from Cipto Mangunkusumo General Hospital to be managed in primary and secondary healthcare facilities.

5 CONCLUSION

Allergy, autoinflammatory, and autoimmune diseases of the skin should be a major health concern as it has a high incidence rate in both Indonesia and worldwide. In the Dermatovenereology Allergy-Immunology Clinic Cipto Mangunkusumo General Hospital in the year of 2014-2017, the top 5 most common diagnoses were chronic urticaria, contact dermatitis, psoriasis vulgaris, and atopic dermatitis. The number of female patients were significantly higher compared to male and majority of patients were aged 19 to 59 years old. The results of this study are essential in the evaluation of allergy, autoinflammatory, and autoimmune patients' management. This study would also provide opportunities for improvement of care provided by Cipto Mangunkusumo General Hospital for its patients and for the general public.

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