

**“SKIN PRICK TEST IN ALLERGIC DISEASES OF  
CHILDHOOD-A CROSS SECTIONAL STUDY”**

*Dissertation submitted in partial fulfilment  
of the regulations for the award of degree of*

**M.D., DEGREE EXAMINATION  
BRANCH VII PAEDIATRIC MEDICINE  
THE TAMIL NADU DR.M.G.R MEDICAL  
UNIVERSITY  
CHENNAI**



**INSTITUTE OF CHILD HEALTH AND  
HOSPITAL FOR CHILDREN  
MADRAS MEDICAL COLLEGE  
CHENNAI**

**MAY 2018**

## **CERTIFICATE**

This is to certify that the dissertation titled “**SKIN PRICK TEST IN ALLERGIC DISEASES OF CHILDHOOD - A CROSS SECTIONAL STUDY**” submitted by **DR.J.SENTHILKUMAR** to the Faculty of paediatrics, **THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY, CHENNAI** in partial fulfilment of the requirements for the award of **M.D., DEGREE (PAEDIATRICS)** is a bonafide research work carried out by him under our direct supervision and guidance.

**PROF.DR.R.NARAYANABABU    PROF.DR.T.RAVICHANDRAN**

**M.D., DCH,**

The DEAN,

Madras Medical College &

Rajiv Gandhi Govt. Govt Hospital,

Chennai - 600 003.

**M.D., DCH,**

Director & Superintendent,

Institute of Child Health &

Hospital for Children,

Chennai - 600 008.

**PROF.DR.S.ELILARASI, M.D., DCH,**

PROFESSOR & HOD ,

Department Of Paediatric Pulmonology,

Institute Of Child Health &

Hospital For Children,

Chennai -600 008.

## **DECLARATION**

This dissertation entitled “**SKIN PRICK TEST IN ALLERGIC DISEASES OF CHILDHOOD-A CROSS SECTIONAL STUDY**” is a bonafide work done by **Dr J.SENTHILKUMAR** at Institute of Child Health and Hospital for Children, Madras medical college, Chennai during the academic year 2015-2018 under the guidance of **Prof Dr.S.ELILARASI, M.D., DCH**, Professor & HOD, Department of Paediatric Pulmonology, Institute of Child Health and Hospital for Children, Chennai - 600008. This dissertation submitted to The Tamil Nadu Dr.M.G.R. Medical University, Chennai towards partial fulfilment of the rules and regulations for the award of M.D Degree in Paediatrics, Branch (VII).

**Prof. Dr. S.ELILARASI, M.D., DCH,**

Professor and HOD

Department of Paediatric Pulmonology,

Institute of Child Health and

Hospital for Children,

Egmore, Chennai.

## **DECLARATION**

I **DR.J.SENTHILKUMAR** solemnly declare that the dissertation titled **“SKIN PRICK TEST IN ALLERGIC DISEASES OF CHILDHOOD - A CROSS SECTIONAL STUDY”** was done by me under the guidance and supervision of **Prof. Dr.S.ELILARASI, M.D., DCH.**

This is submitted to the Tamilnadu **DR.M.G.R MEDICAL UNIVERSITY**, in partial fulfilment of the rules and regulations for the **M.D DEGREE EXAMINATION IN PAEDIATRICS (Branch VII).**

Place : Chennai

**DR.J.SENTHILKUMAR**

Date :

## **SPECIAL ACKNOWLEDGEMENT**

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Dean, Madras Medical College, for allowing me to do this dissertation, utilizing  
the institutional facilities.

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- I thank all the parents and children who have ungrudgingly lent themselves to undergo this study without whom, this study would not have seen the light of the day.

**INSTITUTIONAL ETHICS COMMITTEE  
MADRAS MEDICAL COLLEGE, CHENNAI 600 003**

EC Reg.No.ECR/270/Inst./TN/2013  
Telephone No.044 25305301A  
Fax: 011 25363970

**CERTIFICATE OF APPROVAL**

To  
Dr.Senthil Kumar.J.  
Post Graduate in MD Paediatrics  
Institute of Child Health and Hospital for Children  
Madras Medical College  
Chennai 600 003

Dear Dr.Senthil Kumar.J.,

The Institutional Ethics Committee has considered your request and approved your study titled **"SKIN PRICK TEST IN ALLERGIC DISEASES OF CHILDHOOD - A CROSS SECTIONAL STUDY' NO. 18082016.**

The following members of Ethics Committee were present in the meeting held on **02.08.2016** conducted at Madras Medical College, Chennai 3

1.Dr.C.Rajendran, MD.,	:Chairperson
2.Dr.M.K.Muralidharan,MS.,M.Ch.,Dean, MMC,Ch-3	:Deputy Chairperson
3.Prof.Sudha Seshayyan,MD., Vice Principal,MMC,Ch-3	: Member Secretary
4.Prof.B.Vasanthi,MD., Prof.of Pharmacology.,MMC,Ch-3	: Member
5.Prof.P.Raghumani,MS, Prof. of Surgery,RGGGH,Ch-3	: Member
6.Prof.R.Padmavathy,MD,Director, Inst.of Path,MMC,Ch-3	: Member
7.Prof.S.Tito, MD, Director,Inst.of Int.Med.,MMC,Ch-3	: Member
8.Tmt.J.Rajalakshmi, JAO,MMC, Ch-3	: Lay Person
9.Thiru S.Govindasamy, BA.,BL,High Court,Chennai	: Lawyer
10.Tmt.Arnold Saulina, MA.,MSW.,	:Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

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## **ABBREVIATIONS**

Ig	-	Immuno Globulin
NSAIDS	-	Non Steroidal Anti Inflammatory Drugs
IL	-	Inter Leukin
TNF $\alpha$	-	Tumor Necrosis Factor $\alpha$
MDI	-	Metered Dose Inhaler
IV	-	Intra venous
RAST	-	Rapid Allergo Sorbent Test
PAF	-	Platelet Activating Factor
LTRA	-	Leukotriene Receptor Antagonist

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# INTRODUCTION

The concept “allergy” was originally introduced in 1906 by the, Viennese Paediatrician Clemens Von Pirquet after he noted that some of his patients were hypersensitive to normally innocuous entities such as dust, pollen, or certain foods. Pirquet called this phenomenon “allergy” from the Greek words *allos* meaning “other” and *ergon* meaning “work”. Historically, all forms of hypersensitivity were classified as allergies, and all were thought to be caused by an improper activation of the immune system. Later, it became clear that several different disease mechanisms were implicated, with the common link to a disordered activation of the immune system. In 1963, a new classification scheme was designed by Philip Gell and Robin Coomb that described four types of hyper sensitivity reactions known as Type I to Type IV hypersensitivity. With this new classification, the word “allergy” was restricted to only type I hypersensitivities (also called immediate hypersensitivity), which are characterized as rapidly developing reactions.

Hypersensitivity reactions having four types.

1. Type I hypersensitivity (Anaphylactic, IgE or reagin dependent) - Antigen combines with cytotropic IgE antibodies which are fixed on surface of tissue cells and products the clinical reactions.

Clinical syndrome mediated by type I hypersensitivity are anaphylaxis and atopy.

2. Type II hypersensitivity (Cytotoxic or Cell stimulating) - These reactions are intermediate between hypersensitivity and autoimmunity. Cytotoxic IgG or IgM antibodies that mediate cell / tissue damage occurs in the presence of complement or mononuclear cells or cell stimulation in some situations (called as Type V hypersensitivity sometimes) when combined with antigen.

Clinical syndrome mediated by type II hypersensitivity are antibody mediated by damage - thrombocytopenia - agranulocytosis, haemolytic anaemia, etc.

3. Type III hypersensitivity (Immune complex or toxic complex disease) - Antigen antibody complexes causing damage to small blood vessels / membranes / cells and interfering their function.

Clinical syndrome mediated by type III hypersensitivity are Arthus reaction or Serum sickness.

4. Type IV hypersensitivity (Delayed or cell mediated hypersensitivity) - CD4 and CD8 T cells activated by T cells, secretes lymphokines with fluid and phagocyte accumulation.

Clinical syndrome mediated by type IV hypersensitivity are Tuberculin and contact dermatitis.

A major breakthrough in understanding the mechanisms of allergy was the discovery of the antibody class labelled immunoglobulin (IgE) Kimishige Ishizaka and co-workers were the first to isolate and describe IgE.

Allergic diseases are increasing in prevalence nowadays worldwide, particularly in low and middle-income countries. Allergic diseases include food allergies, certain forms of asthma, rhinitis, conjunctivitis, atopic dermatitis (urticaria), indoor / insect allergies.

According to World Health Organization (WHO), 300 million people suffered from asthma, 200 to 250 million people suffered from food allergies, one tenth of the population suffers from drug allergies and 400 million from rhinitis worldwide.

Asthma causes 250,000 deaths annually and the number of patients having asthma is expected to increase from 300 to 400 million, by 2025, according to the World Health Organization (WHO).

## **ALLERGY**

### **DEFINITION:**

Type I (immediate) hypersensitivity of the immune system to environmental antigens.

### **ETIOLOGY:**

Common paediatric diseases mediated by allergy are induced by variety of allergen triggers. These triggers cause allergic responses through IgE antibodies, which are specific for the particular trigger.

### **RISK FACTORS:**

#### **1. Host Factors:**

- Heredity
- sex

- race
- age

## **2. Environmental Factors:**

### **A. Exposure to Aero Allergens:**

#### **I. Environmental Allergens**

- Cigarette smoke
- Bio fuel
- Auto mobile smoke
- Dust
  - i. Cotton
  - ii. Paper
- Pollens
  - i. Grasses Pollen
  - ii. Tree Pollen
  - iii. Weed Pollen
  - iv. Flower Pollen
  - v. Cereal Pollen

#### **II. Indoor Allergens**

- Cockroach
- Moulds
  - i. Aspergillus Fumigatus
  - ii. Aspergillus Flavus



- iii. *Aspergillus Niger*
- iv. *Aspergillus Versicolor*
- v. *Candida Albicans*
- vi. *Rhizopus Nigricans*
- vii. *Penicillium Notatum*
- Mite
  - i. *Dermatophytes Farinae*
  - ii. *Dermatophytes Pteronyssinus*
  - iii. *Blomia tropicalis*
  - iv. *Acarus siro*
  - v. *Lepidoglyphus destructor*
  - vi. *Tyrophagus putrescentiae*
- Insects / Venom
  - i. House fly
  - ii. Moth
  - iii. Mosquito
  - iv. Red Ant
  - v. Fire Ant
  - vi. Honey Bee
  - vii. Yellow Wasp
  - viii. Red Wasp
  - ix. Pigeon feathers
  - x. pigeon droppings

## **B. Exposure to Pet Allergens:**

- Cat
- Dog
- Horse
- Mouse
- Cow

## **3. Dietary Factors:**

### **A. Exposure to Food Allergens**

- Milk
- Apple
- Hen's Egg
- Wheat
- Chicken
- Nuts
- Banana
- Brinjal

## **4. Medical Factors:**

### **A. Exposure to Drug Allergens**

- Penicillin
- Aspirin
- Sulfa Drugs

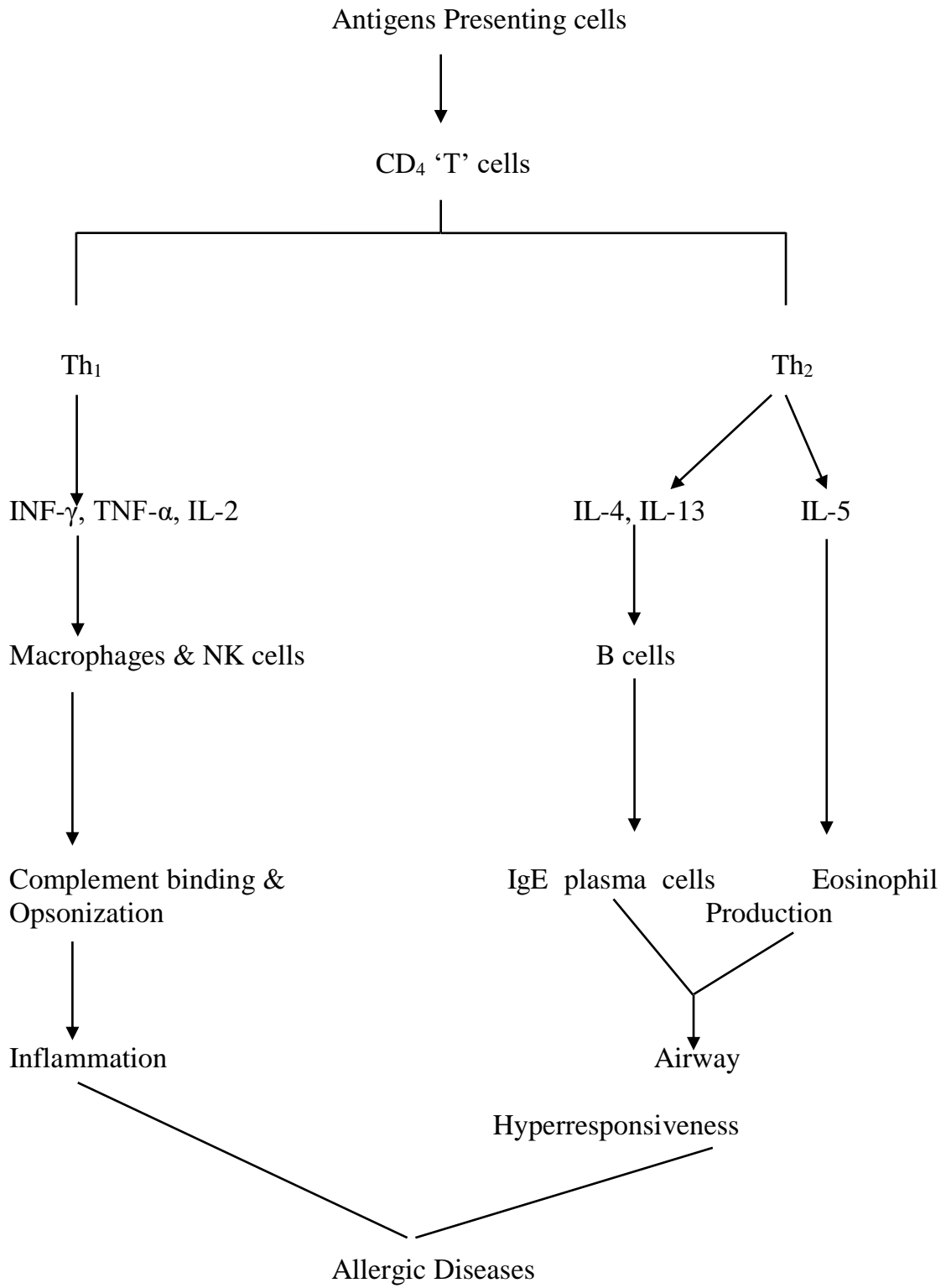
- Chemotherapy Drugs
- Anti-HIV Drugs
- Insulin
- Muscle relaxants
- NSAIDs

### **PATHOPHYSIOLOGY:**

Allergic response mediated mainly through CD<sub>4</sub> 'T' helper cells. Native 'T' cells recognize antigens (either allergens or infections) through the Antigen Presenting cells.

Depending on the nature of antigen, native 'T' cells differentiate in to Th<sub>1</sub> or Th<sub>2</sub> cells. IFN- $\gamma$  secreted by Th<sub>1</sub> cells while IL-4, IL-5, IL-13 secreted by Th<sub>2</sub> cells.

Th<sub>1</sub> response- Activation of macrophages and natural killer cells through production of TNF- $\alpha$  and IL-2. Cytokines play a role in complement binding and opsonization.



Th<sub>2</sub> response- IL-4, IL-13 acts on 'B' lymphocytes to differentiate into IgE producing plasma cells. IL-5 plays a role in eosinophil production and resistance to apoptosis.

### **DISEASES MEDIATED BY ALLERGY:**

Following are some important diseases mediated by allergy.

- Asthma
- Allergic Rhinitis
- Atopic Dermatitis
- Allergic Conjunctivitis

Among all allergic diseases, Asthma is the main concern in paediatric population, particularly in India.

#### **A. ASTHMA: -**

Chronic inflammatory disorder associated with airway hyper responsiveness, causes

- Recurrent episodes of wheezing
- Difficulty in breathing
- Cough which was more in late night and early morning

Asthma is characterized by reversible air flow obstruction, bronchospasm.

Allergic Asthma is a heterogenous disease with interplay between genetic and environmental factors. Episodes of asthma, mainly due to airway obstruction.

### **CLASSIFICATION: -**

Asthma is classified by three ways.

1. Clinical Classification
2. Etiological Classification
3. Classification in exacerbation

#### **1. CLINICAL CLASSIFICATION: -**

Classified into

- Intermittent
- Mild persistent
- Moderate persistent
- Severe persistent

based on frequency of symptoms, nocturnal symptoms, SABA use.

#### **2. ETIOLOGICAL CLASSIFICATION: -**

Classified into

- Atopic

Atopy consists of eczema, allergic rhinitis and asthma. History of atopy is the strongest risk factor for asthma.

➤ Non-Atopic

Have normal serum IgE and negative skin prick test. More commonly affects female. Starts in later part of the life. No specific treatment available.

**3. EXACERBATION CLASSIFICATION: -**

Based on severity of exacerbation, classified into

- Moderate
- Acute severe asthma
- Life threatening asthma
- Near fatal asthma

**MODERATE: -**

- ❖ Alert child
- ❖ Tachypnoea
- ❖ Increased work of breathing
- ❖ Wheeze
- ❖ Normal heart rate
- ❖ Normal perfusion
- ❖ SpO<sub>2</sub>-100%.

**ACUTE SEVERE ASTHMA: -**

- ❖ Alert child
- ❖ Tachypnoea
- ❖ Increased work of breathing
- ❖ Presence or absence of wheeze

- ❖ Tachycardia
- ❖ Normal perfusion
- ❖  $SpO_2 \leq 92\%$ .

**LIFE THREATENING ASTHMA: -**

- ❖ Hyper alert child
- ❖ Tachypnoea
- ❖ Abdominal respiration
- ❖ Absent wheeze
- ❖ Tachycardia
- ❖ Normal or abnormal perfusion
- ❖  $SpO_2 \leq 92\%$ .

**NEAR FATAL ASTHMA: -**

- ❖ Pain responsive or unresponsive child
- ❖ Bradypnea
- ❖ Grunting
- ❖ Silent chest
- ❖ Decreased work of breathing
- ❖ Tachycardia
- ❖ Poor perfusion
- ❖  $SpO_2 \leq 92\%$ .

**MINOR TYPES OF ASTHMA: -**

- a. Aspirin Induced
- b. Alcohol Induced



c. Occupational Induced

**a. ASPIRIN INDUCED: -**

Responsible for 9% of people who is having asthma.

**b. ALCOHOL INDUCED: -**

In Japanese and those with Asthma Induced by Aspirin, Alcohol may worsen asthma further.

**c. OCCUPATIONAL INDUCED: -**

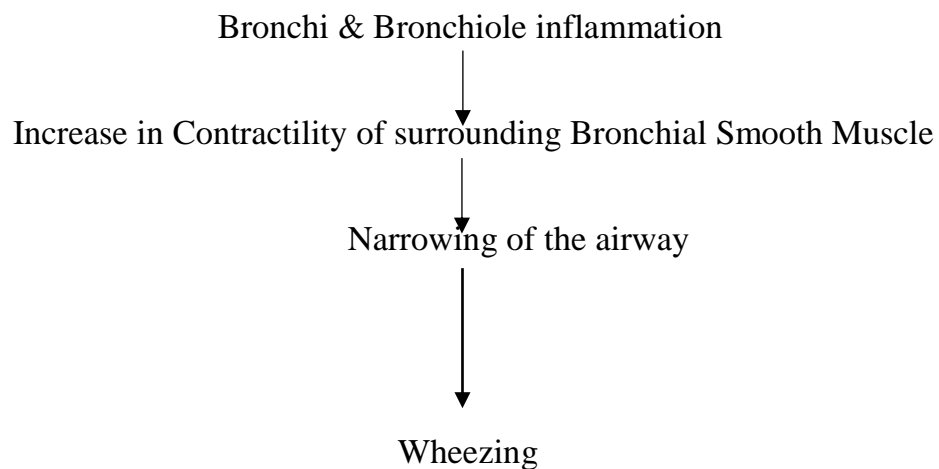
Nurses, Chemical workers, Hairdressers, Timber workers have highest risk of problems. Most common agents implicated is isocyanates, Latex, animals and aldehydes.

**CAUSES: -**

Less than 12 years —————> Due to Genetic Influence

More than 12 years —————> Due to Environmental  
Influence

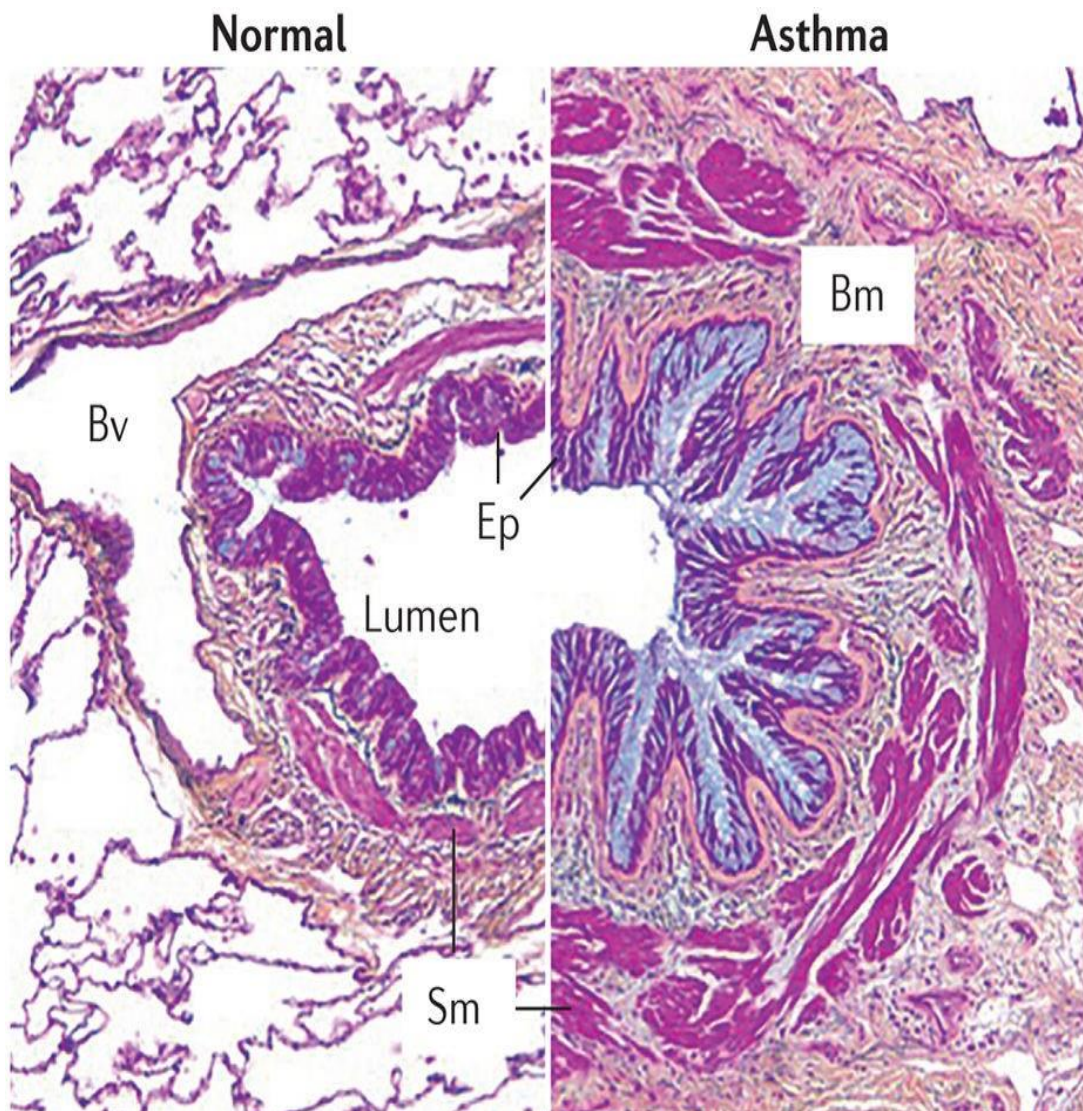
**PATHOPHYSIOLOGY: -**



Diagnosed mainly by clinically, and by some investigations like spirometry (FEV<sub>1</sub>, PEF<sub>R</sub>).

**HISTOPATHOLOGY: -**

An increase in Neutrophils and thickening of the lamina reticularis, Goblet cell hyperplasia, Bronchiolar obstruction by mucoid exudate.



**GENETIC INFLUENCE: -**

Specific single nucleotide polymorphism in the CD14 region and exposure to Endotoxin.

**ENVIRONMENTAL INFLUENCE: -**

- Aero allergens
- Air pollutions
- Environmental chemicals
- Smoking during pregnancy
- Low Air Quality
- Exposure to Indoor

**MEDICATION INFLUENCE: -**

- Cardio selective - Beta Blockers
- Angiotensin converting enzyme Inhibitors
- Aspirin
- NSAIDS

**ASSOCIATED CONDITION: -**

- Gastro-oesophageal reflux disease (GERD)
- Rhinosinusitis
- Obstructive Sleep Apnoea
- Anxiety Disorders

**DIFFERENTIAL DIAGNOSIS: -**

- Bronchiolitis
- Foreign body aspiration

- Tracheal Stenosis
- Vascular Rings
- Laryngo tracheomalacia
- COPD
- Congestive Heart Failure

### **TREATMENT OF ASTHMA: -**

Treatment mainly consists of

1. Bronchodilators (SABA / LABA)
2. Anti-leukotrienes
3. Steroids (Oral / Inhaled)
4. Anticholinergics
5. Mast Cell stabilizers

Asthma is treated by dividing into two main categories.

A. Depends on duration of symptoms

1. Fast Acting: -

For controlling Acute symptoms.

- Short acting beta<sub>2</sub> - adrenoceptor agonists (SABA)-  
Salbutamol
- Anticholinergics such as Ipratropium Bromide
- Inhaled epinephrine

2. Long Acting

For long term control

- Inhaled beclomethasone
- Long acting beta<sub>2</sub> - adrenoceptor agonists (LABA) - Salmeterol and Formoterol
- Leukotriene receptor antagonists (Montelukast and Zafirlukast)
- Mast Cell stabilizers (Cromolyn Sodium)

## B. For exacerbation

### 1. Moderate Asthma

- Oral Steroids
- MDI + spacer every 2 minutes up to 10 puff based on response.

### 2. Acute Severe Asthma

- 100% O<sub>2</sub>
- Salbutamol nebulization 2.5mg over 20 minutes X 3 times with O<sub>2</sub>
- T. Prednisolone (10mg < 2 year, 20mg-2 to 5 years, 30 to 40mg > 5 year)

### 3. Life Threatening Asthma

- 100% O<sub>2</sub>
- Treatment of shock
- Salbutamol nebulization + Ipratropium Bromide nebulization every 20 minutes until improvement

- IV Hydrocortisone (4mg per kg < 2year, 50mg - 2 to 5 year, 100mg > 5 year)
- If improvement continues Salbutamol & Ipratropium Bromide nebulization
- If no Improvement treat like near fatal asthma

#### 4. Near Fatal Asthma

- If Fighting the mask, Agitation, Combativeness, Exhaustion, Diaphoresis, Head bobbing, RR > 80 / min - Intubation
- If child apnoeic -Position airway and ventilate
- If in respiratory failure Salbutamol & Ipratropium Bromide nebulization with O<sub>2</sub>
- Treat shock
- Inj. Adrenaline 0.1 ml / kg SC 1:10000 X 3 doses every 20 minutes
- Inj. Hydrocortisone stat
- Inj. Magnesium Sulphate (0.1 ml / kg 50%) IV bolus over half an hour; maximum 2 g
- If no improvement, Inj. Aminophylline 5mg / kg loading dose followed by 1mg / kg / hr
- If no improvement, Shift to ICU

- If no improvement, Inj. Terbutaline 3-6 $\mu$ g / kg IV over one hour followed by infusion 0.1-0.4  $\mu$ g / kg / minute with cardiac monitoring

## **B. ALLERGIC RHINITIS: -**

- ❖ Otherwise called as “**Hay Fever**”
- ❖ Type of Inflammation of the nose

### **INCIDENCE: -**

- ❖ 10 - 30% of People are affected per year in western countries.
- ❖ Ages between 20-40 is most commonly affected

### **ETIOLOGY: -**

- ❖ Pollens of specific seasonal plants (causes hay fever)
- ❖ Tree pollens
- ❖ grasses
- ❖ Weeds

### **CLASSIFICATION: -**

- ❖ Based on timings
  - Seasonal - During particular seasons; develops more than 6 years of age.
  - Perennial - Throughout the year; seen in younger children.
- ❖ Based on severity
  - Mild intermittent
  - Moderate to severe intermittent
  - Mild persistent

➤ Moderate to severe persistent

Intermittent - symptoms less than 4 days / week or less than 4 consecutive weeks.

Persistent - symptoms more than 4 days / week or more than 4 consecutive weeks.

Mild - normal sleep, daily activities or daily work not limited, no absence of school.

Severe - disturb sleep, daily activity and work limitation, absence of school.

**PATHOPHYSIOLOGY: -**

IgE antibodies coated to the allergen / antigen.



Inflammatory Chemical release from Mast cells

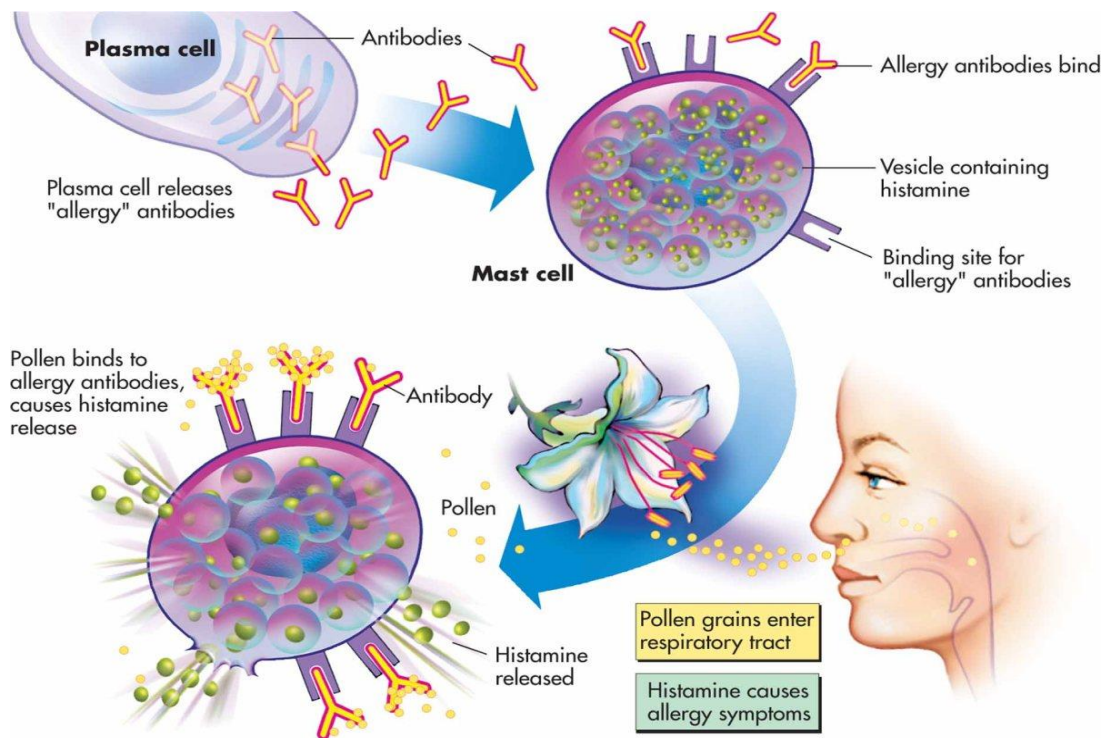


Inflammation of nose



Signs and symptoms of Allergic Rhinitis





### CLINICAL FEATURES: -

- Watery nasal discharge
- Sneezing
- Itch nose
- Stuffy nose
- Conjunctival swelling
- Lower eyelid venous stasis (Allergic shiners)
- Crease running across the nose (Transverse nasal crease)

### DIAGNOSIS: -

- Diagnosed mainly by clinically
- Skin prick test
- Patch test
- RAST blood test

- Peripheral eosinophilia
- If skin prick test and blood test negative - Local allergic rhinitis (25% people of rhinitis had local allergic rhinitis)

**TREATMENT: -**

❖ Antihistamines

- Azelastine antihistamine nasal spray
- Diphenhydramine
- Cetirizine and loratadine

❖ Steroids

- Intranasal corticosteroids (nasal spray) are the mainstay of treatment
- Betamethasone spray
- Systemic steroids (Prednisone)

❖ Other

- Decongestants
- Cromolyn
- Leukotriene receptor antagonists
- Antihistamine nasal spray

❖ Allergen Immunotherapy

- Desensitization

**C. ATOPIC DERMATITIS: -**

- Typically begins in childhood.
- Mostly presents in Infantile period.

- It is the most common form of Eczema.
- Symptoms are dry and scaly skin, redness, itching, cracks behind ears, rashes on cheeks, arms and legs.

Eczema	Atopic dermatitis
Nonspecific term	Medical syndrome
Include allergic, contact, irritant and nummular eczema	As a part of atopy with allergic rhinitis and asthma

No known cure for atopic dermatitis. To reduce severity:

- Topical corticosteroids & Topical calcineurin inhibitors
- Systemic immunosuppressants
- Antidepressants and naltrexone
- UV light phototherapy
- Moisturisers
- Vitamin D supplements

One of the diagnostic criteria in UK, as follows:

People most have **itchy skin**, or evidence of rubbing or scratching, plus 3 or more of the following:

<p>Skin creases are involved (flexural dermatitis of fronts of ankles, antecubital fossae, popliteal fossae, skin around eyes, or neck, or cheeks for children under 10 years).</p>
<p>History of asthma or allergic rhinitis (or family history of these conditions, if patient is child <math>\leq 4</math> years).</p>
<p>Symptoms began before age 2 (can only be applied to patients <math>\geq 4</math> years).</p>
<p>History of Dry skin (within the past year).</p>
<p>Dermatitis is visible on the flexural surfaces (patients <math>\geq 4</math> years) or on the cheeks, forehead, &amp; extensor surfaces (patients <math>\leq 4</math> years).</p>

#### **D. ALLERGIC CONJUNCTIVITIS: -**

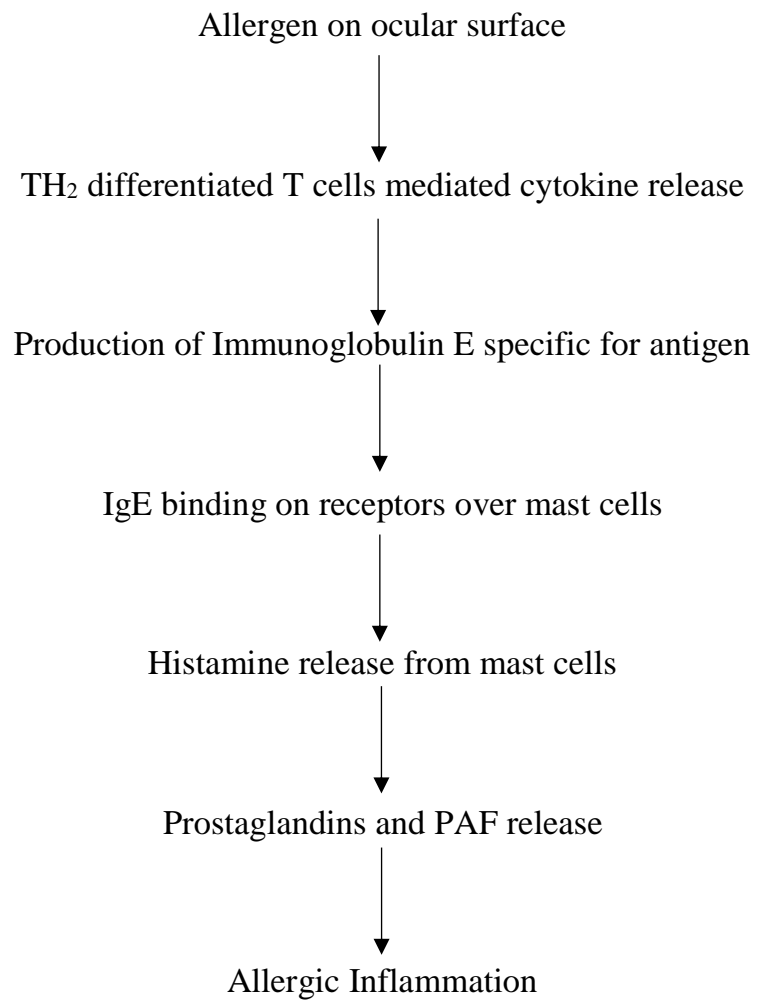
##### **DEFINITION: -**

Inflammation of the membrane covering the white part of the eye, due to allergy.

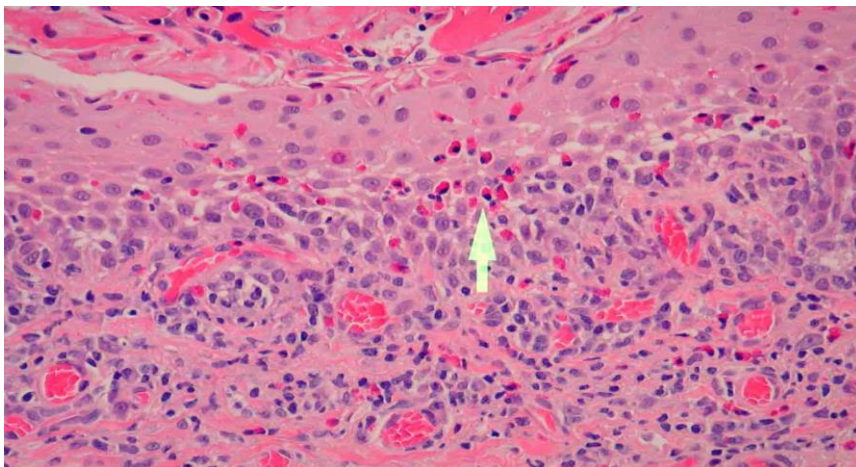
##### **CAUSES: -**

- ❖ Pollens
- ❖ Skin and salivary secretions
- ❖ Cosmetics, perfumes
- ❖ Smoke and Air pollution

**PATHOPHYSIOLOGY: -**



**HISTOPATHOLOGY: -**



### **CLINICAL FEATURES: -**

- Redness
- Oedema of the conjunctiva
- Itching
- Increased lacrimation

### **DIAGNOSIS: -**

- Diagnostic tests such as conjunctival scrapings can be helpful.

### **TREATMENT: -**

- Antihistamines
- Steroids
- Mast cell stabilizers
- Allergen Immunotherapy.

### **DIAGNOSIS OF ALLERGY: -**

Allergy can be diagnosed by one of the following tests:

- Skin tests
  - Skin Prick Test
  - Histamine Release Test
  - Atopic Patch Test
- Serum Test
  - Radio Sorbent Test

### **Public Importance of Allergy Testing: -**

- Early identification of infants at increased risk for later development of Allergic diseases.
- Detection of allergen susceptibility is important for the management of the allergic diseases.
- Useful for Specific allergy treatment by the following ways:
  - Specific allergen avoidance measures
  - Relevant pharmacotherapy
  - Specific allergy vaccination

### **Who should be tested for allergy?**

- Severe, persisting or recurrent possible “allergic symptoms”.
- Individuals with need for continuous prophylactic treatment should be tested for specific allergy irrespective of the age of the child.

### **EXTENT OF ALLERGY TEST: -**

- Depend on the age of the child.
- Positive family history
- Character of the symptomatology including possible seasonal or diurnal variations.

## **ELEMENTS OF ALLERGY TESTING: -**

- Case History
- Determination of IgE sensitization
  - Skin Test
  - Total and Specific IgE in serum
- Allergen challengers
  - Food allergy
  - Inhalant allergy
- Other tests
- Environmental investigation

## **CASE HISTORY:**

Following questionnaires should be noted in clinical history.

- History of frequency
- History of Severity
- History of heredity
- History of exposure to pets and tobacco smoke
- History of environmental factors (Housing Conditions, School and leisure time environment)
  - History of precipitating factors

## **SKIN TEST:**

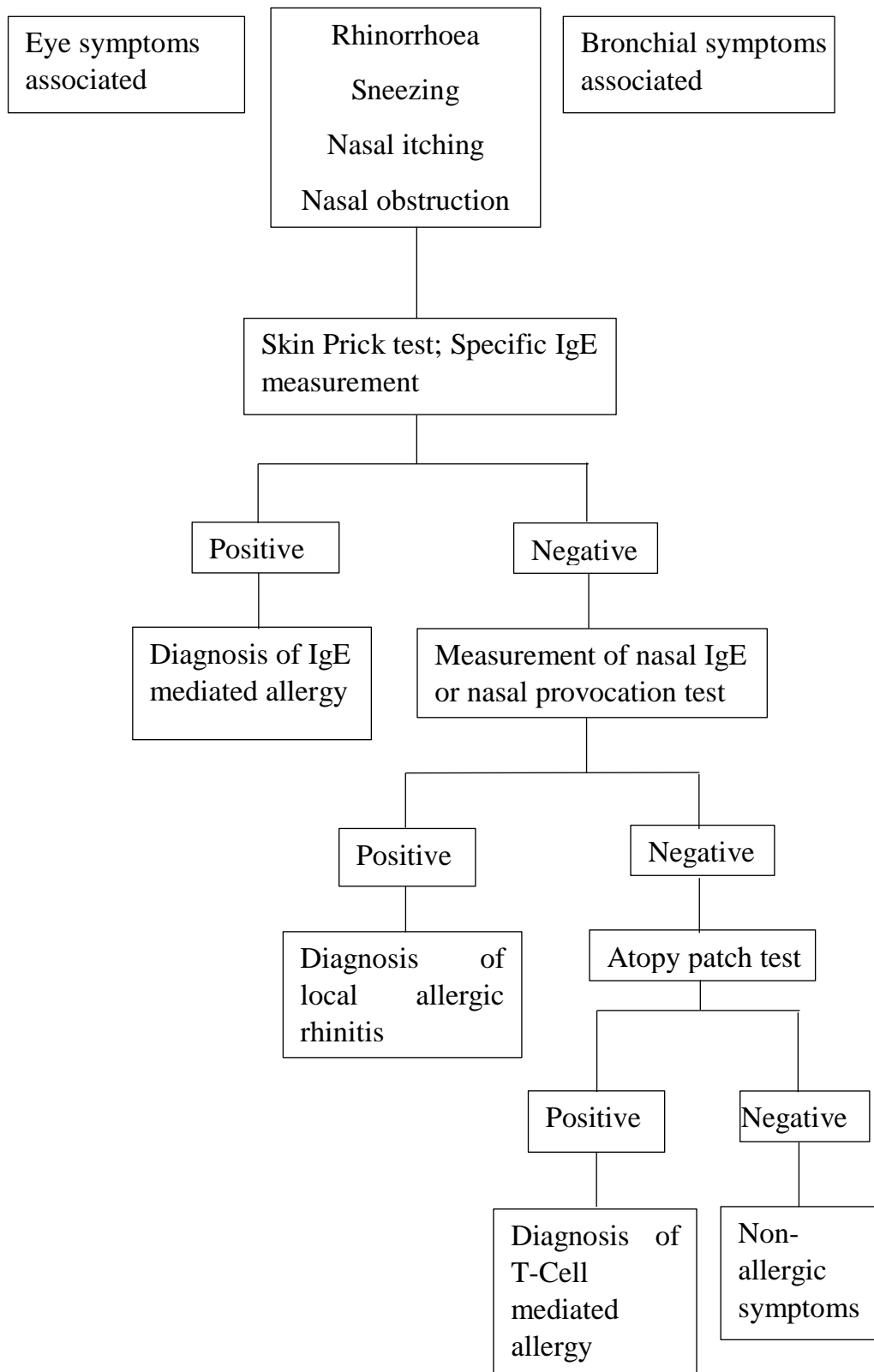
- Skin test reactivity depends on at least three separate factors.



1. An intact immune system.
2. The presence of IgE sensitized mast cells that release mediators, when exposed to antigen.
3. Skin that can respond to histamine with the development of inflammatory response including erythema and induration.

#### **TYPES OF SKIN TESTS:**

- I. Skin prick test
- II. Histamine Release test
- III. Atopy Patch test
  - Each test has their unique mechanism of action, advantages and disadvantages.
  - Indications and contraindications are also unique for each test (for example Atopy patch test is designed to deduced type IV Hyper sensitivity, which is specific for atopic dermatitis).



## **I. SKIN PRICK TEST:**

- For assessing the presence of allergen specific IgE antibodies skin prick testing is preferred because of more sensitivity and its high specificity.
- Typically used by allergen specialists, is a good mean of detecting antibodies.
- All patients were advised to stop the use of antihistamines and corticosteroids 5 - 6 days prior to testing.
- No lower age limit for performing skin prick test nowadays.
- Number of children sensitized increases with the potency of the extract and the pressure applied to the lancet.
- Panel of allergens for skin prick test will depend on the age of the child and the case history.

## **II. HISTAMINE RELEASE TEST**

- This test measures the histamine release from basophil granulocytes.
- Histamine release test is more complicated for daily clinical practice.
- May be a helpful tool in certain cases. example: Testing for infrequent allergies, drug allergies etc...

## **III. ATOPIC PATCH TEST**

- Useful in delayed hypersensitivity (like Contact dermatitis).

## **SERUM TESTS: -**

### **I. TOTAL IgE**

- In children, a normal / low total IgE does not rule out specific allergy.

- Although used in epidemiological studies, it has limited value in diagnosis of atopic diseases.

## **II. SPECIFIC IgE**

- Can be performed at any age
- Quantitative specific IgE tests have a high reliability (positive tests show the presence of IgE, specific for allergen tested).
- Specific IgE reveals sensitization to suspected allergen, and is a useful aid in allergy diagnosis. Since only those sensitized can develop IgE antibodies to allergic diseases.

### **TEST SELECTION: -**

- Serum IgE test and Skin Prick Test (SPT) are sensitive and have similar diagnostic properties.
- Tests might be selected to identify triggers from number of potential common allergens, for confirming a specific trigger.

### **ADVANTAGES OF SKIN PRICK TEST: -**

- Immediate results visible to the patient.
- simple to use, less expensive and without any complications.

### **DISADVANTAGES OF SKIN PRICK TEST: -**

- Need to withheld medications with antihistamine properties for minimum three days.

- Could not be performed in case of active eczema on the test site (Volar side of the forearm).

#### **CONTRAINDICATIONS OF SKIN PRICK TEST:**

- A diffuse dermatological condition is present. Testing must be performed on normal healthy skin.
- Severe dermatographism is present.
- Patient cooperation is poor.
- The patient is unable to stop using drugs that may interfere with the test result.

#### **CONDITIONS-SKIN PRICK TEST INADVISABLE: -**

- Persistent severe or unstable asthma is present.
- There is a severe initial reaction (anaphylaxis).
- The patient is taking certain types of drugs:
  - Antihistamines, tricyclic antidepressants, some antinauseants, and topical steroids (but not oral steroids) can interfere with results.
  - $\beta$ -blockers and angiotensin-converting enzyme inhibitors should be used with caution.

#### **ADVANTAGES OF SERUM IgE TEST: -**

- Lack of interference from antihistamines or extensive dermatitis.

### **DISADVANTAGE OF SERUM IgE TEST: -**

- Need to obtain blood samples.
- Delayed results and high cost.

### **INTERPRETATION OF TESTS: -**

- Detection of sensitization to an allergen is not equivalent to clinical diagnosis.
- Similarly, caution is advised when testing is negative, despite a convincing history.
- Many children with positive tests have no clinical illness, when exposed to allergens.
- Testing large panels of allergens without consideration of the history, geographic relevance, and disease characteristics may result in clinically irrelevant positive results.
- Patients should be told their 'allergic' based solely on either skin tests (or) the identification of IgE.
- Consideration of medical history increases diagnosis value.

### **MANAGEMENT OF ALLERGY: -**

#### **ALLERGEN AVOIDANCE**

- Avoiding exposure to relevant allergens is a logical way to treat allergic diseases, e.g. allergic asthma when the offending allergen can be identified and effective avoidance is feasible.

- Allergen avoidance in a mountain environment improves lung function and normalizes markers of allergic inflammation in children with asthma.
- Controlled randomized studies have shown that allergen (especially house dust mite allergens) avoidance measures are effective both in reducing the level of allergens and improvement of disease control, e.g. by reducing the need of pharmacotherapy.
- Complete avoidance of pet allergens is impossible as the allergens are ubiquitous and can be found in many environments outside the home.
- Removal of such animals from the home is important. In pet, allergic patients who persist in keeping their pets, exposure-reduction measures may be considered. However, the clinical effectiveness of these measures remains unproven and there are many conflicting data on this subject.

### **RELEVANT PHARMACOTHERAPY**

- A specific allergy diagnosis is also a prerequisite for instituting the correct antiallergic treatment, e.g. in case of allergic rhinitis and conjunctivitis, allergic skin reactions, other specific allergic symptoms.

### **ALLERGEN IMMUNOTHERAPY / ALLERGY VACCINE THERAPY**

- Allergen immunotherapy (also called allergy vaccine therapy) involves the administration of gradually increasing quantities of specific allergens to patients with IgE-mediated conditions until a dose is reached that is effective in reducing disease severity from natural exposure.
- The major objectives of allergen immunotherapy are to reduce responses to allergic triggers that precipitate symptoms in the short term and to

decrease inflammatory response and prevent development of persistent disease in the long term.

- Allergen immunotherapy is safe. An observation period of 20–30 min after injection is mandatory. Desensitization or hypo sensitization is a treatment in which the patient is gradually vaccinated with progressively larger doses of the allergen in question.
- This can either reduce the severity or eliminate hypersensitivity altogether. It relies on the progressive skewing of IgG antibody production, to block excessive IgE production seen in atopy. In a sense, the person builds up immunity to increasing amounts of the allergen in question.
- Specific immunotherapy has been demonstrated in many studies to be an effective treatment for patients with allergic rhinitis and conjunctivitis.
- Meta-analyses show that the use of allergy vaccines can reduce asthma symptoms compared with placebo.
- There is an early clinical improvement, marked reduced skin and shock organ reactivity.
- Early immunological events are e.g. an IL-10 increase with T-cell anergy and reduced specific basophil histamine release.
- The main immunological long-term effect is a switch of allergen induced cytokine profile from TH2 to a TH1-like pattern. Allergy vaccination is a potential early intervention strategy.



- Allergy vaccinations with subcutaneous injections have been shown to be effective in allergic asthma in randomized controlled trials with extracts of house dust mites, pollen, and animal dander (cat).
- A significant reduction in asthma symptoms and medication and a reduction in both non-specific as well as allergen specific airway hyperresponsiveness have been documented.
- A recent study found that 3 years of pollen allergen vaccine treatment in children with pure seasonal allergic rhinitis resulted in significantly less children subsequently developing asthma than in an untreated parallel control group and allergy vaccination may prevent the onset of new sensitizations.
- When using documented high doses sublingual - swallow immunotherapy has been shown to be efficacious in some double-blind, placebo-controlled studies in patients with allergic rhinitis due to birch pollen, grass pollen, parietaria pollen and house dust mites.
- In one study sublingual-swallow immunotherapy was found to be slightly less effective than subcutaneous specific immunotherapy.

**PREVENTIVE MEASURES FOR ALLERGY: -**

To prevent allergic diseases for Government & Health care policy makers World Allergy Organization (WAO), “Declaration of Recommendation” has given:

1. Epidemiological studies needed globally to assess the burden of diseases mediated by allergy.

2. Measures to control trigger from environment, reduction of smoking like risk factors, outdoor pollutants to be implemented.
3. Personnel should be adequately trained to diagnostic & treat diseases mediated by allergy and availability of such personnel with adequate drugs to be increased.
4. Capacity building need to be increased by bridging the gap in knowledge between allergic diseases and asthma.
5. Expertise management is treating the diseases mediated by allergy.
6. Public awareness should be increased and strategies for prevention should be made innovatively, by good efforts.

## REVIEW OF LITERATURE

- (1) A study done by **Roohi Rasool et al<sup>1</sup>** in January 2007 to March 2011 at Sher-i-Kashmir Institution of Medical Science, Srinagar, Kashmir, India.

The Primary Objective is to identify the various aero allergens by skin prick test that give rise to allergic asthma, allergic rhinitis, and urticaria in Kashmiri population.

The Secondary Objective is to look for effectiveness of allergen immunotherapy given to skin prick test positive allergic diseases.

This is a Prospective study which included 400 patients with allergic diseases, attended Department of Immunology and Molecular medicine. Age of patients ranged from 6 to 65 years, were included in the study.

The diagnosis based on clinical history and physical examination, with history of allergy induced diseases were included. Patients with similar symptoms, but with nonallergic causes were excluded.

In this study, majority of the patients were in the age group of 20 to 30 years (72%) with male to female ratio of 1:1.5. Of the 400 patients, 248 (62%) had urticaria, 108 (27%) had allergic rhinitis and 44 (11%) patients had asthma. Skin prick test reaction was positive in 38 (86.4%) with allergic asthma, 74 (68.5%) patients with allergic rhinitis and 4 (1.6%) patients with urticaria respectively. The commonest allergen was pollen (52%) followed by house dust mite (44%), cotton, grain and paper (2%), (1%) patients to cockroach and (0.5%) to fungi.

The conclusion of the study was identifiable aero allergen could be detected in 86.4% allergic asthma and 68.5% allergic rhinitis patients by skin prick test alone. Pollens were the most prevalent causative allergen. There was significant relief in the severity of symptoms, medication intake with the help of allergen immunotherapy.

- (2) This study was conducted by **R.Prasad et al<sup>4</sup>** from August 2004 to September 2005 at Department of Pulmonary Medicine, King George's Medical University, Lucknow, India.

The objective of the study is, to study skin sensitivity to various allergens in patients of nasobronchial allergy.

This is a Retrospective study with 60 allergens were performed in 48 patients of nasobronchial allergy, by 2880 skin prick tests. Out of 48 patients, 28 were males and 20 were females. All the patients were between 12 to 45 years of age 5 patients have negative skin prick tests.

In the study 12% of patients of nasobronchial allergy showed marked by positive skin reaction to various dusts. Most common dusts were house dust (25%), followed by wheat dust (12.5%), Cotton dust (6.3%), and paper dust (4.2%).

The conclusion of this study is, common allergens is patients of nasobronchial allergy were identified. It may prove useful in allergen avoidance and immunotherapy in these patients.

- (3) This study was done by **Saibal Moitra et al<sup>5</sup>** is selected patients of nasobronchial allergy (allergic Rhinitis) among patients attending Allergy

& Asthma Clinic at Calcutta School of Tropical Medicine, Kolkata, India in the raining season of 2013.

The objective of this study is to study the skin sensitivity to various allergens by skin prick test.

This is a cross sectional study conducted in 102 participants with nasobronchial allergy among patients attending Allergy & Asthma Clinic at Calcutta School of Tropical Medicine, Kolkata, India.

In this study, majority of patients were within age group of 5-65 years. Among patients with positive for skin prick test seasonal pattern was seen in 67.647%, perennial pattern in 32.36%. 40.19% had positive family history of allergy. Among patients 86.27% with rhinitis and 13.72% were both having allergic rhinitis and asthma. Male: Female ratio was 1:1.6.

Overall the most common allergen found was house dust (86.27%). The second most common allergen was *Azadirachta indica* (55.68%) followed by *Peltophorum pterocarpum* (44.11%). The most skin prick test positive patients were reactive to two or more allergens.

The conclusion of this study is, high incidence of allergy to house dust with 86.27%. These results certify that mites are main cause of sensitization and pollens of polysensitization.

- (4) This study was done by **Raj Kumar et al**<sup>4</sup> from August 2008 to August 2011 in the Department of Respiratory Allergy and Applied Immunology

at the National Centre of Respiratory Allergy, Asthma and Immunology, Vallabhai Patel Chest Institute, University of Delhi, Delhi, India.

The Objective of this study is - To Investigate the pattern of skin sensitivity to various aero allergens in patients of bronchial asthma and / or allergic rhinitis in India.

This is a Retrospective study conducted among the total of 918 patients consisting of 548 males and 370 females, in the age group of 6-80 years.

In the study a total of 53244 skin prick test were performed with a total of 58 allergens on 918 patients, out of which only 6 patients had no reaction at all from skin prick test, whereas 255 patients had a positive skin prick test up to the 1+ grade ( $\leq 3$ mm): 2+ grade were 657 subjects. The younger adults aged 20-29 years were most commonly affected group with 197 significant skin positive patients.

Conclusion of this study is among 657 (71.5%) patients of respiratory allergy in study sample, suffered from polysensitization from different aero allergens. Insects (43.90%) were most common offending aero allergens followed by various types of weed pollens, tree pollens, house dust mite, fungal spores, grass pollens, cotton, silk and wool.

- (5) This study was done by **Lokendra Dave et al**<sup>5</sup> at Respiratory Clinic OPD, Department of Chest & TB, Gandhi Medical College, Bhopal, Madhya Pradesh, India from April 2013 to March 2014.

The objective of this study is to identify the common allergens at Bhopal and surroundings which are responsible for inducing united airway diseases in subjects.

This is a cross sectional study conducted among total of 89 patients with clinical manifestations of united airway disease, having raised total serum IgE.

Results of this study is, out of 89 patients, 50 were males, 39 were females. All patients were between 14-55 years. Among asthmatic group 70% patients had associated allergic rhinitis, while 55% allergic rhinitis patients had associated asthma. Out of 89 patients, all patients gave various grades of positive skin prick test to one or more allergens.

Conclusion of this study is, high rate of positive skin test reaction was shown by the house dust allergen followed by wheat dust allergens.

- (6) This study was conducted by **Nazan Bayram et al<sup>2</sup>** in March 2002 to December 2004 at Gaziantep University, Pulmonary outpatient clinic, Turkey.

The Objective of this study is to determine the spectrum of aero allergen sensitivity of patients.

This is a Retrospective study conducted in allergy laboratory of Gaziantep University, Chest clinic. 1627 Patients in the age group over 16 years of age, who were referred from Department of Ear, Nose and Throat (ENT), Pulmonary medicine, Dermatology, Ophthalmology with suspicion of allergic sensitization, was included in this study. Skin prick

test results of patients, with symptoms compatible with allergic diseases, retrospectively evaluated.

In this study 32.5% had positive reaction to at least one of eight allergens. The mean age of subjects with positive skin prick test was  $33.03 \pm 11.80$  and 63.4% are female. One positive skin test reaction was 52%, while had two or more positive reaction was 48%.

The most common sensitivity detected against *Phleum pratensis* in 221 patients (41.8%). Other allergens with positive skin test results in decreasing order were *B.germanica* 174 (32.9%), *D.pteronyssinus* 173 (32.7%), *O.europea* 143 (27.0%), cat dander 79 (14.9%), *Parieteria* 62 (11.7%), *Cladosporium* 52 (9.8%) and *Alternaria* 47 (8.9%).

The conclusion of the study is detection of allergen susceptibilities is important for the management of allergic diseases. Allergens sensitivity such as mite and cockroach are more common in asthmatic patients whereas others like pollens are more frequent in subject with allergic rhinitis. It should be kept in mind that skin test positivity with compatible clinical history is necessary and knowledge of atopic pattern may influence management of the diseases and preventive measures.

- (7) This study was done by **Nicola Fuiano et al**<sup>3</sup> conducted in an unselected population, represented by entire scholastic population attending a primary school and a junior secondary school in the rural town of San Marco, Puglia, Italy.



The Objective of this study is to evaluate the prevalence of positive atopy patch test and skin prick test.

This is a Cross sectional study conducted among 456 subjects of unselected, entire scholastic population attending a primary school and junior secondary school in a rural town of Italy.

In this study among the 456 subjects included, 17.1% had a positive skin prick test and 12.5% had a positive atopy patch test.

Further In particular, 13.4% of subjects were positive only to skin prick test and 8.8% were positive only to atopy patch test. The allergen most frequently positive was the house dust mite with 41 positive results to skin prick test and 55 to atopy patch test, while for pollen positive results concerned almost exclusively the skin prick test.

Conclusion of this study is, prevalence of positive results to atopy patch test were not so distant from the positive results to skin prick test. This would suggest to add the atopy patch test in future epidemiological studies on T cell mediated allergy.

## **STUDY JUSTIFICATION**

- 1) Allergy testing is a very important prerequisite for specific allergy treatment.
- 2) To study the prevalence in our settings where very limited data are available.

## **OBJECTIVE**

To study the prevalence of skin sensitivity to various allergens in allergic diseases of childhood.

## **METHODOLOGY**

**Study design** - Descriptive-Cross sectional study

**Study place** - Pulmonology Outpatient Department & ward, Institute of Child Health and Hospital for Children, Chennai.

**Study period** - August 2016 to September 2017

**Study population** -

**Inclusion criteria** – Children (1-12) years with any of conditions given below.

Atopic dermatitis, Acute / Chronic urticaria,  
Recurrent wheezing, Asthma, Allergic Rhinitis,  
Allergic Conjunctivitis.

**Exclusion criteria** - (i) Having active eczema on the test site

(ii) Children who are currently on systemic  
steroids & anti-histamines, LTRAs

(iii) Any acutely ill child.

**Sample size** - Convenient sampling 200 children.

## **MANOEVEUR**

After obtaining informed consent from parent/guardian, various patient characteristics like age, sex, anthropometry will be performed and noted down in the enclosed data collection form.

History regarding category of disease (Allergic asthma, Allergic rhinitis, Allergic conjunctivitis & Atopic dermatitis), duration of onset of symptoms, precipitating factors like seasonal variations and activities was also asked. The duration of each attacks (whether they are lasting for days or months), history of triggers (environmental / food / pet / indoor) was also noted.

The family history (allergic rhinitis, allergic asthma, atopy), past history (anaphylactic reaction, whether they undergone skin test, any treatment received for previous allergy) was also enquired.

History regarding current medications (antihistamine, inhaled / intranasal steroid, LTRAs) was also asked, and who were on antihistamine, LTRAs excluded from this study.

History regarding comorbidities (like adenoid hypertrophy), acute severe illness (cardiac conditions like congestive cardiac failure, persistent asthma, Central Nervous System infections) was also asked. History regarding infections of the local site (eczema of forearm), poor skin turgor (in case of severely acute malnourished children) was also noted.

## **WEIGHT**

Weight of the child was measured by electronic weighing scale as per the prerequisites.

### **Prerequisites:**

- Infant or the child was made naked or minimally clothed.
- Before measuring the child's weight, the weighing scale was checked for zero.
- The infant / child was placed in the centre of weighing scale tray.



## **LENGTH**

Height measured in lying down position is called length. The term used up to children below 2 years of age. Measured by infantometer.

### **Prerequisites:**

Infant was made to lie straight with his shoulder and buttocks flat against the measuring surface.

Body was aligned in a straight line with eyes looking upwards. A second person was asked to hold the head of the child so as to touch the head piece, preferably mother.

Me, the examiner extended both legs by one hand on knee, and bringing the foot piece firmly against the heels.



## HEIGHT

Measured by stadiometer in children above 2 years of age.

### Prerequisites:

Child was made to wear only minimum clothing without shoes and socks and made to stand with feet parallel on an even platform.

Child's head was adjusted to be at the Frankfort plane. This is the plane which joins lower border of eye and external canal of ear.

Shoulder was kept in reduced position with arms adducted by the side.

Legs made straight and knees together.

Head, shoulder blade, buttocks and heels were made to touch the measuring surface. The head piece was lowered to touch the top of the head.





## **PROCEDURE**

Skin Prick Test study will be done in Pulmonology ward, Institute of child health and hospital for children, Chennai. It usually takes 20-30 minutes to complete.

### **Panel of allergens tested:**

Standardized extract of allergens used as antigens which was purchased from Allergo Pharma, Chennai.



Following antigens used for this study:

1. Egg
2. Milk
3. Wheat
4. Apple

5. Cat
6. Dog
7. Aspergillus fumigatus
8. Dermatophytes farina
9. Dermatophytes pteronyssinus
10. Cockroach
11. Fungi

The test typically involves the following steps:

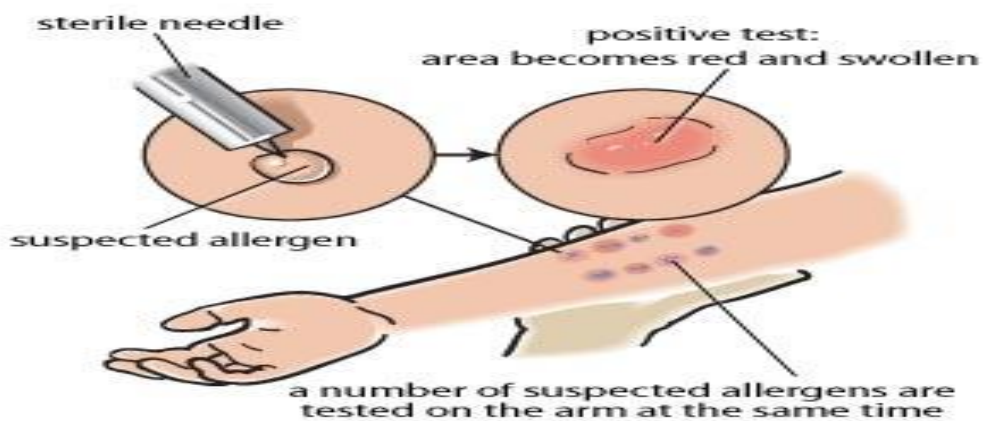
- For each allergen solution, separate circles / lines will be drawn on the volar surface of the forearm, and specific allergen solutions will be applied within circle / along the line.



- A Prick will be made epicutaneously (depth for 0.5mm) with a specific allergy testing lancet over the applied solution.

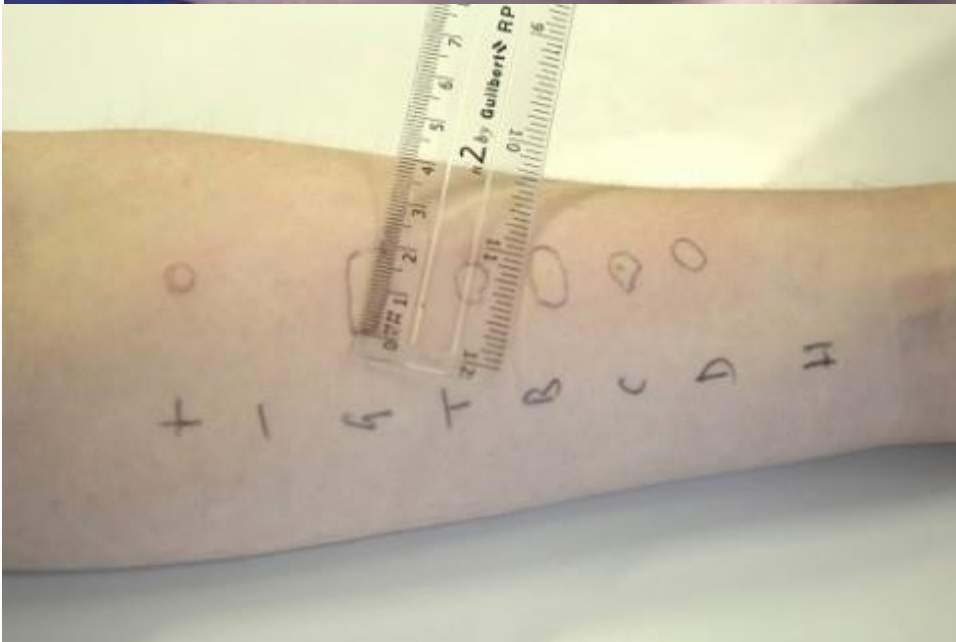


- Reactions (Induration, Erythema) will be evaluated after 20 minutes (The applied surface should not be interfered by touch, swiping and in any other ways).



- Histamine solution will be considered as positive control, normal saline will be considered as negative control.
- Results to be interpreted as follows: Induration 3mm larger than negative control, skin prick test (SPT) result will be recorded as positive. When the induration area twice the size of histamine response, SPT result will be scored as “++++”, reaction size as large as histamine will be “+++”,

reaction half size of histamine will be “++”, reaction between negative control and “++” will be “+”.



- After interpretation forearm will be cleaned by cotton.

## **STATISTICAL ANALYSIS**

Data will be entered in excel sheet. Statistical analysis of data will be performed by statistical software SPSS. Outcome variables will be categorized as Positive or Negative, and their prevalence will be expressed as percentage with 95% confident intervals.

## **ETHICAL CONSIDERATIONS**

The study will be commenced after the ethical committee clearance. Informed consent will be obtained from parent. Strict confidentiality will be maintained while analysing and presenting the data.

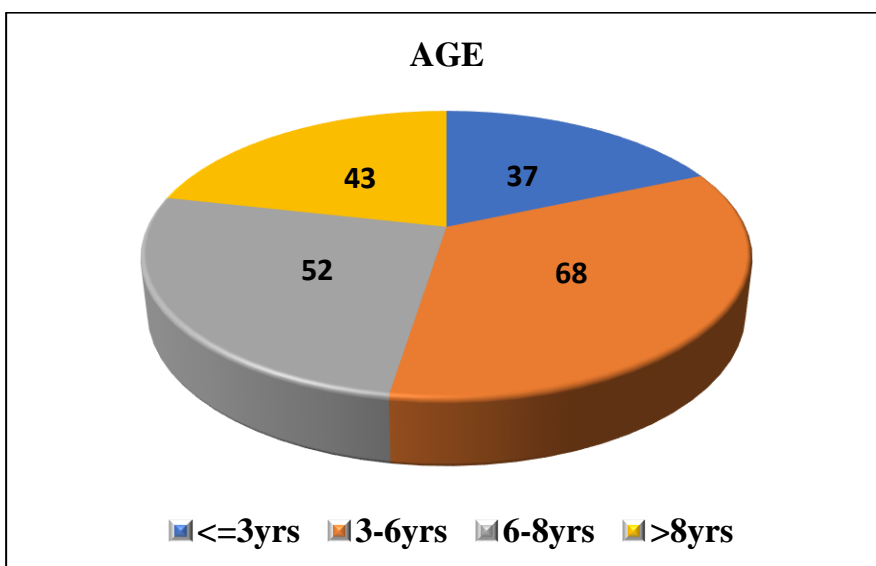
# RESULTS

## ANALYSIS OF DEMOGRAPHIC DATA

### AGE DISTRIBUTION

Among 200 children with allergic diseases, majority of children (34%) belonged to 3-6 years of age. 26% children were 6-8 years of age, 21.5% were more than 8 years of age, 18.5% were less than 3 years of age.

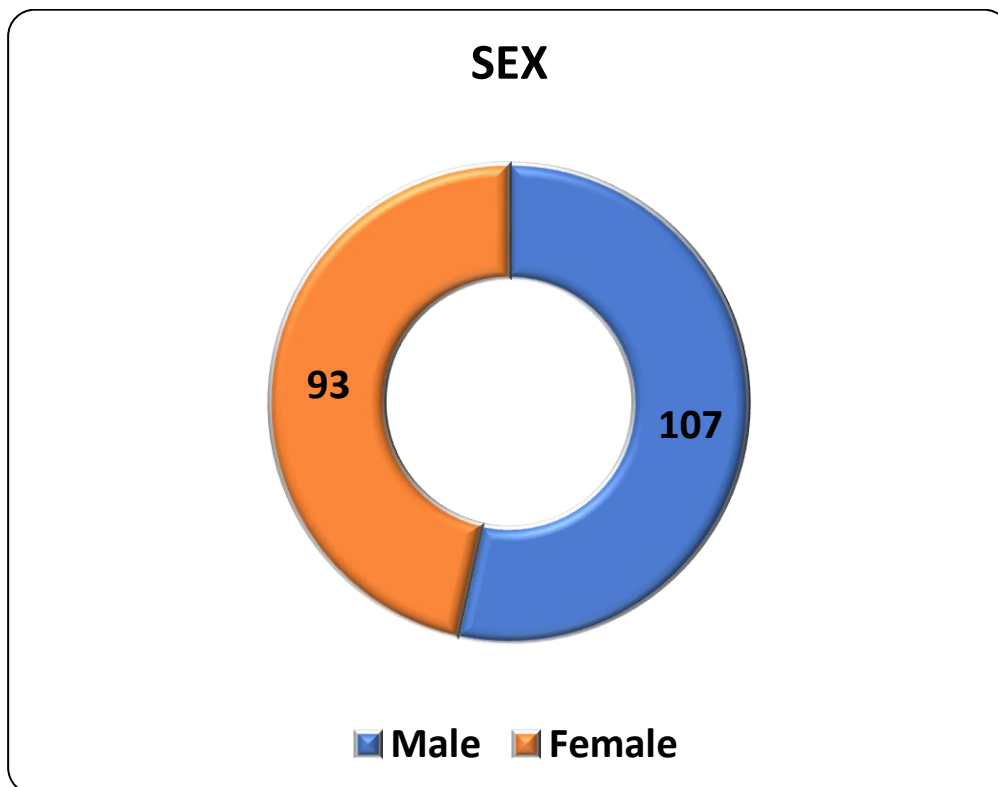
AGE	NO OF CHILDREN	PERCENTAGE (%)
<b>&lt;=3YRS</b>	37	18.5%
<b>3-6YRS</b>	68	34%
<b>6-8YRS</b>	52	26%
<b>&gt;8YRS</b>	43	21.5%
<b>TOTAL</b>	200	100%



## SEX DISTRIBUTION

Among 200 children with allergic diseases, 107 (53.5%) were male and 93 (46.5%) were female with Male: Female ratio of 1.15:1

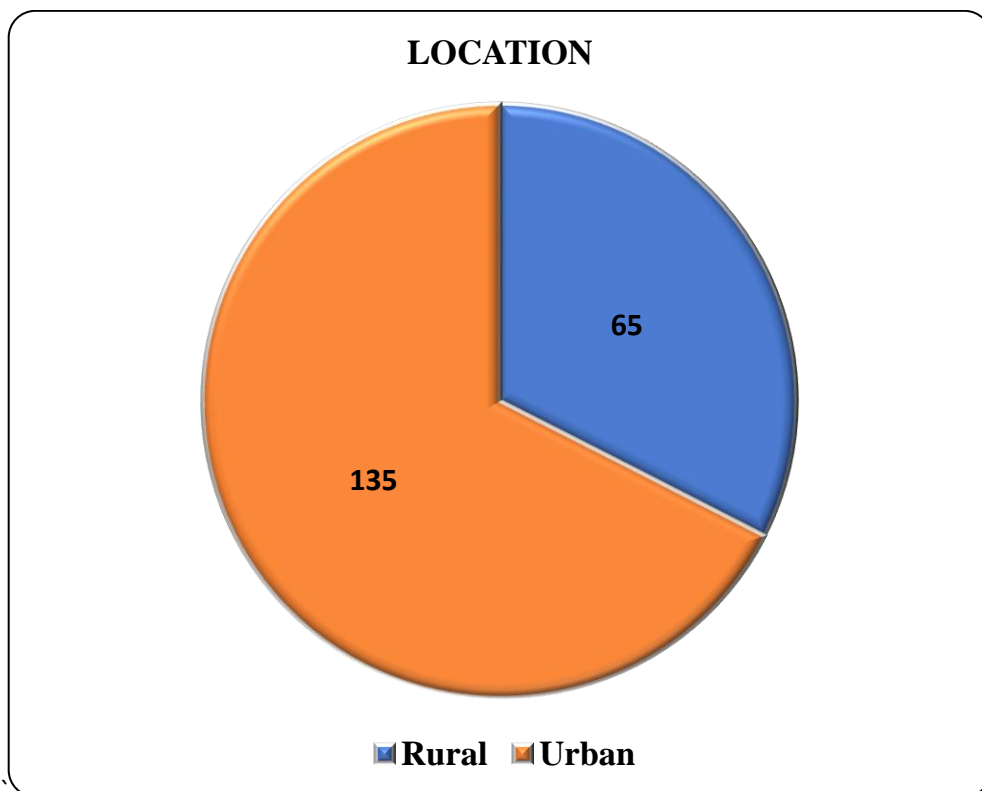
<b>SEX</b>	<b>NO OF CHILDREN</b>	<b>PERCENTAGE (%)</b>
<b>MALE</b>	107	53.5%
<b>FEMALE</b>	93	46.5%
<b>TOTAL</b>	200	100%



## LOCALITY

Among 200 children with allergic diseases, 135 (67.5%) children were from Urban area and 65 (32.5%) were from Rural area.

LOCATION	NO OF CHILDREN	PERCENTAGE (%)
RURAL	65	32.5%
URBAN	135	67.5%
TOTAL	200	100%





## **DISEASE CATEGORIES**

Among 200 children with allergic diseases, majority (73.5%) children had only asthma, 11% children had only atopic dermatitis, 9% children had only allergic rhinitis and 1% children had only allergic conjunctivitis.

3% children had allergic rhinitis with asthma, 1% children had allergic rhinitis with allergic conjunctivitis, 1% children had allergic rhinitis with atopic dermatitis, 0.5% children had atopic dermatitis with asthma.

<b>CATEGORY</b>	<b>NO OF CHILDREN</b>	<b>PERCENTAGE (%)</b>
<b>ALLERGIC CONJUNCTIVITIS</b>	2	1%
<b>ALLERGIC RHINITIS</b>	18	9%
<b>ALLERGIC RHINITIS, ALLERGIC CONJUNCTIVITIS</b>	2	1%
<b>ALLERGIC RHINITIS, ASTHMA</b>	6	3%
<b>ALLERGIC RHINITIS, ATOPIC DERMATITIS</b>	2	1%
<b>ASTHMA</b>	147	73.5%
<b>ASTHMA, ATOPIC DERMATITIS</b>	1	0.5%
<b>ATOPIC DERMATITIS</b>	22	11%
<b>TOTAL</b>	200	100%

**CATEGORY**

■ ALLERGIC  
CONJUNCTIVITIS

■ ALLERGIC  
RHINITIS

■ ALLERGIC  
RHINITIS,  
ALLERGIC  
CONJUNCTIVITIS

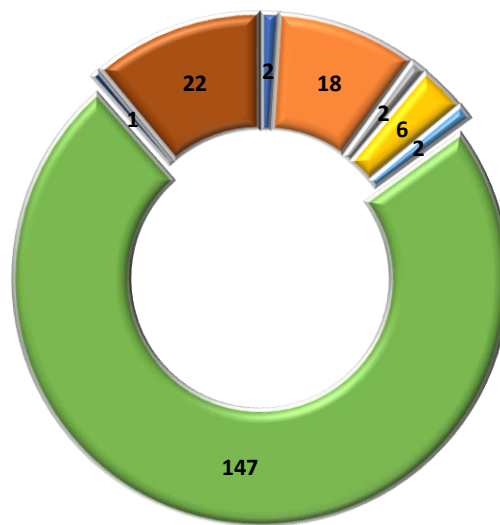
■ ALLERGIC  
RHINITIS,  
ASTHMA

■ ALLERGIC  
RHINITIS,  
ATOPIC  
DERMATITIS

■ ASTHMA

■ ASTHMA,  
ATOPIC  
DERMATITIS

■ ATOPIC  
DERMATITIS



## TRIGGERS DISTRIBUTION

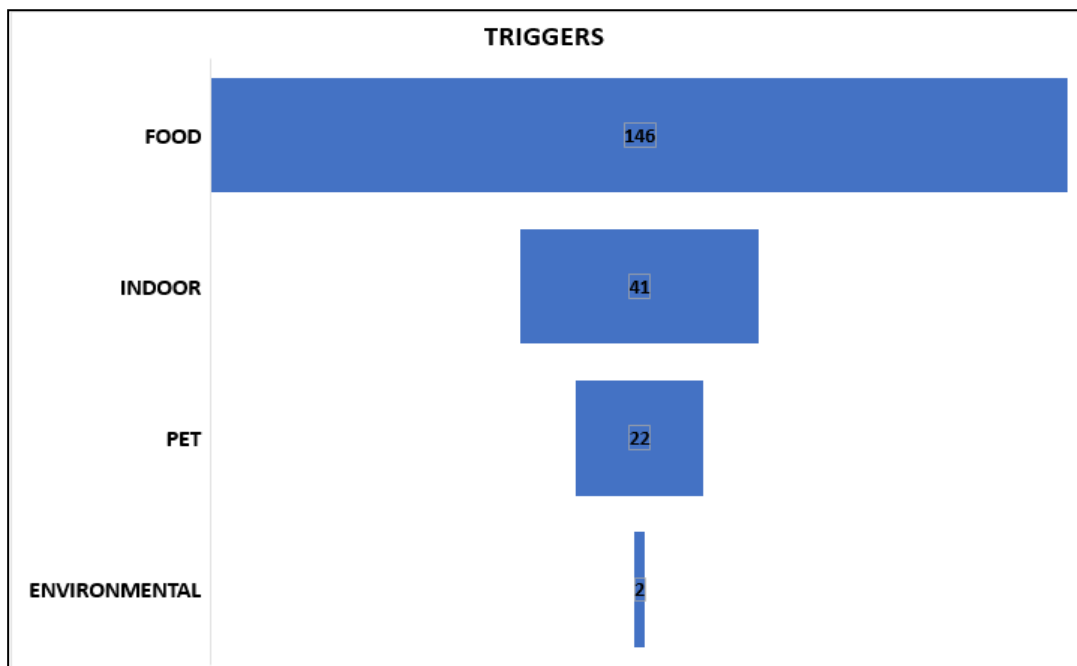
Among 200 children with allergic diseases, 59% children had history of food triggers alone, 8.5% had only history of indoor triggers, 5% had only history of pet triggers and 1% had only history of environmental triggers.

10% had history of food and indoor triggers, 4% had history of food and pet triggers, 2% had history of pet and indoor triggers.

<b>TRIGGERS</b>	<b>NO OF CHILDREN</b>	<b>PERCENTAGE (%)</b>
<b>ENVIRONMENTAL</b>	2	1%
<b>FOOD</b>	118	59%
<b>FOOD, INDOOR</b>	20	10%
<b>FOOD, PET</b>	8	4%
<b>INDOOR</b>	17	8.5%
<b>PET</b>	10	5%
<b>PET, INDOOR</b>	4	2%
<b>NIL</b>	21	10.5%
<b>TOTAL</b>	200	100%

Among 200 children with allergic diseases, 73% children had history of food triggers, 20.5% had history of indoor triggers, 11% had history of pet triggers, 1% had history of environmental triggers.

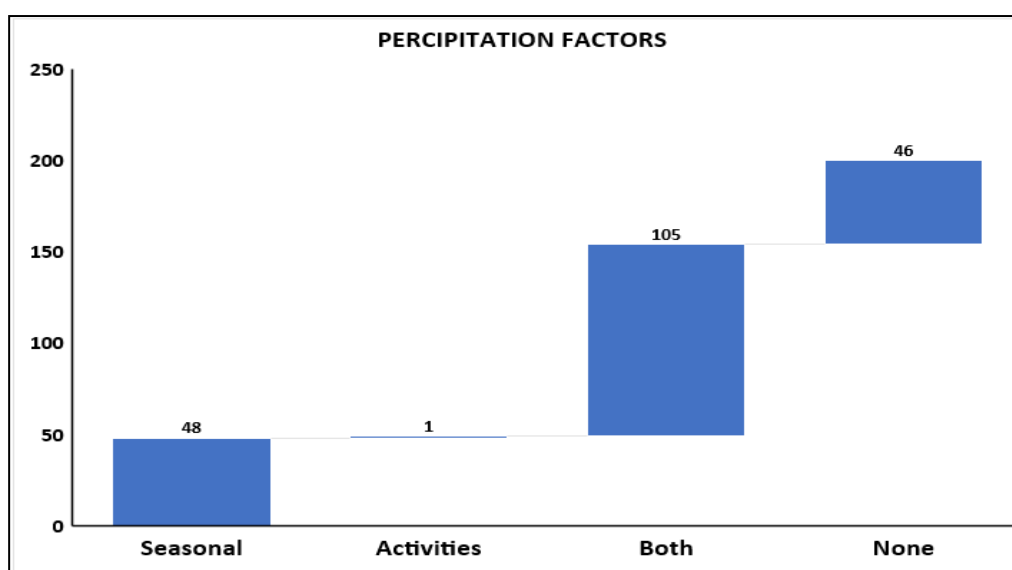
<b>TRIGGERS</b>	<b>NO OF CHILDREN</b>	<b>PERCENTAGE (%)</b>
<b>PET</b>	22	11%
<b>FOOD</b>	146	73%
<b>ENVIRONMENT</b>	2	1%
<b>INDOOR</b>	41	20.5%



## PRECIPITATING FACTORS DISTRIBUTION

Among 200 children with allergic diseases, 52.5% children had both history of seasonal variation & activities as precipitating factors, 24% children had history of only seasonal variation as precipitating factor, 0.5% children had history of activities alone as precipitating factor. 23% children had no precipitating factors.

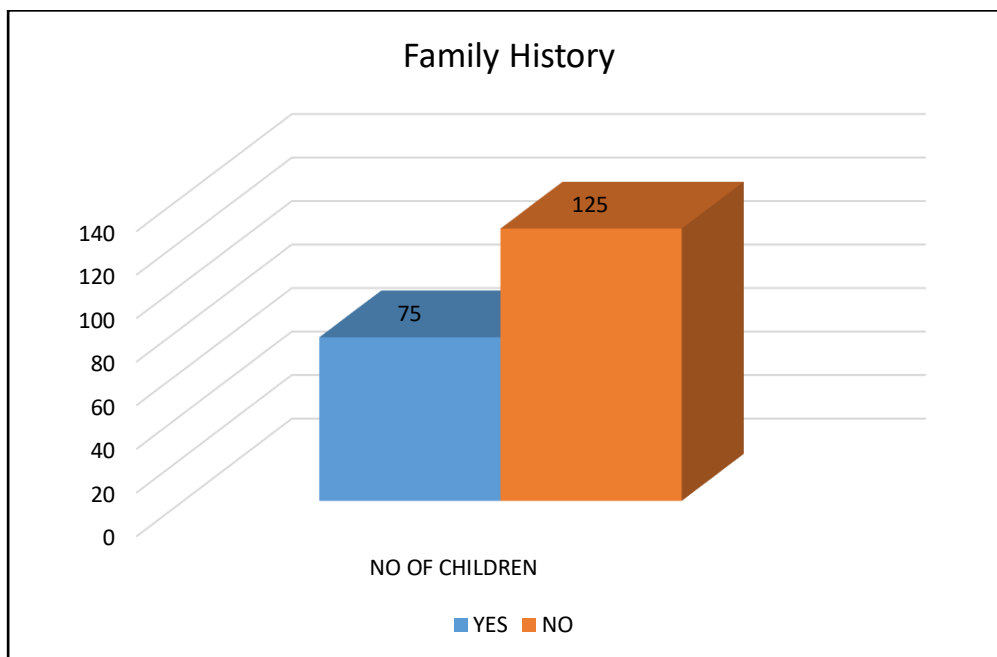
<b>PRECIPITATING FACTORS</b>	<b>NO OF CHILDREN</b>	<b>PERCENTAGE (%)</b>
<b>SEASONAL</b>	48	24%
<b>ACTIVITIES</b>	1	0.5%
<b>BOTH</b>	105	52.5%
<b>NONE</b>	46	23%
<b>TOTAL</b>	200	100%



## FAMILY HISTORY

Among 200 children with allergic diseases, 62.5% children had no family history of allergic diseases, 37.5% children had family history of allergic diseases.

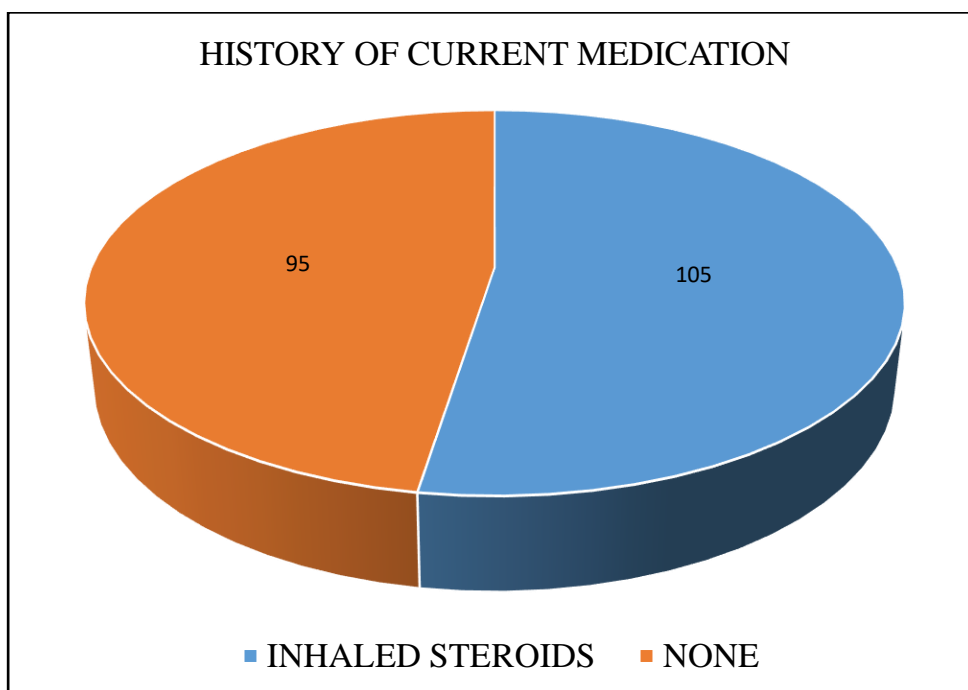
<b>FAMILY HISTORY</b>	<b>NO OF CHILDREN</b>	<b>PERCENTAGE (%)</b>
<b>YES</b>	75	37.5%
<b>NO</b>	125	62.5%
<b>TOTAL</b>	200	100%



## CURRENT MEDICATION HISTORY

Among 200 children with allergic diseases, 52.5% children were on treatment with inhaled steroids, 47.5% children were not on any treatment.

<b>HISTORY OF CURRENT MEDICATION</b>	<b>NO OF CHILDREN</b>	<b>PERCENTAGE (%)</b>
<b>INHALED STEROIDS</b>	105	52.5%
<b>NONE</b>	95	47.5%
<b>TOTAL</b>	200	100%



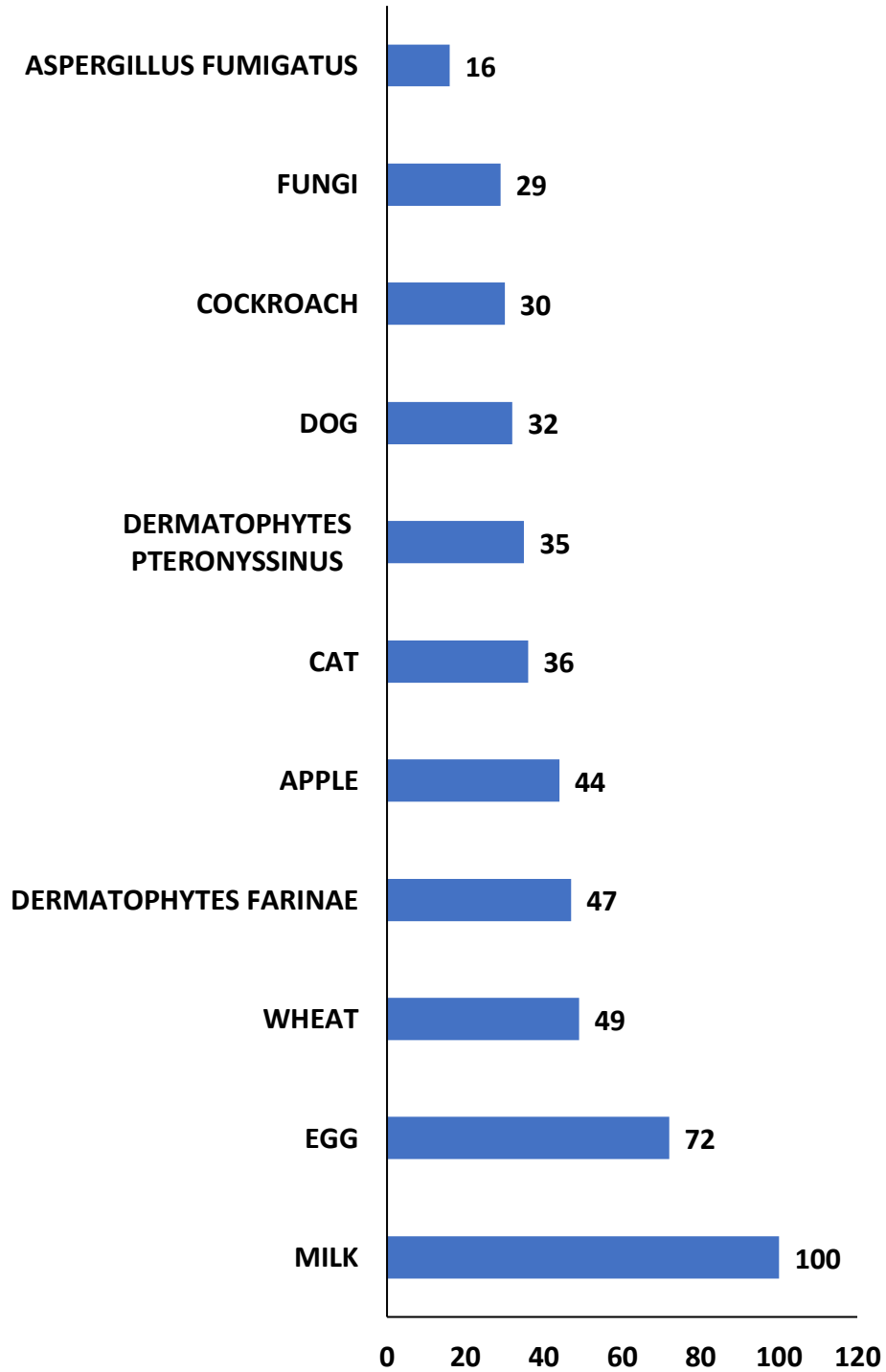
## SKIN SENSITIVITY TO ANTIGEN

11 Antigens were test among 200 children with allergic diseases. 50% children were positive to milk, 36 % children were positive to egg, 24.5% were positive to wheat, 23.5% were positive to dermatophytes farinae, 22% were positive to apple, 18% were positive to cat,17.5% were positive to dermatophytes pteronyssinus, 16% were positive to dog, 15% were positive to cockroach, 14.5% were positive to fungi, 8% were positive aspergillus fumigatus.

<b>ANTIGENS TESTED (POS)- POSITIVE</b>	<b>NO OF CHILDREN</b>	<b>PERCENTAGE (%)</b>	<b>95% CONFIDENCE INTERVAL</b>
<b>APPLE</b>	44	22%	(16.46%,28.39%)
<b>CAT</b>	36	18%	(12.94%,24.04%)
<b>COCKROACH</b>	30	15%	(10.35%,20.72%)
<b>DERMATOPHYTES FARINAE</b>	47	23.5%	(17.81%,30%)
<b>DERMATOPHYTES PTERONYSSINUS</b>	35	17.5%	(12.5%,23.49%)
<b>DOG</b>	32	16%	(11.21%,21.83%)
<b>EGG</b>	72	36%	(29.35%,43.07%)
<b>FUNGI</b>	29	14.5%	(9.93%,20.16%)
<b>MILK</b>	100	50%	(42.87%,57.13%)
<b>WHEAT</b>	49	24.5%	(18.71%,31.06%)
<b>ASPERGILLUS FUMIGATUS</b>	16	8%	(4.64%,12.67%)



## ANTIGENS TESTED (POS)-POSITIVE



Among 200 children with allergic diseases, 22% children were positive to at least one antigen, 33.5% children were positive to two antigens, 28% children were positive to three antigens, 12% children were positive to four antigens, 4.5% children were positive to more than four antigens.

<b>NUMBER OF ANTIGENS</b>	<b>NO OF CHILDREN</b>	<b>PERCENTAGE (%)</b>
<b>ONE</b>	44	22%
<b>TWO</b>	67	33.5%
<b>THREE</b>	56	28%
<b>FOUR</b>	24	12%
<b>MORE THAN FOUR</b>	9	4.5%
<b>TOTAL</b>	200	100%

## DISCUSSION

In this study among 200 children participated, skin prick test was positive to Milk (50%) followed by Egg (36%), Wheat dust (24.5%), Dermatophytes Farinae (23.5%), Apple (22%), Cat (18%), Dermatophytes pteronyssinus (17.5%), Dog (16%), Cockroach (15%), Fungi (14%) and *Aspergillus fumigatus* (8%).

In our study sex distribution is slightly male predominant (male: female 1.15:1) 53.5% male, 46.5% female. It is consistent with R.Prasad et al study, and Lokendra Dave et al studies. Male children are most commonly affected may be due to average mite quantity on boy's beds were much more than that of girls according to some studies. So, the hygienic habit of children and their parents also contributing factories. In male children dust content is more compared to female children (because of gender inequality female children are not allowed to play outside like boys in our settings). Neglect of the female child is also contributing factors is view of exposure to food allergens.

In our study, age of patients ranged from 1 to 12 years. Considering the fact, the development of allergies varies with age, with young children most at risk. Several studies have shown that IgE levels are higher in childhood and fall rapidly between the age of 10 to 30 years and the incident of asthma is highest in children under age 10.

In our study, urban people are suffered more from allergy (67.5% urban, 32.5% rural). The hygiene hypothesis was developed to explain allergic diseases

were less common in children from larger families, than in children from families with only one child. But it is used to explain the increase in allergic diseases that have been seen since industrialization, and the higher incidence of allergic diseases is more in developed countries.

In our study, the patients who are having allergy with positive family history of 37.5%. This is consistent with Saibal Moitra et al study. (40.19%) diseases mediated by allergy are strongly familial. Identical twins are likely to have the same allergic diseases about 70%:40% in Non- Identical twins.

Parents with allergy tendency are more likely to have children with tendency towards allergy. Children with family history of allergy are more likely to develop severe allergic symptoms than children of non-allergic parents.

In our study, Child with allergy trigger by food are 59%, food with indoor allergy trigger is 10%, food with pet allergy trigger is 4%. This shown that triggers plays are important role in children to develop allergy. Wide variety of foods can cause allergic reaction.

A group of eight major allergic foods is often referred to as the Big-8 and comprises milk, egg, fish, crustacean shell fish, tree nuts, peanuts, wheat and soya beans. The more common food allergy is as population is a sensitivity to crustacea.

In our study, out of the 200 children, 73.5% children had asthma, 11% had atopic dermatitis, 9% had allergic rhinitis, 1% had allergic conjunctivitis, 3% children had allergic rhinitis with asthma, 1% had allergic rhinitis with

allergic conjunctivitis and 1% had allergic rhinitis with atopic dermatitis, 0.5% had asthma with atopic dermatitis. This is not consistent with Roohi Rasool et al, Saibal Moitra et al and Lokendra dave et al studies which shows, Atopic dermatitis (62%), Allergic rhinitis (86.27%), Asthma with allergic rhinitis (70%) as predominant diseases.

This may be due to the reason that, predominant diseases due to allergy is multi factorial (Depends on geography, type of predominant allergen, Population density, Pollution, Family history).

In our study, seasonal variation, seasonal variation with activities as precipitating factors of allergy is 76.5%. This is not consistent with Saibal Moitra study, which shows 67.64%. Both studies prove seasonal variation plays significant role (>65%) in diseases developing due to allergy.

In our study, among 200 children in whom skin prick test was done, positive to at least one allergen is 22%, two or more allergens is 78%. This is consistent with Rajkumar et al study, which shows poly sensitization 71.5%. From both studies, it was observed that poly sensitization is the main cause (more than 70%) for allergic diseases. But our study is not consistent with Nazan Bayram et al study, which shows one allergen positivity is 52%, two or more allergen positivity is 48%. Also, our study is not consistent with Roohi Rasool study, which shows positive to single allergen is 0.5%.

This implies that even though poly sensitization is the main cause for allergic diseases in our settings more than single allergen alone. In our settings,

Single allergen role is not too low like other studies done in various parts of India.

In our study, among 200 children in whom skin prick test was done, no children had negative for skin prick test. This is consistent with Lokendra Dave et al study, which shows all 89 patients were positive. Our study is also consistent with Rajkumar et al study, which was studied in a larger population (918 patients), shows only 6 patients had negative for skin prick test (0.006%). This again implies, all the children with allergic diseases in our settings are positive to at least for single allergen.

In our study, 50% of children with allergic diseases are positive to Milk, 36% are positive to Egg, 24.5% to Wheat, 23.5% to Dermatophytes farinae, 22% to Apple, 18% to Cat, 17.5% to Dermatophytes pteronyssinus, 16% to Dog, 15% to Cockroach, 14.5% to Fungi, 8% to Aspergillus fumigatus. This is not consistent with other Indian studies like Saibal Moitra et al, R.Prasad et al, Nazan Bayram et al, which shows house dust mite as predominant allergen (86.27%, 25%, 32.7% respectively). Roohi Rasool et al study which shows pollen as predominant allergen (52%) is also not consistent with our study.

Even though, positivity to house dust in our study (23.5%) is consistent with R.Prasad et al study, which shows 25%, our study shows predominant allergen is Milk.

The reason for this is, as already discussed, majority of our study population (children) had history of food triggers and, 90% allergic responses to foods are caused mainly by cow's milk.

Another reason for this is, milk protein allergies are most common in children. Approximately 60% of milk protein reactions are Immunoglobulin-E mediated.

## **LIMITATIONS**

Panel of allergens to be tested, in this skin prick test study, was selected based on clinical history in our settings (Most of the child had history of food triggers).

Even though skin prick test with reliance clinical history is more useful, selection of large panel of allergens would have yielded better result.



## SUMMARY

- Majority of children in between age 3-6 years.
- The sex ratio Male: Female is 1.15:1.
- Around one third of children were from rural area.
- Asthma alone without associated comorbidities is the major allergic disease among children.
- Food allergens (73%) are the major triggers for allergic diseases of childhood.
- Seasonal activities and activities are the major precipitating factors from than seasonal variation, activities above.
- Majority of the children (62.5%) had no positive family history.
- Two or more allergens are responsible for allergic diseases in majority of the study population (78%).
- Milk (50%) is the predominant allergen found to be responsible followed by Egg (36%) for allergic diseases.

## **CONCLUSION**

Milk (50%), Egg (36%) are the major allergens identified as cause for allergic diseases, in children attending Pulmonology Department, followed by Wheat (24.5%), Dermatophytes farina (23.5%), Apple (22%), Cat (18%), Dermatophytes pteronyssinus (17.5%), Dog (16%), Cockroach (15%), Fungi (14.5%), Aspergillus Fumigatus (8%).

Food allergens are the major triggers for various allergic diseases in our settings.

## **RECOMMENDATIONS**

### **FOR PRACTICE: -**

Skin prick test with reliable clinical history will be definitely helpful in management of the children with allergic diseases. Paediatrician should be trained regarding skin prick test, for identifying even a single allergen responsible for allergic diseases of childhood.

### **FOR RESEARCH: -**

Large scale studies with consideration of our background in South India to identify various more allergens, in children attending Paediatric / Pulmonology outpatient department are required.

## ANNEXURES

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# DATA COLLECTION FORM

## IDENTIFICATION:

1. Study Id -
2. Name -

## DEMOGRAPHIC CHARACTERISTICS

1. Age - a) DOB –  
b) Actual (in yrs, mnths) –  
c) Age Group : (i) 1 to 2 yrs (ii) 2 to 5 yrs (iii) 5 to 8 yrs  
(iv) >8 yrs
2. Sex - **1:** Male **2:** Female **3:** Others

## ANTHROPOMETRY

1. Height :
2. Weight :
3. Body Mass Index :

## CATERGORIES:

1. Physician diagnosed Asthma
2. Allergic conjunctivitis
3. Allergic Rhinitis
4. Atopic dermatitis

## HISTORY/QUESTIONNAIRE

### 1. Present History/Symptoms (as per inclusion criteria)

(i) Duration : a) 1 to 2 yrs   b) 2 to 5 yrs   c) 5 to 8 yrs   d) > 8 yrs

(ii) Seasonal Variation : Yes/No

(iii) Duration of each seasonal attacks: days/months/years

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### 2. Allergic Triggers (caregiver perceived):

a) Environmental Allergens – Yes/No; If Yes,

(i) Cigarette smoke

(ii) Bio fuel

(iii) Automobile Smoke

(iv) Hay / Cotton

(v) Dust / Pollens

b) Indoor Allergens – Yes/No; If Yes,

(i) Cockroach

(ii) Mould

c) Food Allergens – Yes/No; If Yes,

(i) Apple

(ii) Milk

(iii) Egg

(iv) Chicken

(v) Wheat

d) Pet Allergens – Yes/No; If Yes,

(i) Cat

(ii) Dog

### 3. Precipitating Factors:

a) by Activities - Yes/No; If Yes, details \_\_\_\_\_

b) by diurnal - Yes/No; If Yes, details \_\_\_\_\_



4. Family History :

- a) Allergic Rhinitis - Yes/No; If Yes, Parent / Sibling
- b) Asthma - Yes/No; If Yes, Parent / Sibling
- c) Atopy - Yes/No; If Yes, Parent / Sibling

5. Past History :

- a) Anaphylactic reaction – Yes/No
- b) Already undergone Skin Test – Yes/No

IF Yes, (i) When \_\_\_\_\_

(ii) Positive for \_\_\_\_\_

- c) Treatment received – Yes/No

IF Yes, Immunotherapy / Allergy Vaccine

6. Medication History :

(i) Medication currently taking – Yes/No ; If Yes,

- a) Antihistamine
- b) Inhaled steroid / Intranasal Steroid
- c)

LTRAs



Your child will not benefit directly by participating in this study. But by way of participating in this study, your child is contributing to updation of science which may benefit her/him and all other patients with this disease in future. This testing will not affect your children's Skin. Prick is also will be made epicutaneously just for 0.5mm depth.

**Confidentiality-**

The data collected from the study will be used for the purpose of the study only. The results of the study will be published. Personal information of the children participating in the study will be kept confidential. There will not be any disclosure about your child's information without your permission.

**Subject rights-**

If you wish further information regarding your child's right as a research participant, you may contact the principal investigator in the mobile number or address mentioned below.

Principal Investigator - DR.SENTHILKUMAR J

Mobile Number - 9943935991

Contact Address - Post Graduate in M.D Paediatrics, Institute of Child Health & Hospital of Children, Egmore, Chennai-8.

Place:

Date:

Signature of Parent

## **INFORMED CONSENT FORM**

**Study Place** : ICH & HC in Chennai

**Title of the Study** :SKIN PRICK TEST IN ALLERGIC  
DISEASES OF CHILDHOOD - A CROSS  
SECTIONAL STUDY

**Name of Investigator** : DR.J.SENTHILKUMAR

**Name of the Participant** :

**Age / Sex** :

1. I have read and understood the patient information sheet provided to me regarding the participation of my child in the study.
2. I have been explained about the nature of the study and had my questions answered to my satisfaction.
3. I have been explained about my rights and responsibilities by the investigator.
4. I will allow my child to cooperate with the investigator and undergo clinical tests subjected during the study whole heartedly.
5. I have been advised about the risks associated with my child's participation in this study. \*
6. I am aware of the fact that I can opt out of the study at any time without having to give any reason and this will not affect my child's future treatment in this hospital. \*

7. I hereby give permission to the investigators to release the information obtained from my child as result of participation in this study to medical journals/conference proceedings.
8. I understand that my child's identity will be kept confidential if my child's data are publicly presented / published.
9. I have decided my child can participate in the research study. I am aware that if I have any question during this study, I should contact the investigator.
10. By signing this consent form, I attest that the information given in this document has been clearly explained to me and understood by me, I will be given a copy of this consent document.

Name and signature / thumb impression of the parent / guardian

Name \_\_\_\_\_ Signature \_\_\_\_\_  
Date \_\_\_\_\_

Name and signature of the investigator

Name \_\_\_\_\_ Signature \_\_\_\_\_  
Date \_\_\_\_\_

Name and signature of the witness 1:

Name \_\_\_\_\_ Signature \_\_\_\_\_  
Date \_\_\_\_\_

Name and signature of the witness 2:

Name \_\_\_\_\_ Signature \_\_\_\_\_  
Date \_\_\_\_\_

STUDY ID	NAME	AGE	SEX	LOCATION	HEIGHT (CM)	WEIGHT (KG)	CATEGORY	ONSET-AGE	DURATION (EACH ATTACK)	HISTORY OF ALLERGIC TRIGGERS	PRECIPITATING FACTORS	FAMILY HISTORY	HISTORY OF SKIN TEST	HISTORY OF TREATMENT FOR ALLERGY	HISTORY OF CURRENT MEDICATION	ANTIGENS TESTED (POS- POSITIVE)
1	KAVYA	2 1/2 YRS	FEMALE	URBAN	102	15	ASTHMA	1YR	10 DAYS/ MONTH	PET ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	WHEAT, MILK- POS
2	SANJAY	7YRS	MALE	URBAN	120	21.5	ASTHMA	4MONTHS	15DAYS/ MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG,MILK,DERMATOPHYTES FARINAE, COCKROACH-POS
3	LOGESH	4YRS	MALE	URBAN	99	13	ASTHMA	2YRS	5 DAYS/ EVERY 2 MONTHS	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NIL	EGG, MILK-POS
4	HARSHINI	2 1/2 YRS	FEMALE	URBAN	87	12	ASTHMA	8MONTHS	2 DAYS/ EVERY 2 MONTHS	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NIL	MILK,WHEAT-POS
5	PRAMODHILAKSHMI	3YRS	FEMALE	URBAN	92	13	ATOPIC DERMATITIS	6MONTHS	3 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	WHEAT,EGG,MILK,DOG,DERMATO PHYTES PTERONYSSINUS, ASPERGILLUS FUMIGATUS-POS
6	NOORJASHAN	3 YRS	FEMALE	URBAN	94	12	ATOPIC DERMATITIS	2 YRS	5 DAYS/ EVERY 2 MONTHS	FOOD ALLERGENS	NIL	YES	NO	NO	NIL	MILK, DERMATOPHYTES FARINAE-POS
7	KALAISELVAN	5 3/4 YRS	MALE	RURAL	111	18	ASTHMA	2 1/4 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK-POS
8	KAVYA	7 YRS	FEMALE	URBAN	117	21.5	ATOPIC DERMATITIS	6 YRS	2 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	EGG,MILK-POS
9	KARTHIKA	3YRS	FEMALE	RURAL	94	13	ASTHMA	10 MONTHS	5 DAYS / EVERY 3 MONTHS	NIL	SEASONAL	NO	NO	NO	NIL	MILK,EGG,WHEAT,CAT-POS
10	SURYA	11 YRS	MALE	RURAL	143	31	ASTHMA	9 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	APPLE-POS
11	KUSHMITHA	7 YRS	FEMALE	URBAN	112	20	ASTHMA	3 1/2 YRS	5 DAYS / EVERY 4 MONTHS	NIL	SEASONAL	YES	NO	NO	NIL	CAT-POS
12	GURUCHARAN	2 1/2 YRS	MALE	URBAN	87	12	ASTHMA	1 YR	4 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	WHEAT,MILK-POS
13	MOHAN	3 YRS	MALE	RURAL	93	13.5	ASTHMA	1 YR	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK,APPLE, COCKROACH-POS

14	JAYALAKSHMI	10 YRS	FEMALE	RURAL	138	30	ALLERGIC RHINITIS	7 YRS	4 DAYS / EVERY 3 MONTHS	FOOD, INDOOR ALLERGENS	NIL	NO	NO	NO	NIL	MILK, DERMATOPHYTES FARINAE-POS
15	SIVASAKTHI	5 YRS	FEMALE	RURAL	105	14	ASTHMA	5 MONTHS	20 DAYS / MONTH	INDOOR ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	CAT, DERMATOPHYTES PTERONYSSINUS-POS
16	NATARAJ	3 YRS	MALE	RURAL	93	12	ASTHMA	1 YR	5 DAYS / EVERY 3 MONTHS	NIL	SEASONAL	YES	NO	NO	NIL	APPLE-POS
17	RITHIK	7 YRS	MALE	URBAN	115	20	ALLERGIC RHINITIS	4 YRS	3 DAYS / EVERY 3 MONTHS	ENVIRONMENT AL ALLERGENS	NIL	YES	NO	NO	NIL	WHEAT, FUNGI, DERMATOPYTES FARINAE-POS
18	VIGENSH	6 YRS	MALE	URBAN	109	19.5	ASTHMA	4 YRS	10 DAYS/ MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK, COCKROACH, ASPERGILLUS FUMIGATUS-POS
19	NATHIYA	7 YRS	FEMALE	URBAN	116	19.5	ASTHMA	7 MONTHS	3 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	EGG,MILK-POS
20	VINOTH	4 YRS	MALE	RURAL	99	14.5	ASTHMA	4 MONTHS	3 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	EGG,MILK,APPLE-POS
21	SUDHAKAR	11 YRS	MALE	URBAN	140	31	ALLERGIC RHINITIS	4 YRS	3 DAYS / EVERY 3 MONTHS	PET ALLERGENS	NIL	YES	NO	NO	NIL	DOG,FUNGI-POS
22	KAVINA	6 YRS	FEMALE	URBAN	110	17.5	ASTHMA	3 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK-POS
23	JAGADHISH	4 YRS	MALE	URBAN	98	13	ASTHMA	3 MONTHS	10 DAYS/ MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK-POS
24	MATHUSHRI	5 YRS	FEMALE	URBAN	105	16.5	ASTHMA	11 MONTHS	14 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, MILK, WHEAT,CAT-POS
25	JAYASRI	3 YRS	FEMALE	URBAN	91	11	ASTHMA	10 MONTHS	20 DAYS / MONTH	FOOD , INDOOR ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK, WHEAT, DERMATOPYTES FARINAE-POS
26	PARTHIBAN	7 YRS	MALE	URBAN	116	20.5	ASTHMA	5 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK,EGG, APPLE-POS
27	TAMILARASAN	8 YRS	MALE	URBAN	124	23	ASTHMA	4 YRS	5 DAYS/ MONTH	PET ALLERGENS	SEASONAL	NO	NO	NO	INHALED STERIODS	EGG,MILK,DOG-POS
28	LAKSITHA	2 1/2 YRS	FEMALE	URBAN	85	10.5	ASTHMA	2 YRS 2 MONTHS	5 DAYS / EVERY 4 MONTHS	NIL	SEASONAL	NO	NO	NO	NIL	CAT,MILK,FUNGI-POS
29	PADMASREE	6 YRS	FEMALE	URBAN	110	17.5	ASTHMA	4 YRS	10 DAYS/ MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	EGG-POS
30	HARISH	8 YRS	MALE	URBAN	125	24.5	ALLERGIC RHINITIS, ASTHMA	6 MONTHS	5 DAYS / MONTH	FOOD, INDOOR ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
31	HARINI	12 YRS	FEMALE	RURAL	144	32	A TOPIC DERMATITIS	8 YRS	4 DAYS / EVERY 3 MONTHS	PET, INDOOR ALLERGENS	NIL	YES	NO	NO	NIL	CAT, DERMATOPHYTES PTERONYSSINUS, DERMATOPHYTES FARINAE-POS
32	SUKRIYAN	4 YRS	MALE	URBAN	98	13.5	ASTHMA	7 MONTHS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, CAT-POS
33	DHANUSHKUMAR	12 YRS	MALE	RURAL	144	36	ASTHMA	1 YR	15 DAYS / MONTH	FOOD, PET ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	MILK,EGG, DERMATOPHYTES FARINAE, DOG-POS
34	BEULA	5 YRS	FEMALE	URBAN	103	14.5	ASTHMA	1YR	20 DAYS / MONTH	FOOD, PET ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	MILK, CAT-POS

35	SUKUNA	5 YRS	FEMALE	URBAN	101	15	ALLERGIC RHINITIS, ATOPIC DERMATITIS	4 YRS	3 DAYS/ EVERY 3 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	WHEAT, MILK- POS
36	KUMAR	5 YRS	MALE	URBAN	106	16.5	ASTHMA	1 YR	3 DAYS/ EVERY 2 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	EGG-POS
37	VINODHINI	8 YRS	FEMALE	RURAL	121	23	ALLERGIC RHINITIS	5 YRS	4 DAYS / EVERY 3 MONTHS	INDOOR ALLERGENS	NIL	YES	NO	NO	NIL	WHEAT, CAT,DOG, DERMATOPHYTES PTERONYSSINUS-POS
38	AYESHA	2 YRS	FEMALE	RURAL	86	10	ASTHMA	8 MONTHS	14 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	WHEAT, MILK, APPLE-POS
39	VIBIN	8 YRS	MALE	URBAN	122	24	ASTHMA	4 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	EGG,CAT,MILK, DERMATOPHYTES PTERONYSSINUS-POS
40	ROHAN	3 1/2 YRS	MALE	URBAN	91	11.5	ASTHMA	2 YRS	3 DAYS / EVERY 4 MONTHS	NIL	SEASONAL	YES	NO	NO	NIL	MILK-POS
41	DHASIKA	6 YRS	FEMALE	URBAN	111	18.5	ASTHMA	3 YRS	5 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	EGG-POS
42	DHANUSH	12 YRS	MALE	RURAL	144	33	ALLERGIC RHINITIS, ATOPIC DERMATITIS	10 YRS	3 DAYS / EVERY 4 MONTHS	INDOOR, FOOD ALLERGENS	SEASONAL	YES	NO	NO	NIL	EGG, DERMATOPHYTES PTERONYSSINUS-POS
43	DIVYA	12 YRS	FEMALE	RURAL	143	33	ASTHMA	9 YRS	12 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	CAT, MILK-POS
44	BHARGAVI	10 YRS	FEMALE	URBAN	132	34.5	ASTHMA	9 YRS	20 DAYS / MONTH	PET, FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, CAT-POS
45	LITHIKA	2 1/2 YRS	FEMALE	RURAL	83	10.5	ATOPIC DERMATITIS	2 MONTHS	3 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	NIL	YES	NO	NO	NIL	MILK, DERMATOPHYTES FARINAE, ASPERGILLUS FUMIGATUS-POS
46	AFROSBANU	11 YRS	FEMALE	URBAN	140	32	ASTHMA	2 1/2 YRS	10 DAYS/ MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	EGG,MILK,CAT,APPLE, WHEAT- POS
47	BHUVANESH	1 YRS 5 MONTHS	MALE	RURAL	77	9.5	ASTHMA	45 DAYS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	DOG,MILK,EGG-POS
48	RAGUL	6 YRS	MALE	URBAN	110	17.5	ASTHMA	3 YRS	5 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	CAT, MILK, FUNGI-POS
49	ABINAYA	7 YRS	FEMALE	RURAL	116	19.5	ASTHMA	2 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, MILK, WHEAT, COCKROACH- POS
50	KANNAN	2 YRS	MALE	URBAN	85	9.5	ASTHMA	1 YR	3 DAYS / EVERY 3 MONTHS	NIL	NIL	NO	NO	NO	NIL	MILK-POS
51	MURUGAN	7 YRS	MALE	URBAN	115	18	ALLERGIC RHINITIS	4 YRS	5 DAYS / EVERY 4 MONTHS	PET ALLERGENS	NIL	NO	NO	NO	NIL	DOG, COCKROACH-POS
52	SRUTHI	4 YRS	FEMALE	URBAN	100	13.5	ASTHMA	1 YR	14 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	EGG,WHEAT,MILK-POS
53	THARUN	3 YRS	MALE	RURAL	91	12.5	ASTHMA	1 YR	5 DAYS / EVERY 3 MONTHS	NIL	SEASONAL	NO	NO	NO	NIL	CAT-POS



54	VIJAYARAJ	7 YRS	MALE	URBAN	116	20	ATOPIC DERMATITIS	3 YRS	4 DAYS / EVERY 3 MONTHS	PET ALLERGENS	NIL	YES	NO	NO	NIL	CAT, FUNGI, COCKROACH-POS
55	SANIYA	7 YRS	FEMALE	URBAN	117	19	ASTHMA	3 YRS	4 DAYS / EVERY 2 MONTHS	INDOOR ALLERGENS	NIL	NO	NO	NO	NIL	WHEAT, ASPERGILLUS FUMIGATUS - POS
56	HARINI	8 YRS	FEMALE	URBAN	122	22	ASTHMA	6 MONTHS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	CAT,MILK-POS
57	SEENIVAS	12 YRS	MALE	RURAL	143	30	ASTHMA	1 YR	5 DAYS / EVERY 4 MONTHS	PET, INDOOR ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NIL	CAT, DERMATOPHYTES FARINAE- POS
58	SAMUVEL	11 YRS	MALE	RURAL	141	34.5	ASTHMA	8 YRS	5 DAYS /EVERY 2 MONTHS	FOOD ALLERGENS	SEASONAL	YES	NO	NO	NIL	EGG,MILK-POS
59	HARINI	11 YRS	FEMALE	URBAN	139	35	ALLERGIC RHINITIS	5 YRS	3 DAYS /EVERY 3 MONTHS	FOOD, INDOOR ALLERGENS	NIL	YES	NO	NO	NIL	EGG, DERMATOPHYTES FARINAE- POS
60	JESRIN	5 YRS	FEMALE	URBAN	104	15.5	ASTHMA	4 YRS	4 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	APPLE, MILK-POS
61	VINOTH	8 YRS	MALE	URBAN	122	24	ASTHMA	4 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK,WHEAT-POS
62	MOHAN	3 YRS	MALE	RURAL	92	11.5	ASTHMA	1 1/2 YRS	5 DAYS / EVERY 4 MONTHS	NIL	NIL	NO	NO	NO	NIL	WHEAT-POS
63	ASHOK	5 YRS	MALE	URBAN	105	16.5	ASTHMA	1 YR	10 DAYS / MONTH	FOOD ALLERGENS	NIL	YES	NO	NO	INHALED STERIODS	EGG, MILK, WHEAT, APPLE-POS
64	ANUYA	3 YRS	FEMALE	URBAN	92	12.5	ASTHMA	1 YR	3 DAYS / EVERY 3 MONTHS	FOOD , INDOOR ALLERGENS	NIL	NO	NO	NO	NIL	WHEAT, ASPERGILLUS FUMIGATUS, DERMATOPHYTES FARINAE-POS
65	VANITHA	4 YRS	FEMALE	RURAL	99	14.5	ALLERGIC RHINITIS	6 MONTHS	4 DAYS / EVERY 3 MONTHS	INDOOR ALLERGENS	SEASONAL	YES	NO	NO	NIL	COCKROACH, WHEAT, APPLE-POS
66	MAHATHI	6 YRS	FEMALE	URBAN	109	18.5	ASTHMA	7 MONTHS	20 DAYS / MONTH	FOOD, INDOOR ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK,WHEAT,APPLE, DERMATOPHYTES PTERONYSSINUS-POS
67	KAVITHA	5 YRS	FEMALE	URBAN	104	17	ASTHMA	4 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	EGG, CAT-POS
68	NAVYASHREE	6 YRS	FEMALE	URBAN	111	15	ASTHMA	4 YRS	14 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	MILK-POS
69	PRAVEEN	10 YRS	MALE	RURAL	134	28	ASTHMA	6 YRS	10 DAYS / MONTH	FOOD, INDOOR ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS, EGG-POS
70	RATHINAVEL	6 YRS	MALE	URBAN	112	18	ASTHMA	2 1/2 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	EGG, WHEAT,MILK,APPLE, ASPERGILLUS FUMIGATUS-POS
71	PRIYADHARSHINI	4 YRS	FEMALE	URBAN	97	13.5	ASTHMA	1 1/2 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	EGG-POS
72	SHERIL	8 YRS	FEMALE	URBAN	123	23.5	ALLERGIC RHINITIS	4 YRS	3 DAYS / EVERY 3 MONTHS	INDOOR ALLERGENS	NIL	NO	NO	NO	NIL	DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS, COCKROACH-POS

73	VINAY	1 1/2 YRS	MALE	RURAL	83	10	ASTHMA	6 MONTHS	2 DAYS / EVERY 2 MONTHS	PET ALLERGENS	NIL	NO	NO	NO	NIL	CAT-POS
74	BALAMURUGAN	4 YRS	MALE	URBAN	100	16	ASTHMA	2 YRS	3 DAYS / EVERY 4 MONTHS	NIL	SEASONAL	NO	NO	NO	NIL	MILK,WHEAT,APPLE-POS
75	MOHAN	3 YRS	MALE	URBAN	92	12.5	ASTHMA	1 YR	2 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	MILK,APPLE,COCKROACH-POS
76	VINCENT PATEL	6 YRS	MALE	URBAN	111	18.5	ASTHMA	2 1/2 YRS	14 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	MILK,DOG,EGG, DERMATOPHYTES FARINAE-POS
77	KANISHKA	2 YRS	FEMALE	URBAN	88	10.5	ASTHMA	8 MONTHS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	WHEAT,MILK,EGG, APPLE-POS
78	SARATHY	5 YRS	MALE	URBAN	104	16.5	ASTHMA	1YR	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	EGG,CAT,APPLE-POS
79	VISHNUPRASAD	8 YRS	MALE	RURAL	123	24	ASTHMA	3 YRS	20 DAYS / MONTH	FOOD, INDOOR ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	MILK,FUNGI, DERMATOPHYTES PTERONYSSINUS, DERMATOPHYTES FARINAE-POS
80	RANI	8 YRS	FEMALE	URBAN	124	23	ASTHMA	3 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	WHEAT, MILK,APPLE-POS
81	RAJIV	2 YRS	MALE	URBAN	86	11	ASTHMA	1 YR	15 DAYS / MONTH	FOOD, PET ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	WHEAT,APPLE,FUNGI, COCKROACH, DOG-POS
82	JEEVA	6 YRS	MALE	URBAN	110	19	ALLERGIC RHINITIS, ALLERGIC CONJUNCTIVITIS	1 YR	3 DAYS / EVERY 4 MONTHS	FOOD, PET ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	NIL	DOG, WHEAT-POS
83	DIVYASHREE	4 YRS	FEMALE	URBAN	99	14.5	ATOPIC DERMATITIS	2 YRS	4 DAYS / EVERY 3 MONTHS	FOOD, PET ALLERGENS	NIL	YES	NO	NO	NIL	DOG, COCKROACH, EGG, WHEAT-POS
84	KARTHIKEYAN	8 YRS	MALE	RURAL	125	25	ALLERGIC RHINITIS, ALLERGIC CONJUNCTIVITIS	5 YRS	3 DAYS / EVERY 2 MONTHS	NIL	SEASONAL	NO	NO	NO	NIL	MILK, DOG-POS
85	SATHYA	7 YRS	FEMALE	URBAN	118	20.5	ASTHMA	3 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK,EGG, DOG-POS
86	VANATHI	3 YRS	FEMALE	URBAN	92	12.5	ASTHMA	1 1/2 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	MILK-POS
87	RAVI	11 YRS	MALE	URBAN	142	34	ALLERGIC RHINITIS	6 YRS	3 DAYS / EVERY 4 MONTHS	FOOD, INDOOR ALLERGENS	NIL	NO	NO	NO	NIL	APPLE, MILK, COCKROACH-POS
88	DURGASHREE	12 YRS	FEMALE	URBAN	147	38.5	ASTHMA	5 YRS	14 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, MILK, FUNGI, DERMATOPHYTES FARINAE-POS
89	DEEPTHI	3 YRS	FEMALE	RURAL	93	12	ASTHMA	1 YR	3 DAYS / EVERY 2 MONTHS	NIL	SEASONAL	NO	NO	NO	NIL	MILK-POS
90	ARUN	5 YRS	MALE	RURAL	105	17.5	ASTHMA	2 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, WHEAT,APPLE-POS
91	MURUGAN	3 YRS	MALE	RURAL	94	13.5	ASTHMA	3 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK, APPLE, DOG, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS

92	RISHI	9 YRS	MALE	URBAN	129	28.5	ALLERGIC CONJUNCTIVITIS	5 YRS	3 DAYS / EVERY 3 MONTHS	NIL	SEASONAL	NO	NO	NO	NIL	CAT, APPLE, DERMATOPHYTES PTERONYSSINUS-POS
93	TRILOK	4 YRS	MALE	URBAN	100	15	ATOPIC DERMATITIS	2 YRS	4 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	NIL	YES	NO	NO	NIL	EGG, MILK, FUNGI, ASPERGILLUS FUMIGATUS-POS
94	VISHNUPRIYA	11 YRS	FEMALE	URBAN	141	35	ASTHMA	7 YRS	18 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	APPLE, COCKROACH-POS
95	GOPAL	8 YRS	MALE	URBAN	123	24	ASTHMA	4 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK, FUNGI, COCKROACH, ASPERGILLUS FUMIGATUS-POS
96	SRIVIDYA	7 YRS	FEMALE	URBAN	117	21	ASTHMA	1 1/2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	WHEAT-POS
97	REENUKADEVI	4 YRS	FEMALE	RURAL	98	14.5	ASTHMA	2 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, MILK, WHEAT, ASPERGILLUS FUMIGATUS-POS
98	SANTHOSH	8 YRS	MALE	URBAN	124	25	ATOPIC DERMATITIS	4 YRS	3 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NIL	DERMATOPHYTES PTERONYSSINUS, MILK-POS
99	PUNITHA	4 YRS	FEMALE	URBAN	101	15	ASTHMA	2 YRS	3 DAYS / EVERY 3 MONTHS	NIL	SEASONAL	NO	NO	NO	NIL	DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
100	BALAJI	9 YRS	MALE	URBAN	130	27.5	ALLERGIC RHINITIS	2 YRS	3 DAYS / EVERY 3 MONTHS	INDOOR ALLERGENS	SEASONAL	NO	NO	NO	NIL	FUNGI, COCKROACH, ASPERGILLUS FUMIGATUS-POS
101	MOHAMAD FARHAN	10 YRS	MALE	URBAN	136	31.5	ASTHMA	3 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	APPLE-POS
102	HARIKISHORE	7 YRS	MALE	URBAN	118	21.5	ASTHMA	3 YRS	14 DAYS / MONTH	FOOD, INDOOR ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS, MILK-POS
103	SAIPRAMARV	6 YRS	MALE	URBAN	111	19	ALLERGIC RHINITIS	2 1/2 YRS	3 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	SEASONAL	YES	NO	NO	NIL	APPLE-POS
104	KRITHIKPRIYAN	11 YRS	MALE	RURAL	141	33.5	ASTHMA	3 1/2 YRS	10 DAYS / MONTH	INDOOR ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	FUNGI, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
105	SHANKAR	7 YRS	MALE	RURAL	116	20.5	ASTHMA	4 YRS	3 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	DOG-POS
106	NOWSAL AHMED	7 YRS	MALE	URBAN	117	21.5	ASTHMA	5 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	COCKROACH, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
107	HAAJI BEEVI	2 YRS	FEMALE	RURAL	87	11	ASTHMA	1 YR	5 DAYS / EVERY 2 MONTHS	NIL	NIL	NO	NO	NO	NIL	APPLE, DOG-POS
108	SWARNA	7 YRS	FEMALE	URBAN	117	21	ASTHMA	3 YRS	10 DAYS / EVERY 3 MONTHS	NIL	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	DOG, DERMATOPHYTES PTERONYSSINUS-POS
109	SHYAM	5 YRS	MALE	URBAN	105	16.5	ATOPIC DERMATITIS	3 YRS	3 DAYS / EVERY 4 MONTHS	FOOD, PET ALLERGENS	NIL	NO	NO	NO	NIL	EGG, CAT, COCKROACH-POS
110	BHUVANA	6 YRS	FEMALE	URBAN	110	18.5	ASTHMA	2 1/2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	COCKROACH, DERMATOPHYTES PTERONYSSINUS-POS

111	SAM	8 YRS	MALE	URBAN	123	25	ASTHMA	3 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NO	INHALED STERIODS	CAT, DOG-POS
112	DHANUSH	6 YRS	MALE	URBAN	111	18.5	ASTHMA	3 YRS	5 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	NO	INHALED STERIODS	MILK-POS
113	KARUNAKARAN	3 YRS	MALE	RURAL	91	12	ASTHMA	1 1/2 YRS	5 DAYS / MONTH	FOOD, INDOOR ALLERGENS	NIL	NO	NO	NO	NO	NIL	APPLE, COCKROACH, DERMATOPHYTES FARINAE-POS
114	VISHAL	10 YRS	MALE	RURAL	136	31.5	ALLERIC RHINITIS, ASTHMA	1 1/2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NO	INHALED STERIODS	APPLE-POS
115	SRINIDHI	5 YRS	FEMALE	RURAL	105	17	ASTHMA	3 YRS	15 DAYS / MONTH	ENVIRONMENT AL ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	NO	INHALED STERIODS	FUNGI-POS
116	PRITHIKA	5 YRS	FEMALE	URBAN	106	16.5	ASTHMA	1 YR	20 DAYS / MONTH	INDOOR ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	NO	INHALED STERIODS	DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
117	NITHIN	3 YRS	MALE	URBAN	94	12.5	ASTHMA	2 YRS	4 DAYS / MONTH	FOOD ALLERGENS	NIL	NO	NO	NO	NO	NIL	MILK-POS
118	KAVIN	8 YRS	MALE	URBAN	124	25	ALLERGIC CONJUCTIVITIS	5 YRS	3 DAYS / EVERY 4 MONTHS	PET ALLERGENS	SEASONAL	YES	NO	NO	NO	NIL	CAT, DOG-POS
119	PREETHI	3 1/2 YRS	FEMALE	URBAN	93	12.5	ALLERGIC RHINITIS	2 YRS	3 DAYS / EVERY 4 MONTHS	NIL	SEASONAL	NO	NO	NO	NO	NIL	DOG-POS
120	SNEHA	9 YRS	FEMALE	URBAN	130	25	ASTHMA	4 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	NO	INHALED STERIODS	MILK, EGG-POS
121	ANUSHA	8 YRS	FEMALE	URBAN	124	25	ATOPIC DERMATITIS	4 YRS	4 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	NIL	YES	NO	NO	NO	NIL	MILK, APPLE, ASPERGILLUS FUMIGATUS-POS
122	SURAJ	4 YRS	MALE	URBAN	100	14.5	ASTHMA	1 1/2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NO	INHALED STERIODS	EGG, MILK, WHEAT-POS
123	MOHANBABU	3 YRS	MALE	RURAL	93	13	ASTHMA	2 YRS	3 DAYS / EVERY 2 MONTHS	NIL	SEASONAL	NO	NO	NO	NO	NIL	APPLE-POS
124	RAKSHITHA	8 YRS	MALE	RURAL	121	25	ASTHMA	4 1/2 YRS	21 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	NO	INHALED STERIODS	WHEAT, MILK, DOG-POS
125	POORNASHREE	8 YRS	FEMALE	URBAN	123	24.5	ASTHMA	5 YRS	10 DAYS / MONTH	FOOD, INDOOR ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	NO	INHALED STERIODS	WHEAT, MILK, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
126	PAVITHRAN	5 YRS	MALE	URBAN	106	17	ASTHMA	2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NO	INHALED STERIODS	APPLE, COCKROACH, FUNGI-POS
127	SARANYA	9 YRS	FEMALE	RURAL	130	28.5	ALLERGIC RHINITIS	4 YRS	3 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	SEASONAL	YES	NO	NO	NO	NIL	EGG, APPLE, ASPERGILLUS FUMIGATUS-POS
128	SANKAR	4 YRS	MALE	RURAL	100	14.5	ASTHMA	3 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NO	INHALED STERIODS	EGG, MILK, CAT, DOG-POS
129	SARAN	6 YRS	MALE	URBAN	112	19	ASTHMA	4 YRS	5 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	NO	INHALED STERIODS	MILK, FUNGI-POS
130	MOHAMAD AATIF	10 YRS	MALE	URBAN	135	30.5	ASTHMA	2 YRS	10 DAYS / MONTH	FOOD, PET ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	NO	INHALED STERIODS	MILK, WHEAT, DOG-POS
131	YACOOB	4 1/2 YRS	MALE	URBAN	100	14.5	ASTHMA	2 YRS	5 DAYS / MONTH	NIL	SEASONAL	NO	NO	NO	NO	NIL	APPLE-POS
132	VARSHITHA	7 YRS	FEMALE	URBAN	117	21.5	ATOPIC DERMATITIS	2 YRS	3 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	SEASONAL	YES	NO	NO	NO	NIL	EGG, FUNGI, COCKROACH, DERMATOPHYTES FARINAE-POS

133	MANVI	3 YRS	FEMALE	RURAL	94	13	ASTHMA	1 1/2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, MILK-POS
134	SANJUSREE	7 YRS	FEMALE	URBAN	118	20.5	ASTHMA	3 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	WHEAT, MILK, CAT-POS
135	AAFIYA	10 YRS	FEMALE	URBAN	136	31	ASTHMA	2 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	WHEAT, MILK, COCKROACH-POS
136	NITHISH	8 YRS	MALE	URBAN	124	25	ALLERGIC RHINITIS	3 YRS	3 DAYS / EVERY 4 MONTHS	FOOD, INDOOR ALLERGENS	SEASONAL	NO	NO	NO	NIL	WHEAT, COCKROACH, FUNGI-POS
137	MILLER	11 YRS	MALE	RURAL	142	35	ASTHMA	4 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	WHEAT, MILK-POS
138	LENIN	7 YRS	MALE	RURAL	117	20.5	ASTHMA	2 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	EGG, MILK-POS
139	JUDE VINOOTH	2 YRS	MALE	URBAN	88	11	ASTHMA	1 YR	5 DAYS / MONTH	NIL	SEASONAL	NO	NO	NO	NIL	WHEAT-POS
140	VEENA	4 YRS	FEMALE	URBAN	99	14.5	ASTHMA	2 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK, ASPERGILLUS FUMIGATUS-POS
141	CHITRAMALA	10 YRS	FEMALE	RURAL	135	31.5	ATOPIC DERMATITIS	4 YRS	4 DAYS / EVERY 3 MONTHS	INDOOR ALLERGENS	NIL	YES	NO	NO	NIL	COCKROACH, FUNGI, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS, ASPERGILLUS FUMIGATUS-POS
142	SASIKUMAR	7 YRS	MALE	URBAN	118	21	ASTHMA	3 YRS	5 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK,FUNGI-POS
143	MALARVIZHI	3 YRS	FEMALE	URBAN	94	13.5	ASTHMA	1 YR	5 DAYS / MONTH	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	APPLE, MILK, EGG-POS
144	RANJAN	4 YRS	MALE	URBAN	101	15	ASTHMA	1 1/2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, WHEAT, CAT-POS
145	ROOBINI	8 YRS	FEMALE	URBAN	124	25	ASTHMA	2 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	WHEAT, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
146	PRIYANKA	5 YRS	FEMALE	URBAN	106	17.5	ASTHMA	3 YRS	10 DAYS / MONTH	NIL	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	APPLE, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
147	MONISHWAR	5 YRS	MALE	URBAN	105	18	ASTHMA, ALLERGIC RHINITIS	2 1/2 YRS	3 DAYS / EVERY 4 MONTHS	FOOD, INDOOR ALLERGENS	SEASONAL	NO	NO	NO	NIL	EGG, FUNGI, CAT, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
148	HEMALATHA	6 YRS	FEMALE	URBAN	111	19	ATOPIC DERMATITIS	4 YRS	3 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	NIL	YES	NO	NO	NIL	EGG, MILK-POS
149	VETRISELVAN	9 YRS	MALE	RURAL	130	28.5	ASTHMA	2 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK, DERMATOPHYTES FARINAE, FUNGI-POS
150	SUDHESH	7 YRS	MALE	URBAN	114	20	ASTHMA	1 YR	20 DAYS / MONTH	FOOD, INDOOR ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	FUNGI, COCKROACH-POS
151	TAMILARASI	11 YRS	FEMALE	RURAL	143	32	ATOPIC DERMATITIS	6 MONTHS	3 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	NIL	YES	NO	NO	NIL	EGG-POS
152	LAKSHMAN	2 YRS	MALE	RURAL	88	9.5	ASTHMA	3 MONTHS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	MILK-POS

153	SHARMILA	5 YRS	FEMALE	URBAN	105	15	ASTHMA	3 YRS	5 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	MILK-POS
154	MONIKA	11 YRS	FEMALE	URBAN	139	32.5	ALLERGIC RHINITIS, ASTHMA	9 YRS	3 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	NIL	APPLE, MILK-POS
155	TEJESWARAN	1 1/2 YRS	MALE	RURAL	80	8.5	ASTHMA	8 MONTHS	3 DAYS / MONTH	NIL	SEASONAL	YES	NO	NO	NIL	CAT-POS
156	PRAGADESWARAN	4 1/2 YRS	MALE	URBAN	98	13.5	ASTHMA	1 1/2 YRS	15 DAYS / MONTH	INDOOR ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	COCKROACH,FUNGI, DERMATOPHYTES FARINAE-POS
157	RESHMA	8 YRS	FEMALE	URBAN	120	24	ASTHMA, ATOPIC DERMATITIS	3 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	NO	NO	NO	INHALED STERIODS	DERMATOPHYTES FARINAE, COCKROACH, MILK-POS
158	LOKESH	8 YRS	MALE	RURAL	121	23	ASTHMA	6 YRS	15 DAYS / MONTH	INDOOR ALLERGENS	SEASONAL	NO	NO	NO	INHALED STERIODS	COCKROACH-POS
159	NAUSHAD	4 YRS	MALE	URBAN	97	12.5	ASTHMA	6 MONTHS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES , SEASONAL	YES	NO	NO	INHALED STERIODS	MILK, DERMATOPHYTES FARINAE-POS
160	JEEVA	4 1/2 YRS	MALE	RURAL	98	13	ASTHMA	3 YRS	20 DAYS / MONTH	PET ALLERGENS	ACTIVITIES	YES	NO	NO	INHALED STERIODS	DOG-POS
161	JEYALAKSHMI	10 YRS	FEMALE	RURAL	134	30	ALLERGIC RHINITIS	7 YRS	3 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	MILK, DERMATOPHYTES FARINAE-POS
162	ROSHANASHREE	12 YRS	FEMALE	URBAN	148	35	ASTHMA	7 YRS	15 DAYS / MONTH	PET ALLERGENS	NIL	NO	NO	NO	INHALED STERIODS	DOG, FUNGI-POS
163	JANANI	9 YRS	FEMALE	RURAL	127	27	ASTHMA	6 YRS	3 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	MILK, APPLE, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
164	NITHISHMENON	8 YRS	MALE	URBAN	122	24	ASTHMA	4 YRS	3 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	MILK-POS
165	HARSHAN	5 YRS	MALE	URBAN	102	16.5	ATOPIC DERMATITIS	3 YRS	3 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	NIL	YES	NO	NO	NIL	EGG, FUNGI-POS
166	SHYAM	8 YRS	MALE	RURAL	120	23	ASTHMA	3 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	NO	NO	NO	INHALED STERIODS	DOG, APPLE-POS
167	RANJITH	12 YRS	MALE	RURAL	145	36	ATOPIC DERMATITIS	5 YRS	3 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	NIL	YES	NO	NO	NIL	DOG, APPLE-POS
168	DHAKSHAN	4 1/2 YRS	MALE	URBAN	96	13.5	ASTHMA	2 1/2 YRS	20 DAYS / MONTH	PET, INDOOR ALLERGENS	ACTIVITIES, SEASONAL	YES	NO	NO	INHALED STERIODS	DOG, COCKROACH, EGG, MILK-POS
169	HARIHARAN	4 YRS	MALE	URBAN	98	14.5	ASTHMA	2 YRS	15 DAYS / MONTH	INDOOR, FOOD ALLERGENS	ACTIVITIES, SEASONAL	NO	NO	NO	INHALED STERIODS	DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS, FUNGI, APPLE-POS
170	KARSHIMA	9 1/2 YRS	FEMALE	URBAN	129	26	ALLERGIC RHINITIS	5 YRS	3 DAYS / EVERY 4 MONTHS	INDOOR ALLERGENS	NIL	NO	NO	NO	NIL	COCKROACH, DOG, EGG-POS
171	ANJAPAPPAN	7 YRS	MALE	RURAL	119	21	ASTHMA	3 YRS	15 DAYS / MONTH	FOOD, INDOOR ALLERGENS	ACTIVITIES, SEASONAL	NO	NO	NO	INHALED STERIODS	FUNGI, APPLE, DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
172	ARADHANA	6 YRS	FEMALE	URBAN	111	19	ASTHMA	2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	YES	NO	NO	INHALED STERIODS	CAT, DOG, EGG, MILK, APPLE, DERMATOPHYTES PTERONYSSINUS-POS

173	HARISH JAI	6 YRS	MALE	URBAN	109	17.5	ASTHMA	3 YRS	2 DAYS / MONTH	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	EGG, DERMATOPHYTES FARINAE-POS
174	HUMAIRA	7 YRS	FEMALE	URBAN	115	20	ASTHMA	2 YRS	5 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	EGG, WHEAT, CAT-POS
175	JANANI	10 YRS	FEMALE	RURAL	134	30	ASTHMA	4 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	YES	NO	NO	INHALED STERIODS	EGG-POS
176	RITHESH	4 YRS	MALE	URBAN	97	13.5	ALLERGIC RHINITIS	2 YRS	3 DAYS / EVERY 4 MONTHS	INDOOR, FOOD ALLERGENS	NIL	YES	NO	NO	NIL	EGG, MILK, DERMATOPHYTES FARINAE-POS
177	MOSES	2 1/2 YRS	MALE	URBAN	85	10	ASTHMA	1 YR	3 DAYS / MONTH	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	WHEAT, DERMATOPHYTES FARINAE-POS
178	SANDHYA	5 YRS	FEMALE	RURAL	104	15.5	ASTHMA	3 YRS	15 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	NO	NO	NO	INHALED STERIODS	EGG, MILK-POS
179	KANESHKUMAR	2 YRS	MALE	RURAL	87	10	ASTHMA	1 YR	20 DAYS / MONTH	FOOD ALLERGENS	SEASONAL	YES	NO	NO	INHALED STERIODS	WHEAT-POS
180	TEENA	11 YRS	FEMALE	URBAN	139	33	ASTHMA	7 YRS	15 DAYS / MONTH	INDOOR ALLERGENS	SEASONAL	NO	NO	NO	INHALED STERIODS	WHEAT, ASPERGILLUS FUMIGATUS-POS
181	JANSIRANI	12 YRS	FEMALE	RURAL	145	36	ASTHMA, ALLERGIC RHINITIS	7 YRS	15 DAYS / MONTH	FOOD, INDOOR ALLERGENS	ACTIVITIES, SEASONAL	YES	NO	NO	INHALED STERIODS	CAT, WHEAT, MILK, ASPERGILLUS FUMIGATUS, DERMATOPHYTES FARIANE, DERMATOPHYTES PTERONYSSINUS-POS
182	DAVID	7 YRS	MALE	RURAL	115	20	ASTHMA	4 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	YES	NO	NO	INHALED STERIODS	EGG-POS
183	SAISHREE	5 YRS	FEMALE	URBAN	104	16	ASTHMA	2 YRS	3 DAYS / MONTH	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	WHEAT-POS
184	PRANAVI	3 1/2 YRS	FEMALE	URBAN	92	11	ASTHMA	1 1/2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	NO	NO	NO	INHALED STERIODS	APPLE, EGG-POS
185	SACHIN	4 YRS	MALE	URBAN	97	14	ATOPIC DERMATITIS	2 YRS	3 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	EGG, MILK, CAT-POS
186	SHAMILI	7 YRS	FEMALE	URBAN	116	19.5	ASTHMA	3 YRS	3 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	NIL	NO	NO	NO	NIL	EGG-POS
187	LINGAPRAKESH	11 YRS	MALE	RURAL	140	33.5	ATOPIC DERMATITIS	5 YRS	5 DAYS / EVERY 4 MONTHS	FOOD ALLERGENS	ACTIVITIES, SEASONAL	NO	NO	NO	NIL	EGG, MILK-POS
188	SAILESHKUMAR	12 YRS	MALE	URBAN	144	37.5	ATOPIC DERMATITIS	7 YRS	4 DAYS / EVERY 3 MONTHS	INDOOR ALLERGENS	NIL	YES	NO	NO	NIL	DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS, EGG-POS
189	PORKODI	8 YRS	FEMALE	RURAL	122	24	ASTHMA	5 YRS	3 DAYS / MONTH	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	EGG-POS
190	RITHIKA	2 1/2 YRS	FEMALE	URBAN	87	10.5	ASTHMA	7 MONTHS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	NO	NO	NO	INHALED STERIODS	CAT, EGG-POS
191	SARAVANAN	10 YRS	MALE	URBAN	132	31.5	ASTHMA	4 YRS	15 DAYS / MONTH	INDOOR, PET ALLERGENS	ACTIVITIES, SEASONAL	NO	NO	NO	INHALED STERIODS	DOG, DERMATOPHYTES PTERONYSSINUS, DERMATOPHYTES FARINAE-POS
192	KANAGARAJ	6 YRS	MALE	RURAL	111	18.5	ALLERGIC RHINITIS	3 YRS	3 DAYS / EVERY 4 MONTHS	INDOOR ALLERGENS	SEASONAL	YES	NO	NO	NIL	DERMATOPHYTES FARINAE, FUNGI-POS
193	MALATHI	2 YRS	FEMALE	URBAN	84	10.5	ASTHMA	6 MONTHS	3 DAYS / EVERY 2 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	MILK, FUNGI-POS

194	LEENA	12 YRS	FEMALE	URBAN	146	37	ASTHMA	6 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	YES	NO	NO	INHALED STERIODS	MILK, EGG-POS
195	NATARAJ	9 YRS	MALE	URBAN	129	26	ATOPIC DERMATITIS	5 YRS	3 DAYS / EVERY 4 MONTHS	INDOOR ALLERGENS	NIL	YES	NO	NO	NIL	DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
196	SINDHU	3 1/2 YRS	FEMALE	RURAL	92	12.5	ASTHMA	2 YRS	4 DAYS / EVERY 3 MONTHS	FOOD ALLERGENS	SEASONAL	NO	NO	NO	NIL	MILK-POS
197	PRATHEBA	5 YRS	FEMALE	URBAN	104	16	ASTHMA	2 1/2 YRS	10 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	NO	NO	NO	INHALED STERIODS	EGG, WHEAT-POS
198	PRABHAVATHY	7 YRS	FEMALE	RURAL	115	20	ALLERGIC RHINITIS, ASTHMA	4 YRS	3 DAYS / EVERY 4 MONTHS	PET ALLERGENS	NIL	NO	NO	NO	NIL	CAT, DOG-POS
199	RAVI KUMAR	8 YRS	MALE	URBAN	121	24	ATOPIC DERMATITIS	3 YRS	4 DAYS / EVERY 2 MONTHS	INDOOR ALLERGENS	SEASONAL	YES	NO	NO	NIL	DERMATOPHYTES FARINAE, DERMATOPHYTES PTERONYSSINUS-POS
200	VIVEK	7 YRS	MALE	URBAN	116	20.5	ASTHMA	1 1/2 YRS	20 DAYS / MONTH	FOOD ALLERGENS	ACTIVITIES, SEASONAL	YES	NO	NO	INHALED STERIODS	EGG, APPLE-POS