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ORIGINAL RESEARCH ARTICLE

Skin-prick test reactions to various allergens in asthmatic patients

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Abstract

The result of skin test for(9) various allergens to 149 asthmatic patients(80 male and 69 female)and 73 control(42 male and 31 female) are illustrate in table (1) to (8).(HD) *Dermatophagoides farina* D2 :Detect positive in 69.5% ,29% female patients and control respectively and detect positive in 68.7% , 30.9 male patient and control.(HDm) *Dermatophagoides pteronyssinus* D1: Detect positive in 76.8% ,12.9% female patients and control respectively and detect positive in 66.2% , 14.2% male patient and control. M1 Mould 1 (*Pencillium notatum*) : Detect positive in 27.5% ,0% female patients and control respectively and detect positive in 26.2% , 4.7% male patient and control.M2 Mould 2(*Cladosporium harbarum*):Detect positive in 14.4% ,3.2% female patients and control respectively and detect positive in 21.2% , 0% male patient and control. M3 Mould 3(*Aspergillus fumigates*):Detect positive in 10.1% ,0% female patients and control respectively and detect positive in 12.5% , 0% male patient and control. M4 Mould 4(*Mucor racemosus*):Detect positive in 2.8% ,0% female patients and control respectively and detect positive in 6.2% , 0% male patient and control. *Chenopodium* pollen:Detect positive in 7.2% ,0% female patients and control respectively and detect positive in 11.2% , 0% male patient and control. Mugowrt pollen:Detect positive in 4.3% ,0% female patients and control respectively and detect positive in 3.7% , 0% male patient and control.

Keywords: skin Test, human bronchial asthma, immunology, allergens

1 | INTRODUCTION

Asthma is a complex respiratory disease in which genetic predisposition, environmen-

tal and immunological influences interfere with each other (Edwards et al., 2012). It is considered one of the most prevalent chronic diseases, affecting approximately 300 million individuals (Masoli et al., 2004) and causing an estimated 250,000 deaths each year (Bateman et al., 2008). In addition, it is projected that by 2025, the global asthma burden will rise by 100 million people due to a growing Westernized lifestyle and urbanization in developing countries (Masoli, et al., 2004). The 'hygiene theory' was originally attributed to an increase in the prevalence of allergic diseases, including asthma, indicating that decreased exposure to microbes during the first years of life plays a role in the development of allergic diseases (Strachan, 1989, 2000). While this theory is generally accepted, studies have shown that the increased incidence of asthma, rhinitis, or

Neurodermitis does not completely account for decreased microbial exposure (**Mallol, 2008**; **Brooks et al.,2013**; **Kramer et al., 2013**). Asthma is a widespread illness globally and affects individuals of all ages, This condition usually occurs in infancy and is characterized by variable symptoms of wheeze, dyspnea, and chest tightness caused by air flow obstruction (fully reversible) (**GINA, 2015**; **Bisgaard & Bonnelykke, 2010**).

2 | MATERIALS AND METHODS

Samples

A total of (312) patients (149 males and 163 females) of various age groups were included in this Case –control study. The patient was examined, and diagnosed as asthma under supervision of the Physician.the study was carried out during a period from July 2018 to January 2020.

The grouping of patient

Male& Female patients were divided into five groups according to (**Falk, 1993**; **Herd,et al.,1996** ; **Nishioka,1996** ; **charman&Williams,2002**)

Group 1: 1- 11 years

Group 2: 12 – 2o years

Group 3: 21- 3o years

Group 4: 31 – 4o years

Group 5: above 4o years

Control group

A total of (204) healthy individual (81 males and 123 females) with out any features of asthma or any allergies to be compared with asthmatic patient in genetic and immunological studies.

Statistical analysis

Statistical analysis is done by using statistical package for social sciences(SPSS) software version 11, the chi square test, univariate and multivariate logistic regression analysis, the ANoVA analysis were applied for correlation between each study parameter, and the difference between two proportion by T- tests were used to assess the significance of difference between groups,P-Value less than 0.05 was considered as Statistically significance(S).P-value < 0.01 as highly significant(HS).and P-value > 0.001 as extremely significant(ES).

3 | RESULTS

The result of skin test for(9) various allergens to149 patients(80 male and 69 female)and 73 control(42 male and 31 female) are illustrate in table (1) to (8).

(HD) *Dermatophagoides farina* D2 :

Detect positive in 69.5% ,29% female patients and control respectively and detect positive in 68.7% , 30.9 male patient and control.

(HDm)*Dermatophagoides pteronyssinus* D1:

Detect positive in 76.8% ,12.9% female patients and control respectively and detect positive in 66.2% , 14.2% male patient and control.

Detect positive in 27.5% ,0% female patients and control respectively and detect positive in 26.2% , 4.7% male patient and control.

Supplementary information The online version of this article (https://doi.org/10.15520/) contains supplementary material, which is available to authorized users.

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M2 Mould 2(*Cladosporium harbarum*):

Detect positive in 14.4% ,3.2% female patients and control respectively and detect positive in 21.2% , 0% male patient and control.

M3 Mould 3(*Aspergillus fumigates*):

Detect positive in 10.1% ,0% female patients and control respectively and detect positive in 12.5% , 0% male patient and control.

M4 Mould 4(*Mucor racemosus*):

Detect positive in 2.8% ,0% female patients and control respectively and detect positive in 6.2% , 0% male patient and control.

Chenopodium pollen:

Detect positive in 7.2% ,0% female patients and control respectively and detect positive in 11.2% , 0% male patient and control.

Mugowrt pollen: Detect positive in 4.3% ,0% female patients and control respectively and detect positive in 3.7% , 0% male patient and control.

HD :*Dermatophagoides farina*
HDm:*Dermatophagoides pteronyssinus*

M1 :*Pencillium notatoum* M2:*Cladosporium harbarum* M3:*Aspergillus fumigates*

M4:*Mucor raceosus* Cheno.:Chenopodium pollen Mug.:Mugowrt pollen ND:Not detect

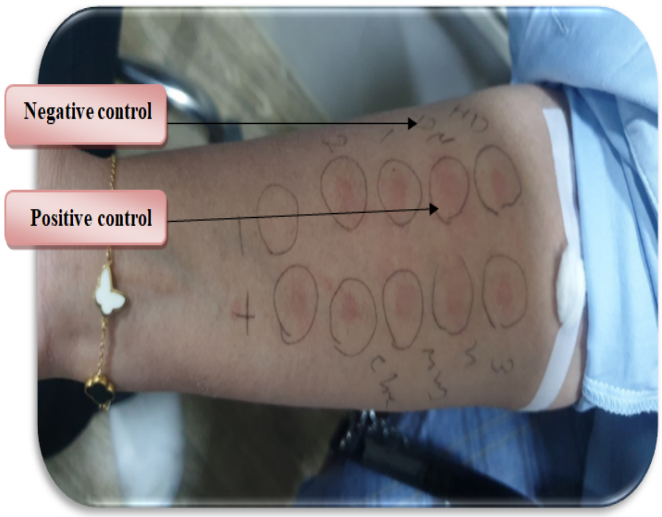

FIGURE 1: Skintest results

TABLE 1: HD Allergen detected by skin test

Total		HD Allergen Dermatophagoides farina										P	S NS
		Female					Male						
		Positive			Negative		Positive			Negative			
		Total female	No	%	NO	%	Total male	No.	%	No.	%		
Patient	149	69	48	69.5	21	30.4	80	55	68.7	25	31.2	0.463	NS
control	73	31	9	29	22	70.9	42	13	30.9	29	69	0.611	NS

TABLE 2: HDm Allergen detected by skin test

Total		HDm Allergen Dermtophagoides pteronyssinus											
		Female					Male						
		Positive			Negative		Positive			Negative			
		Total female	No	%	NO	%	Total male	No.	%	No.	%		
Patient	149	69	53	76.8	16	23.1	80	53	66.2	27	33.7	0.165	NS
control	73	31	4	12.9	27	87	42	6	14.2	25	59.5	0.134	NS

TABLE 3: M1 Allergen detected by skin test

Total		M1 Allergen Pencillium notatoum										P	S NS
		Female					Male						
		Positive			Negative		Positive			Negative			
		Total female	No	%	NO	%	Total male	No.	%	No.	%		
Patient	149	69	19	27.5	50	72.4	80	21	26.2	59	73.7	0.341	NS
control	73	31	0	0	31	100	42	2	4.7	40	95.2		

TABLE 4: M2 Allergen detected by skin test

Total		M2 Allergen Cladosporium harbarum										P	S NS
		Female					Male						
		Positive			Negative		Positive			Negative			
		Total female	No	%	NO	%	Total male	No.	%	No.	%		
Patient	149	69	10	14.4	59	85.5	80	17	21.2	63	78.7	0.202	NS
control	73	31	1	3.2	30	96.7	42	0	0	42	100		

TABLE 5: M3 Allergen detected by skin test

Total		M3 Allergen Aspergillus fumigates										P	S NS
		Female					Male						
		Positive			Negative		Positive			Negative			
		Total female	No	%	NO	%	Total male	No.	%	No.	%		
Patient	149	69	7	10.1	59	85.5	80	10	12.5	70	87.5	0.336	NS
control	73	31	0	0	31	100	42	0	0	42	100		

TABLE 6: M4Allergen detected by skin test

Total		M4 Allergen Mucor										P	S NS
		Female					Male						
		Positive			Negative		Positive			Negative			
		Total female	No	%	NO	%	Total male	No.	%	No.	%		
Patient	149	69	2	2.8	67	97.1	80	5	6.2	75	93.7	0.22	NS
control	73	31	0	0	31	100	42	0	0	42	100		

TABLE 7: Chenopodium Allergen detected by skin test

Total		Chenopodium pollen Allergen										P	S NS
		Female					Male						
		Positive			Negative		Positive			Negative			
		Total female	No	%	NO	%	Total male	No.	%	No.	%		
Patient	149	69	5	7.2	64	92.7	80	9	11.2	71	88.7	0.260	NS
control	73	31	0	0	31	100	42	0	0	42	100		

TABLE 8: MugowrtAllergen detected by skin test

Total		Mugowrt pollen Allergen										P	S NS
		Female					Male						
		Positive			Negative		Positive			Negative			
		Total female	No	%	NO	%	Total male	No.	%	No.	%		
Patient	149	69	3	4.3	66	95.6	80	3	3.7	77	96.2	0.05	S
control	73	31	0	0	31	100	42	0	0	42	100		

4 | DISCUSSION

Skin Test

Respiratory allergies are caused by allergens that play a significant role in allergic rhinitis and allergic asthma pathogenesis (Moitra et al., 2014). SPT is an effective diagnostic method for many allergic diseases and one generally used for the diagnosis of inhalant allergens, but it is also possible to ex-amine food, poison, occupational agents and drugs allergens through skin examination **(Bousquet et al.,2012; Genser and Schmid-Grendelmeier, 2014)**

According to the results of the skin test, we noticed an increase in the sensitivity to house dust mite in female patients by (76.8%), while in male patients it was(66.2%), followed by the house dust in females also by (69.5)%, and it was recorded in male patients

(68.7%) and the lowest level of sensitivity to M4 in female patients by(2.8 %). These results may be attributed to environmental pollution as well as the humidity factor and carpeted rooms in most homes, which is considered a suitable environment for most allergen.

Study conducted in Iraq showed variable results, **Wahhab (2013).** The present study approved the results of the previous studies that interested in allergies like HD,HDm,M1, M2, M3,M4,Cheno.,Mug. and Wheat. such as **Alsaimary,(2006).** that find grass and Rose give a hypersensitivity reaction in eczematous patients. and Savio,*et al*,.(2019).it not approved(**Altntas *et al.*,1999; Joshi *et al.*,2003; Ibero & Castillo, 2006). In addition, Cevit *et al*., (2007) .**

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