



## Desensitization Therapy in Allergic Bronchial Asthma

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### Abstract

During 2011-2012 I visited 400 patients where in my clinic suffering from bronchial asthma they were examined by intradermal test, 180 patients showed positive results, among the allergen the major frequency of positivity were found regarding to tow dermatophagoides followed by order of frequency to pollen and mould. The good results of vaccine treatment in the patient of bronchial asthma confirm the usefulness of the desensitization treatment.

يلايلا ميركا

تد(نقلا تقويرطب تيساسحلا رابتخا صحف 400ءار جاصح فب متوث حابلا 2011-2012 ي بصفلاما و علام اقود جئاتنلا ناو نفعلاو ع لطلا تيساسحلا اهيلت رايغلاو 180 لمتجومتير تلالا (قر شبلج ناتن س سحتلا لاطباو وبرلا ي ضررم جلاء ي ف ح اقللا م.

**Keywords:** bronchial asthma, intradermal test, allergen, desensitization.

### Introduction

Bronchial asthma describes the recurrence generalized airway obstruction; the most important clinical manifestations are dyspnea and wheezes. There are many factors contributing to the bronchial obstruction such as contraction of bronchial muscle and the swelling of the mucus membrane and plugging with viscous mucus.<sup>1</sup>

According to the international information of the ratio of people suffering from asthma is about 100-150 million persons in the world, 180000 persons die yearly with increase about 20% yearly. Moreover, among 100000 persons there are 3000 appear to have the symptoms of asthma in the first year of age, 900 between 1-4 years of age, and 100 older than 20 years of age. The bronchial asthma can be divided into extrinsic and intrinsic depending on the exogenous and endogenous factors.<sup>2</sup>

The different level of the allergen concentration is responsible to sensitize or unchaining the symptoms (first international workshop on Mite allergens and Asthma) established the rate of the exposure of concentration  $\geq 2\mu\text{g/g}$  of dust of dermatophagoides pteronyssinus it is possible to give the symptoms of asthma meanwhile the rate of exposure concentration  $\geq 10\mu\text{g/g}$  of dust of dermatophagoides pteronyssinus increase the possibility of acute attack of asthma.<sup>3</sup>

Immunotherapy has the aim of making the patient less sensitive to a particular allergen. We must initiate treating the desensitization procedure when it is impossible to make the patient far away from the allergen source; the first trial of desensitizing the sensitivity was done by Noon<sup>4</sup> & Cooke<sup>5</sup> by giving the patient small dosage of allergen to be increased gradually. During the treatment by desensitizing the

IgE will increase in the first week then it decreases gradually, and it is possible to take this points as affecting course of treatment<sup>6</sup>.

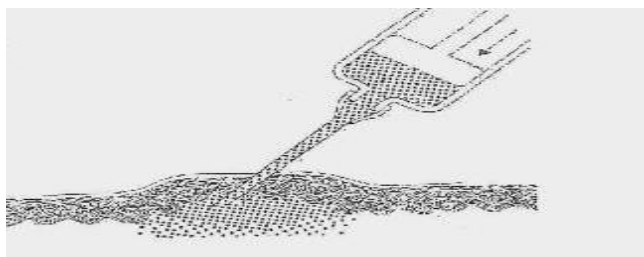
According to Serafini e Ricci, edaltri AA. The desensitization of pollen treatment must continue three years continuously in the month that precedes the period of flowering<sup>7</sup>.

### Aim of the Study

The study aims at prove the significance of using desensitization vaccine in treating the Allergic bronchial Asthma..

### Materials and Methods

The study has compromised 400 patients suffering from asthma from the period of 1/6/2011 - 1/6/2012 in different ages and sex from different provinces. The ratio of Diyala province was 79% and the ratio of Baghdad, Kirkuk and Tikrit provinces was 21%. The intradermal test has been done for 400 patients suffering from asthma after stopping any kind of treatment on the patients specially the anti-allergy and cortisone drugs for 48-72h before the test. This type of test has been choose because it is easy to be done and getting results.



(Picture No.1): Intradermal test

It is important to do the negative control 0.02ml and making positive control with 1mg/ml of histamine.

**C.The reading of the total results comes after a period of time about 5-20 minute and it is possible to notice the appearance of the late reactions after 24-48 hours the way of reading the result of the examining test is as follows<sup>8</sup>:**

1. Physiologic control –
2. Erithma & Pomf in the beginning +
3. Pomf 10mm ++
4. Pomf 15mm +++
5. Pomf 20mm ++++

### A. Materials

1. Equipment
2. Cotton
3. Antiseptic (spirit)
4. Syringe 1cc
5. Pen of graph
6. Allergen solution (HD<sup>1</sup>, HDM<sup>2</sup>, mould, pollen)
7. Control solution
8. Histamine 1 mg/ml solution
9. (Iraqi) vaccine according to the type of allergen
10. Phenol

### B. Method of injection allergen

In sitting position after reassurance the patient about our work which is easy and without complication the anti-aspect of the forearm to be cleaned with antiseptic solution then clean with pere the sick injected. Allergen mark each sites with their name. The method of injection in the intradermal test in the forearm using the syringe. This method is done by the injection of the intradermal solution in the forearm using the syringe of (1cc) with needle of increoline and the putting in a parallel form the skin surface and injection 0.02ml of the solution test in a way that makes a simple pomf<sup>9</sup>. As shown in picture No.1

**The vaccine has been given for desensitization on the upper front arm using syringe of 1 cc as follows:**

- a) With concentration 100000 u/ml:
  1. Number of doses: one dose weekly for four weeks
  2. Quantity of doses: increases weekly as the following:  
0.2, 0.4, 0.6, 0.8 u/ml
- b) With concentration 10000 u/ml
  1. Number of doses: one dose weekly for four weeks
  2. Quantity of doses: increases weekly as the following:  
0.2, 0.4, 0.6, 0.8 u/ml

- c) With concentration 1000 u/ml  
 1. Number of doses: one dose weekly for four weeks  
 2. Quantity of doses: increases weekly as the following:  
 0.2, 0.4, 0.6, 0.8 u/ml

**Second course:**

- A- With concentration 1000 u/ml  
 1. Number of doses: one dose every 15 days for two months  
 2. Quantity of doses: 0.8 u/ml

**Third course: (mantinment therapy)**

- A- With concentration 1000 u/ml  
 1. Number of doses: one monthly  
 2. Quantity of doses: 0.2 u/ml

**Results**

In my study the results showed the patients with allergen positive there are 103 in male and 77 in female from 400 cases and according to the different type of allergen (table 1). There are 47 patients suffering from HD with the percentage 11.75% and 50 patients suffering from HDM with the percentage 12.5% and 31 patients suffering from HD & HDM with the percentage 7.75% and 34 patients suffering from pollen with the percentage 8.5% and 18 patients suffering from mould with the percentage 4.5% and negative results in 220 patients with percentage 55%; the total number of patients was 400 patients. The patients range of age from 6-550 years with a mean age of 26 years, the test has proved that 71.1% of the patients suffering from HD & HDM and 17.7% suffering from allergy pollen and 11.2% suffering from allergy mould. As shown in table No. 1

**Table (1):** Shows types of allergen and number of patients.

Type of allergen	No. examined patients	%
HD	47	11.75
HDM	50	12.5
HD & HDM	31	7.75
Pollen	34	8.5
Mould	18	4.5
Negative	220	55
Total	400	

According to table 2 and 3 and chart 1 & 2, there are 27 of males and 20 of females suffering from HD, 10 of the males and 6 of the females have been responded after the first course and 6 of males and 2 of females have been after the second course and 2 of males and 3 of females have been responded after the third course. The total of responded 29 with ratio 60.17% while there are 16 of males and 34 of females suffering from Mite 5 of the males and 11 of the females have been responded after the first course and 4 of males and 11 of females have been responded after the second course and 2 of males and 5 of females have been responded after the third course. The total of responded 38 with ratio 70.6%. While there are 15 of males and 14 of females suffering from HD & M, 8 of the males and 6 of the females have been responded

after the first course and 2 of males and 2 of females have been responded after the second course and 1 of males and 2 of females have been responded after the third course. The total of responded 21 with ratio 67.7%. While there are 6 of males and 21 of females suffering from Mould, 2 of the males and 4 of females have been responded after the first course and 3 of males and 1 of females have been responded after the second course and 0 of males and 1 of females have been responded after the third course. The total of responded 11 with ratio 60.1%. While there are 12 of males and 13 of females suffering from Pollen, 5 of the males and 3 of the females have been responded after the first course and 11 of males and 5 of females have. The total of responded 24, 16 are males and 8 are females with ratio 71.2%.

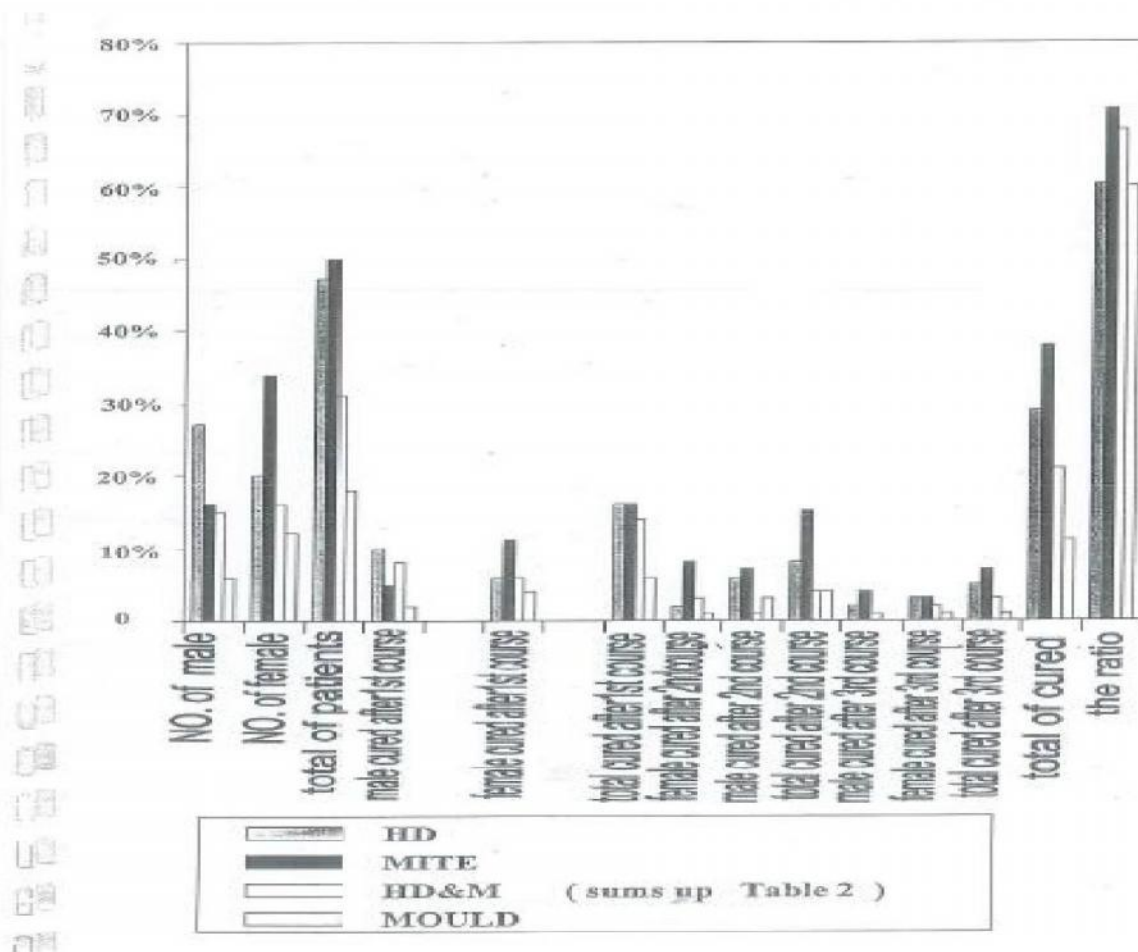
Table (2) : number of the patients who were subjected to the treatment classified according to sex and type of treatment and number of cured according to courses of treatment

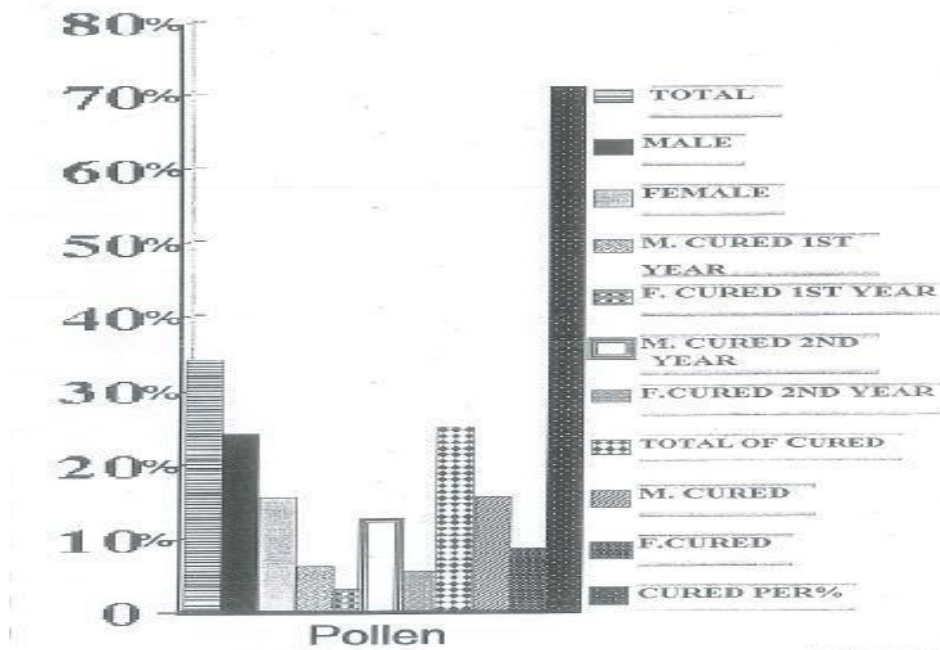
Type of allergen	No. patients			Response after the course 1 <sup>st</sup>			Response after the course 2 <sup>nd</sup>			Response after the course 3 <sup>rd</sup>			Total of cured	The ratio
	Male	Female	total	Male	Female	total	Male	Female	total	Male	Female	total		
HD	27	20	47	19	6	16	6	2	8	2	3	5	29	60.17%
Mite	16	34	50	5	11	16	4	11	15	2	5	7	38	70.6%
Hd&m	15	16	31	8	6	14	1	3	4	1	2	3	21	67.7%
Mould	6	12	18	2	4	6	2	2	4	0	1	1	11	60.1%

The period of giving the vaccine to pollen is from October until the end of February in 2001 and 2002

(Table 3 shows the number of patients of pollen)

Type of allergen	Total	Male	Female	Cured after the vaccine in the 1 <sup>st</sup> year		Cured after the vaccine of the 2 <sup>nd</sup> year		Total of cured		The cured percentage
				Male	Female	Male	Female	Male	female	
Pollen	34	21	13	5	3	11	5	24		71.2%
								16	8	





## Discussion

I preferred to use in my research the intradermal test because it is easy to be done and to obtain the results the results of my research which I have done appears high rate of the patient suffering from dust allergy, and it is clear that the use of the desensitization vaccine was useful in allergic bronchial asthma, in spite of the positive results the length course of treatment of desensitization makes the patients resorts to discontinue taking the vaccine.

However, the scientific development and the emergence of drops and tablet vaccines instead of injection may improve the results through the easiness of having the drops and tablets for the patient who suffers from allergic asthma.

Comparing the results of my research with Italian research using the same type of test (intradermal test) on 107 patients suffering from allergic bronchial asthma.<sup>10</sup>

Their results showed that the allergen pollen in the first rank followed by the house dust and the house dust mite. This is the pointer of the dust allergen in Iraq which causes the allergic bronchial asthma, is four times more than in Italy. The risk of adverse reaction was significantly higher in children patients with asthma and during the initial phase of treatment, tolerance of immunotherapy with standardized extract of *Alternaria tenuis* in patients of bronchial asthma.<sup>11</sup>

As compared with our study we found that the use of vaccine is very effective and gives good response, HD 60.17%, HDM 70%, HD and HDM 67.7%, Mould 60.1% and Pollen 71.2%. At present the most frequently used non-palliative form of disease modifying- therapy is specific allergen immunotherapy (SI) in which increasing doses of whole allergen extracts are administered in increasing dose in order to desensitize the allergic subject<sup>12</sup>.

## Conclusion and Recommendations

### Conclusions:

- The prevalence of asthmatic cases increased substantially toward the end of the 20<sup>th</sup> century and it is said to rise further
- The failure appellate approaches and increasing incidence of the disease is an evidence in the case of allergic disease to be continually the focus of concern
- The processes of intradermal test and vaccination are easy methods in out patients clinic
- Desensitization processing used in increasing doses and the vaccine is an excellent method to cure patients and makes it difficult for many motives (social, economic, psycho
- The results indicate that the treatment of Pollen vaccine during Pollen season deserves further attention towards the using of vaccination for allergic patients.

**Recommendations:**

1. Education of population toward the most common allergen, how to protect themselves from it and form asthma as possible
2. The importance of using masks for those who work in the dusty places
3. The importance of expanding in the examinations of the allergy test (intradermal test, prick test) in the health centers and the private clinics because it is easy to be done and to obtain the results and to give the vaccination treatment.
4. The medical authority must import the tablet and drop vaccines instead of injecting vaccine because it is easy to be used by the patients in the house like any other type of drugs without any difficulties

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