

Knowledge and Attitudes on Food and Drug Allergies among Hospitalized Adult Patients in Teaching Hospital Karapitiya

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Abstract —Prevalence of drug and food allergies is increasing and no known cure, so community awareness of signs, symptoms and treatments of allergic reactions is vital. General public has to play a big role in taking care of children with allergies as it has become a major health concern worldwide. In the west as well as in South East Asia prevalence of allergic diseases has reported to be increased.

To evaluate the knowledge and attitudes on food and drug allergies among hospitalized adult patients.

Method: a cross sectional study was carried out among randomly selected 120 hospitalized adult patients in teaching hospital, Karapitiya. Data collection was done using a pre tested structured interviewer administered questionnaire during the period of two months in 2013. Knowledge of sign and symptoms, common drug and food allergens, treatments available and preventive actions was assessed using both open ended and close ended questions .Overall score was categorized in to three groups (Poor, average and good). Attitudes were assessed using five statements.

Out of 120, 62% (n=74) were males and 32% (n=46) were females in the study sample. The average knowledge score was 18.17±3.9 of SD out of 37. Nearly 75% (n=87) knew that allergy should be treated promptly. But only 50% (n=60) was able to identify allergy as a fatal condition. Further Itching (109, 90%), raised bumps on the skin (112, 93%), itching on the tongue (94, 78%), wheezing (64, 53%), sneezing (56, 46%), were identified by considerable percentage of patients. Only 4 people out of 120 were able to select all the major allergens correctly. At the same time more than 80% believed that allergy has a cure. Most of the subjects selected pineapple (113, 94%) tomatoes (112, 93%) shellfish 108, (90%) and Fish (84, 70%) as common food allergens and 46 % (n=56) identified penicillin as a drug allergen. Only 15% of patients had heard of histamine blockers are taken as a treatment. More than 80% of participants

gave correct response for attitudes which shows positive attitudes. The need of training programmes was highlighted.

Awareness on allergies is not satisfactory. Several important aspects of allergies such as sign and symptoms, major food and drug allergens, treatments available and preventive actions need to be improved. Pattern of allergies may be different when compared to the west. The demand for advanced health education programmes and training programmes has become a need.

Keywords— Knowledge and Attitudes, Drug and Food Allergies, Teaching Hospital Karapitiya

I. INTRODUCTION

Allergy is one of the serious health conditions that may result in death. Allergens responsible for allergic reactions are pollen, dust, food, insect stings, animal dander, mould and medications. And they are freely available everywhere in the environment. Allergy or hypersensitivity was defined as: 'Specifically changed reactivity of a host to an agent on a second or subsequent occasion' and now it considers as a damaging reaction. (Kumara, P., Clark. M., 2005). But the origin still remains unresolved. (Haahtela et al, 2008). It is estimated that between 150 and 200 people die annually from food allergic reactions or anaphylaxis; including children and young adults. (FAAN, 2012)..At the same time hospitalizations due to allergies have increased over the past few years (Branum&Lukacs,2008). According to Branum and colleagues from 2003 to 2006, food allergies resulted in approximately 317,000 visits to hospital emergency departments, outpatient clinics and physicians' offices in the US. (2009). Pineapple, rambutan, tomatoes, prawns and cuttle fish are found to be hypersensitive among most of the Sri Lankan adolescents (Wimalasiri et al.,2013)

.But in Sri Lanka, The prevalence of other allergic diseases have not been recorded over time. However data from other countries have shown that there has been a dramatic rise in allergic diseases in Western countries, India, South East Asia and even in Africa. (Daniel, 2011).

The effects of allergies can vary from minor skin rashes to life threatening anaphylactic shock (Daniel, 2011).Anaphylaxis, the most serious outcome of allergies, is an acute, potentially life threatening hypersensitivity reaction. some common drugs which causes anaphylaxis include penicillin, cephalosporin, and sulphonamide, muscle relaxants, aspirin, ibuprofen, indomethacin and other non-steroidal anti-inflammatory agents (NSAIDs) (WAO,2012) .According to the World Allergy Organization, it is necessary to recognize allergic diseases as a global public health concern as there is a steady increase in the prevalence of allergic diseases globally. A high proportion of this increase is occurring in young people .Thus, as this young population reaches adulthood, the burden of allergic diseases is expected to increase even more (2011-2012).

General public play a significant role in the well-being of food-allergic children, although little is known about the knowledge, attitudes, and beliefs of food allergy among the public. (Guptha et al, 2009). At the same time general public has misconceptions regarding allergies. (Guptha et al, 2010). Modern medicine does not provide a cure for food allergies. Stringent avoidance of the allergens is the only way to prevent the allergic reactions (FAAN, 2012). Presently, the primary means of preventing potentially fatal reactions except avoidance of allergens are prompt recognition of food allergy reactions, and a sound knowledge about food allergy reaction treatments. (Guptha et al, 2008).

Some people do overcome their allergies with time. Especially children tend to outgrow their allergies. However, allergies in adults are less likely to disappear. Those with severe food or insect venom allergy should be prescribed emergency medicine such as adrenaline. These lifesaving injections are usually prescribed to all those who are likely to develop a life threatening allergic reaction and they will be soon available in Sri Lanka.(Daniel,2011).However food allergies and food intolerances are increasingly important

concerns to food manufacturers to make foods which are allergen free.(Taylor& Hefle,2001).

Hospitalized patients can have a good potential to gain more knowledge and can actively engage in preventing incidents of allergies .Because their interaction with the health care givers may be higher when compared to normal people. At the same time they can improve the awareness among others by sharing their experiences gained from the hospitals.

So my main purpose of this study was to assess the awareness of the hospitalized adult patients regarding allergies by taking them as my target population. So importance of identifying what causes most of the allergies, what sort of symptoms are common and whether there are any relationship between allergies and socio demographic status will be discussed in this report.

II. LITERATURE REVIEW

A. Foods, Drugs and Allergies

Even though foods and drugs are vital substances for the survival and continuity of our lives they can cause immediate death resulting from severe allergic or hypersensitivity reaction.

An allergic reaction involves two features of the human immune response. One is the production of immunoglobulin E (IgE), a type of protein called an antibody that circulates through the blood. The other is the mast cell, a specific cell that occurs in all body tissues but is especially common in areas of the body that are typical sites of allergic reactions, including the nose and throat, lungs, skin, and gastrointestinal tract. Before an allergic reaction can occur, a person has to be exposed to the food. As this food is digested, it triggers certain cells to produce specific IgE in large amounts. The IgE is then released and attaches to the surface of mast cells. The next time the person eats that food, it interacts with specific IgE on the surface of the mast cells and triggers the cells to release chemicals such as histamine. Depending upon the tissue in which they are released, these chemicals will cause a person to have various symptoms of food allergy. (NIAID, 2001)

B. Common types of allergies and their manifestations.

The eight major food allergens that account for 90% of food allergies are eggs, milk, soy, fish, tree nuts, peanuts, wheat, and shell fish (FAAN, 2012). In addition to the 8 major allergens, other food allergens such as fruits, chocolate, tomatoes, orange juice, spices and cheese are also common among children. (Rhim&McMorris, 2001)

In adults, the most common foods which cause allergic reactions are shell fish such as lobster, crab; peanuts a legume that is one of the chief foods that can cause anaphylaxis. As result of that a sudden drop of blood pressure is happened that can be fatal if not treated quickly. Tree nuts, fish and eggs are the other common foods. In children, the pattern is somewhat different. The most common food allergens which can cause problems are eggs, milk and peanuts. Children are more likely to outgrow allergies to milk and soy than allergies to peanuts and fish (NIAID, 2001).

Common symptoms of allergies are raised bumps on the skin, wheezing, sneezing, difficulty in breathing, itching of the tongue, vomiting, abdominal pain, diarrhoea, dizziness, lowering of blood pressure and finally loss of consciousness (Daniel, 2011).

Adverse drug reactions may affect up to 1/10 of the world's population and affect up to 20% of all hospitalized patients. More than 10% of all adverse drug reactions are unpredictable drug hypersensitivity reactions (WAO, 2011 - 2012). Certain medications are more likely to produce allergic reactions than others. The most common are antibiotics, such as penicillin, aspirin and non-steroidal anti-inflammatory drugs, anticonvulsants, chemotherapy, and monoclonal antibody therapy (FAAN, 2013).

c. Prevalence of allergy

According to some studies the prevalence of food hypersensitivity is increased with education, the place of birth is not associated with increased prevalence of food hypersensitivity and food hypersensitivity is more prevalent in women and tends to decrease with age. Fresh foods are the more frequently implicated ones. (Falcão et al, 2004).The most recent prevalence data from Asia highlight seafood as a significant sensitizer in up to 40%of children and 33%of adult.(Andreas et al,2009).

In Sri Lanka, most recent research findings have indicated that pineapple (35.7%), rambutan (19.7%),tomatoes(18.24%),breadfruit(10.21%),prawns(19.7%) ,cuttle fish(17.5%), tuna(8.75%) and canned fish (13.13%) are the commonest food allergens which causes hypersensitivity reactions among adolescents.(Wimalasiri et al.,2013).

D. Knowledge and attitudes of drug and food allergy

Parents of children with food allergy have a good fundamental knowledge but there are concerns about primary care physicians' knowledge of food allergy, diagnostic approaches, and treatment methods. Physicians have a good basic knowledge of food allergy but differed in their approach to diagnosis and advice about starting solids and breastfeeding. The general public have a wide variation in knowledge about food allergies. But there are many misconceptions of key concepts related to prevalence, definition and triggers of food allergy. (Guptha et al,2008).Knowledge of general public in areas related to signs and symptoms ,severity, triggers and environmental risks of food allergy is strong. But still knowledge is poor concerning the distinction between food allergy and food intolerance, the absence of cure and current means of treatment for food allergy.(Guptha et al,2009)

Most recent findings indicate the knowledge of allergies in people of United States varies significantly among certain groups by sex, race, annual income, and level of education, parental status, prior knowledge and familiarity with food allergy. At the same time attitudes are well distributed (Guptha et al, 2009).Targeted educational interventions also can have a good potential on improving the public's knowledge of food allergy.(Guptha et al, 2009).Parents of food allergic children have a good basic knowledge even though some important misconceptions are also there. And also a large proportion of parents believe that their child's food allergic condition has a negative impact on personal relationships and also like to act on certain policies to address food allergy in school. (Gupta et al, 2010).

E. Allergy patterns

The food allergy patterns in Sri Lanka are different when compared to the food allergy patterns in the West. The main food allergens in Sri Lankan children are cow's milk and egg. Most of the adults

and children are allergic to a wide variety of foods such as pork, beef, and fruits such as wood apple, which are uncommon in the West. (Daniel, 2011). In Sri Lanka house dust mite is the commonest allergen in individuals with asthma and allergic rhinitis. Around 80% of such individuals are allergic to the feces of this insect, which is commonly found in house hold dust. However, allergies to other inhalant allergens such as cockroach, moulds, and storage mites are also common. (Daniel, 2011). The foods that adults or children react to are those e foods that they eat often. In Japan, for an example, rice allergy is more frequent .In Scandinavia, codfish allergy is more common. (NIAID, 2001)

F. Consequences of allergies

Anaphylaxis is a serious, life threatening allergic reaction. The most common anaphylactic reactions are to foods, insect stings, medications and latex. (FAAN, 2013). One out of every 25 Americans has a food allergy. It is estimated that between 150 and 200 people die annually from food allergy reactions or anaphylaxis; including children and young adults (FAAN, 2012). Anaphylaxis is the most serious outcome of allergies. It is an acute life threatening hypersensitivity reaction. Some common drugs which can cause anaphylaxis are penicillin, cephalosporins, sulphonamides, muscle relaxants, aspirin, ibuprofen, indomethacin and other non - steroidal anti - inflammatory agents (NSAIDs) (WAO, 2012). Penicillin is the most common cause of drug-induced anaphylaxis anaphylactic reactions to penicillin cause 400 deaths annually. Fatal food anaphylaxis is most often caused by peanuts (50-62%) and tree nuts (15-30%) (Neugut et al, 2001). There is a considerable impact of children's food allergies on familial quality of life (Gupta et al, 2008). And also the direct as well as indirect cost is higher in the families with allergic diseases when compared to non-allergic families (Voordouw et al, 2010).

G. Diagnosis, Treatment and Cure for allergies

A detailed patient history, the patient's diet diary, or an elimination diet, scratch skin test, blood tests such as the RAST and ELISA can be used to diagnose allergies. The final method used to objectively diagnose food allergy is double-blind food challenge. This testing has become to be the 'gold standard' of allergy testing. (NIAID, 2001). Strict avoidance is the best treatment

for allergies for that people should read food labels carefully and avoid restaurant prepared foods that might have ingredients to which they are allergic. Patients with severe food allergies and people who have had anaphylactic reactions to a food should wear medical alert bracelets or necklaces stating that they have a food allergy and they are more susceptible to severe reactions. Such people should always carry a syringe of adrenaline (epinephrine), obtained by prescription from their doctors, and it should be prepared to self-administer if they think they are getting a food allergic reaction. They should immediately seek medical help by calling the rescue squad or by having themselves transported. To relieve food allergic symptoms that are not part of anaphylactic reaction antihistamines, bronchodilators like drugs are used. (NIAID, 2001).

Presently the primary means of preventing potentially fatal reactions are strict avoidance of allergens, prompt recognition of drug and food allergic reactions and improving knowledge about allergy reactions and treatment. (Guptha et al, 2008). Studies on humans demonstrated for the first time that biologically active fish allergens can be detected in serum samples as early as 10 min after ingestion. These studies highlight that minute amounts of ingested seafood allergens can quickly trigger allergic symptoms; also, inhaled airborne allergens seem to induce sensitization and reactions. . (Lopata et al, 2009). The diagnosis of allergic reactions to drug is difficult and mainly clinical. And the diagnostic tests are available only for a few drugs. Provocation test is the best but may be harmful. (Demoly & Bousquet, 2002). Genetic factors are more important in determining allergy in early life. (Lamabadusuriya, 2004).

III. OBJECTIVES AND METHODOLOGY

A. General objective

The main objective of this study was to examine the knowledge and attitudes of food and drug allergies among hospitalized adult patients.

B. Specific objectives

To assess the knowledge regarding common signs and symptoms, practices, treatments, misconceptions, of allergies, and its association with the socio demographic characteristics among hospitalized patients in Teaching Hospital Karapitiya.

To identify the most common allergies among patients in Teaching Hospital Karapitiya.

To identify attitudes on allergies among patients in Teaching Hospital Karapitiya.

C. Methodology

The aim of this study was to evaluate the level of awareness of hospitalized adult patients in Galle district regarding allergies.

D. Study design

Descriptive cross sectional study design was used in this study.

E. Study setting

Teaching Hospital Karapitiya, This is the only Teaching Hospital in Southern Province .And we obtained our clinical practice there. There are 10 Medical wards in Teaching Hospital Karapitiya. So I selected only 4 medical wards (16, 17, 19, and 21) of the Teaching Hospital Karapitiya as the study setting.

F. Population of interest

The study population was hospitalized adult patients in medical wards in Teaching Hospital Karapitiya. Actually the sample size should be calculated using the equation of sample size calculation. But Considering time and resources limitations only 120 patients were selected.

G. Sampling method

Convenience sampling method was used to select sample subjects. The study carried out among 120 patients from medical wards in Teaching Hospital Karapitiya. Forty six of them were female patients (from ward17and21) and 74 of them were male patients (from ward 16 and 19).The above four ward were selected as the principal investigator was doing his clinical appointments in the same wards during the data collection period. Patients, who were above 20 years, can understand Sinhalese and not in a serious medical or surgical condition were selected for this study.

H. Ethical consideration

Ethical clearance was obtained from the ethical committee of the Faculty of Medicine; University Of Ruhuna. After getting the ethical committee approval, permission from the director of the Teaching Hospital Karapitiya was obtained to conduct the survey in the hospital.

I. Instrument development and Data collection

The data were collected using a structured, interviewer administered questionnaire, which contain both open ended and closed ended questions under 3 main parts. A pilot study was conducted among 1st batch of B.Sc Nursing students (5males & 5females).Appropriate modifications were done accordingly.

Section1: Section 1 comprised of questions related to demographic data such as age, sex, religion, nationality, level of education, social status and economic level.

Section2: Section 2 comprised of 37 close ended questions to assess the knowledge on allergies. Further section 2 divided into 4 sub topics.

Firstly, to assess the general knowledge on allergies 12 closed ended (Yes/No/Don't know) questions were included.

Secondly to assess the knowledge on signs and symptoms, 10 closed ended (Yes/No/Don't know) questions were included.

Eleven closed ended (Yes/No/Don't know) questions were added to assess the knowledge on common food allergens and 4 closed ended (Yes/No/Don't know) questions were added to assess the knowledge on common drug allergens.

One open ended and one close ended question were included to assess the awareness of treatments.

One best response type question was added to assess the ability to identify the correct application of knowledge on preventive methods.

Section 3: Section 3 consisted of 5 five closed ended (Agree/disagree/don't know) questions to assess the attitudes on allergies. After getting the ethical committee approval, permission from the director of the hospital, a suitable time period in which the routine ward works minimally affected was arranged by discussing with the nursing officers in charge. And also to avoid critically ill patients, staff opinion was sought-after describing the instructions, questions were asked and answers were marked by the investigator. The purpose of the study and the importance of participation and provision of accurate information were highlighted. Informed about not providing incentives for participation and explained about assurance of privacy and confidentiality of information. Fifteen minutes

were taken to fill each questionnaire. Informed written consent was taken before filling the questionnaire. After collecting data participants were appreciated and thanked for their contribution.

J. Statistical Analysis

Microsoft excels 2007 and Statistical Package for Social Sciences (SPSS) were used to analyze the data. Descriptive statistics were used to present results of the study. Demographic data and some of the results were presented in tables as percentages and numbers. Chi square test was performed to see whether there is any association between the categorical variables. Some important questions were analysed separately and given as percentages. One point was given to each close ended question. And there was only one possible correct answer for each question. Categorizations of knowledge scores were given in the results.

IV. RESULTS

Results indicate that the participants' average knowledge score (18.17 ± 3.9 of SD out of 37) was around 50% and ranged from 27% to 83%. So their knowledge on allergies was not fair. Knowledge questions were sub divided into few parts so it was easy to localize the specific areas where knowledge is strong and weak. Nearly 75% of people knew allergies should be treated promptly. But only 50% was able to identify allergy as a fatal condition. At the same time more than 75% believed allergy has a cure. Some researchers have pointed out the public's knowledge is strong regarding symptoms and severity of food allergy with nearly 95% recognizing food allergy as a potentially fatal condition. (Guptha et al, 2009). In my study no one was able to identify all the allergy specific signs and symptoms correctly. More than 90% of participants selected fever and body pain as allergy specific sign and symptoms. Only 34% identified lowering blood pressure as an allergy specific sign. Itching (90%), raised bumps on the skin (93%), sneezing (46%), wheezing (53%), itching on the tongue (78%), were identified correctly by a considerable percentage of patients. Nearly 25% of participants pointed out raised bumps on the skin after one week of ingestion of allergen can't be due to an allergy but other 75% of them believed that is due to an allergy. So allergy specific signs and symptoms area should be further improved because early identification of

allergy depends on the knowledge on signs and symptoms. Some researchers have pointed out that important misconceptions exist in relation to cure for allergies and food intolerance among general public in US (Guptha et al, 2009). In this study I also have found that nearly 75% of respondents believed that a cure exists for allergies. And nearly 75% of patients said raised bumps on skin after one week of food ingestion which is a feature of food intolerance as a feature of allergies.

Some of the researchers have shown that there are strengths such as identifying peanuts as a major food allergen in childhood. And there are some weaknesses such as overlooking eggs and shell fish as major food allergens in children as well as adults and selecting acidic foods as common food allergen. (Guptha et al, 2009). And I also have found that acidic foods such as pineapple (93%), tomatoes (94%) were identified as major food allergens by most of the participants. The reason for identifying acidic foods such as pineapple and tomatoes as common food allergens may be due to high prevalence rates of those allergies. (Wimalasiri et al, 2013). Egg was identified as a major food allergen by only 15% of patients and shell fish was by 90%. Around 80% of people identified meat as a common food allergen in Sri Lanka. The knowledge on identification of major food allergens was also not in a satisfactory level except fish and shell fish. Major food allergens such as maize (7.5%), soy (14%), milk (23%), fish (70%), tree nuts (48%), were identified. So the knowledge on identifying major food allergens was varied. This variation may be due to the difference in food patterns of Sri Lankans than the people in the West. Some foods such as pork beef and wood apple which are commonly used in Sri Lanka are uncommon in the West. (Daniel, 2011). Even though the rice allergy is very common in Japan (NIAID, 2001); only 2.5% of participants selected rice as a food allergen. This difference probably can be due to difficulty in differentiating which food causes allergy as in Sri Lanka we eat rice with lots of other foods. And the other possibility may be lack of diagnostic tests and knowledge. Only 23% identified milk as a food allergen that may be due to the lack of knowledge on differentiating milk intolerance and milk allergy. (Guptha et al, 2009).

Results showed that knowledge on identifying major drug allergens was considerably low. The commonest cause for anaphylaxis is penicillin but only 46% of patients identified penicillin as a major drug allergen. Aspirin, anticonvulsants and chemotherapeutic agents were identified as drug allergens by 45%, 25%, and 17.5% of participants respectively. Only 11% of patients selected all four drugs given as major drug allergens, 41% of participants failed to identify at least one as an allergen. So the knowledge on identifying major drug allergens was very weak.

The knowledge on treatment methods for allergies as well as its fatal consequence anaphylaxis is really important to prevent mortalities and morbidities due to allergies. Some studies have pointed out that most of the participants have affirmed that having self-injectable adrenaline is important for patients with severe allergy (Guptha et al, 2009). In this study nobody had heard of epinephrine (adrenaline) even though it is lifesaving. Only 15% of patients had heard of histamine blockers such as piriton can be taken to get a relief. So the knowledge on the treatments and use of health care is lacking among Sri Lankan people. The reason for lack of knowledge on adrenaline in Sri Lankan people may be due to unavailability of self-injectable adrenaline pens. (Daniel, 2011). Best preventive method for allergies is strict avoidance of allergen containing food and drugs. (Guptha et al, 2008). The knowledge on preventive methods such as avoidance of allergens was good. 70% of the patients accepted that if they know what are the foods or drugs they are allergic to, they would stop taking that allergen containing food or drug completely.

Most recent findings indicate the knowledge of allergies in people of United States varies significantly among certain groups by sex, annual income, and level of education. At the same time attitudes are well distributed (Guptha et al, 2009). However in my study I have found that there is no any significant difference of knowledge by age, sex, level of education and economic level. Attitudes regarding allergies were positive. More than 80% of participants answered all the attitudes related questions having correct attitudes. More than 95% of patients pointed out that learning about allergies and how to control allergies is important at the same time training programs on allergies should also be implemented. These needs reveal allergies may lower the health perceptions

among families as allergies have a negative impact on their lives. (Voordouw et al, 2010).

V. CONCLUSIONS AND RECOMMENDATIONS

Allergic diseases have become an increasingly important health concern all over the world. Availability of data regarding allergies in Sri Lanka is not adequate. Knowledge on signs and symptoms of allergies was poor. Knowledge on identifying major food and drug allergens and general facts of allergies among hospitalized adults in Teaching Hospital Karapitiya is not in a satisfactory level when compared to the other countries. Knowledge on treatment methods and preventive measures of allergies also found to be lacking among Sri Lankan population. Knowledge on availability of emergency treatments for allergies is low among hospitalized adults in Teaching Hospital Karapitiya. Some important misconceptions can be found related to some areas of allergies such as cure for allergies and signs and symptoms. Most of the participants showed correct attitudes regarding allergies. No difference was observed of knowledge and attitudes on allergies between demographic variables. The prevalence of allergic diseases reported to have increased over the past few years in most of the countries around the world. This may be due to the improvement of the knowledge and education, development of the reporting and documentation and invention of newer diagnostic tools.

VI. RECOMMENDATIONS

In the hospital, using attractive posters, Leaflets and booklets, patients should be educated regarding specific areas of allergies such as allergy specific signs and symptoms, major food and drug allergens and common misconceptions where knowledge was found to be lacking.

Ward teaching sessions can be organized with the help of health education unit, staff member and students.

All the categories of the health care team in Teaching Hospital Karapitiya should be informed about research findings and should be encouraged to do researches in different aspects of allergies. There by we can ask them to come up with effective health education programs which can

address knowledge deficits of the patients effectively.

Awareness and knowledge on anaphylaxis and its emergency management should be improved of all patients and specifically patients who have known allergies.

Progression of educational programs should be evaluated periodically to see the effectiveness.

The assessment instruments which are needed to quantify the socio economic impact of the allergic disease should be developed.

Prevalence of allergic diseases targeting different populations such as children, adolescents, adults and different ethnic groups should be researched. Using a larger sample, prevalence of allergic diseases and their association with the demographic variables should be researched.

A proper reporting and documenting system on allergic diseases should be implemented in the hospital.

VII. LIMITATIONS

I selected patients above 20 years and who can understand Sinhalese or English from medical wards in the Teaching Hospital Karapitiya for my study. And patients who are related to the medical field were excluded.

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