Results

The present study included 50 children (32 male and 18 female) their age ranged from 7 to 14 years, they were divided into two groups :

Group (1) : Asthmatic patients :

They were 35 patients (22 male) (62.9 % of the cases) and (13 female) (37.1% of cases) their mean age was (9.8 ± 2.1) years.

Group (2) : Control group :

They were 15 healthy children 10 male (66.7 % of cases) and 5 female (33.3% of cases) their mean age was (10.07 ± 2.1) years .

Table (1a) showed Individual Clinical Data of Patients

Table (1b) showed Individual Clinical and Laboratory Test Results of patients .

Table (2) showed Individual Clinical and Laboratory Data of the Control

Fig. 1 showed sex distribution of cases and control respectively .

Fig. 2 showed age distribution of cases and control respectively .

In table 3 the two groups were compaired as regard age and sex distribution while there were significant difference in family history of atopy and personal history of other allegic manifistations ($P<0.001$)

Table 4 showed distribution of the studied cases according to age of onset of disease. Bronchial asthma started to be symptomised duing infancy befor 1 year in (22) childern (62.9 % of cases) . and from 1 -4 years in (9) children (25 .7% of cases). and in 4 cases only after 4 years (11.4 % of cases) .

Table 5 , Table 6 , Table 7 , Table 8 and Table 9 showed clincical symptoms and signs of bronchial asthma in the studied cases.

Table 5 showed distribution of the studied cases according to diurnal variation, where in (6) cases the attack occure in the morning (17.1 % of cases) . and in (26) cases in evening (74.3%). While 3 cases (8.6 %) show no diurnal variation .

Table 6 showed distribution of studied cases according to seasonal variation, in which (24) of cases, the attacks occure in winter (68.6 %) , (8 cases) in spring (22.9%) and (4 cases) in Autumn (11.4%) and 2 cases showed no seasonal variation (5.7% of the cases) . And no cases of our study showed attacks of asthma in summer.

Table 7 showed distribution of the studied caes according to complaint in which dyspnea is present in (100%) of cases, wheez is present in (97.1%) of cases and cough is present in (57.1%) of cases while 17.1% of cases complaining of presence of sputum .

Table 8 showed distribution of the studied cases according to the frequency (Number) of attacks / year . In which (16) cases, (45.7%) showed one attack/year, (17) cases, (48.6%) showed 2 attacks / year and only 2 cases (only 5.7 %) showed 3 attacks / year.

The range of frequenay of attacks of asthma in our study were 1-3 the (mean ± S D) (1.6 ± 0.6) .

Table 9 showed distribution of the studied cases according to number of hospital admissions/ year . Which range from 0 - 2 years, (14) cases (40%) show no admission, (15) cases (42.9%) had one admission/ year and only (6) cases (17.1%) show 2 admissions / years (the mean± SD) was (0.77±0.73).

Table 10 and Fig. 3 showed distribution of studied cases according to result of skin prick testing . All cases gave + ve reaction to one or more of allergens used . In the studied cases sixteen patients of them give + ve reaction with house dust (45.7 % of cases) , (14) case gave + ve reaction with dust mite (40%), 10 cases (28.6%) give +ve reaction with pollen, and only 1 case gave + ve reaction with Dog hoir (2.9 %) and 1 case gave + ve reaction with cat hair (2.9 %) .

Table 11 showed comparison of the peak expiratory flow rate recording (PEFR) among the studied cases during the attack of asthma (Before treatment) and after remission (after treatment) .

During attack, PEFR was ranged from (110 - 150) litre /minute The mean ± S D was (124.6± 13.1).

While the range of PEFR after remission was (210 - 360) litre/minute and the mean ± S D was (260.6 ± 28.59) The differance was satisticaly Significant (t=39.31) (P < 0.001).

- NB : % of improvment of PEFR was 52.19 %

Table 12 showed PEFR results in asthmatic versus control childrens. where the PEFR in control ranged from 250-390 litre/minute the mean ± S D was 328.7 ± 52.1 - t = 4.77 - P < 0.001 so the difference is statistically significant.

Table 13 and Fig. 4,5 showed comparison as regards the serum level of interleukin 10 between the studied cases during the attack (Before treatment) and after remission of asthma (after treatment) . and also showed the comparison between the studied cases and cotrols. Regarding serum level of IL 10 during attack of studied cases was raged from (7.2 - 10.8 pg /ml) the mean ± S D was (8.65 ± 1.02) and after remission serum level of IL 10 ranged from (8.9 - 12.1 Pg / ml) the mean ± S D was (10.2 ± 0.92) the difference was statistically significant (t = 6.56), (P < 0.001). Serum level in controls is compaired with studied cases during attack, in control serum level of IL-10 ranged from (9.7 - 12.2) the mean ± S D was (10.8± 0.83) the difference was statisticelly significant t= 7.14 (P<0.001)

Also Serum level of IL-10 in controls is compared with studied cases after attacks, where their was no significat difference as regard serum level of IL-10. (t = 0.65) (P > 0.05) . But mean serum level of IL-10 is slightly diminished after attacks than healthy controls.

Table 14 showed correlation coefficients between interleukin 10 and other variables in cases, where there is no statistically significant correlation between interleukin 10 and other variables in cases, as age of patients, duration of the disease, no. of attacks per year, no. of admissions per year, no. of + ve skin prick testin g results and PEFR during or after attacks .P value for all > 0.05.

Table (1a) : Individual Clinical Data of Patients

S_{no}	Age in years	Sex	Complaint				Onset		Duration	Frequency of attacks (Last year)	Number of admissions last year	Diurinal Variations		Seasonal Variations				Personal history of atopy	family history of atopy
			cough	dypsnea	wheez	sputum	first year	after 1 year				morning	evening	Sum.	SP.	Au.	Win.		
1	7	female	+	+	+	-	+		6	++	++	-	+	-	-	-	+	+	+
2	11	male	-	+	+	-	+		10	+++	++	-	+	-	+	-	+	+	+
3	13	male	+	+	+	+		2nd	11	++	+		+				+	-	+
4	12	female		+	+		+		11	++	+		+				+	+	+
5	10	male	+	+	+		+		9	+	+	+					+	+	+
6	11	male		+				3 rd	8	+	+		+		+			+	+
7	14	male	+	+	+	+		4 th	10	+++	++		+		+		+	-	+
8	9	female		+	+		+		8	+	+		+		-		+	+	+
9	9	male		+	+		+		8	+	-		+		+			+	+
10	10	male		+	+			2 nd	8	+	-		+				+	+	+
11	9	male	+	+	+			3 rd	6	++	+		+		+			-	+
12	8	female	+	+	+		+		7	++	+		+				+	-	+
13	7	female	+	+	+			4 th	3	++	++		+				+	-	+
14	8	male		+	+	+		2 nd	6	++	++		-			+		+	+
15	9	male	+	+	+		+		8	++	++		-		+		+	-	+
16	10	female		+	+			3 rd	7	++	+	+					+	-	+
17	11	female		+	+	+	+		10	+	+	+					+	+	+
18	12	male	+	+	+		+		11	+	-		+			+		-	+
19	7	male		+	+		+		6	++	-		+				+	-	+
20	7	female		+	+		+		6	+	-	+					+	-	+
21	14	female	+	+	+			4 th	10	++	+		+				+	+	+
22	13	male	-	+	+		+		12	+	-		+				+	-	+

Individual Clinical Data of Patients (Cont.)

S_{no}	Age in years	Sex	Complaint				Onset		Duration	Frequency of attacks (Last year)	Number of admissions last year	Diurinal Variations		Seasonal Variations				Personal history of atopy	family history of atopy
			cough	dypsnea	wheez	sputum	first year	after 1 year				morning	evening	Sum.	SP.	Au.	Win.		
23	10	male	+	+	+	+	+		9	+	-		+				+	+	+
24	12	male	+	+	+		+		11	++	-		+				+	-	+
25	7	female		+	+		-	2 nd	5	++	+	+				+		+	+
26	10	male	+	+	+		+		9	+	+		+				+	-	+
27	8	male	+	+	+		+		7	++	+		+				+	+	+
28	7	male	+	+	+		+		6	++	-		+		+			-	+
29	8	male		+	+		+		7	++	+		+		+			+	+
30	9	female	+	+	+			3 rd	6	++	-		+			+		+	+
31	9	female	+	+	+	+		4 th	5	+	-	-					+	-	+
32	10	female		+	+		+		9	+	-		+				+	+	+
33	10	female	+	+	+		+		9	+	+		+				+	+	+
34	13	male		+	+		+		12	+	-		+				-	+	+
35	9	male	+	+	+			2 nd	7	+	-	+	-	-	-	-	-	-	+

Table (1b) : Individual Clinical and Laboratory Test Results of patients

No	Result of Skin prick test												Peak Expirtory flow Rate Recording (L/M)		(Elisa) Interlukin 10 Serum level (pg/ml)	
	Milk	Fish	Egg	chocolate	House dust	Dog Hair	Cat hair	Mixed mold	Mixed pollen	Dust Mite	Histamine	- ve Control	during attack	after attack	during attack	after attack
1		+			+						+		120	250	9.0	11.1
2			+					+3.5	+3.5		+	+1ml	130	280	8.8	10.6
3	t 2.5m				+3m				+2.5ml		+	-	140	280	9.6	11.1
4					+ 4ml				+ 3ml	+ 3ml	+	+1ml	130	270	8.4	9.8
5					+ 3m					+3ml	+	+0.5ml	120	240	7.3	9.00
6								+ 3 ml	+ 3ml		+	-	110	250	9.2	10.7
7										+ 3.5 ml	+	+1ml	150	300	8.3	9.9
8		+								+	+	+	110	260	9.2	10.4
9		+								+	+	+	120	280	9.7	11.9
10		+ 3ml								+	+	-	110	240	8.5	9.1
11				+				+			+	-	120	230	10.8	12.1
12				+ ml							+	-	110	220	7.4	8.9
13					+				+		+	+	110	220	9.6	11.1
14	+				+		+				+	+	110	240	7.9	9.1
15					+				+		+	+	130	260	10.5	11.2
16				+							+	+	120	280	8.4	10.1
17	+					+					+	+	140	290	10.7	11.00
18				+	+						+	+	130	270	8.7	10.2
19			+ 3.5								+	-	110	210	9.3	10.7
20					+				+		+	+	110	220	8.3	9.4
21					+				+		+	+	150	360	7.9	9.9
22			+		+					+	+	+	140	270	7.2	9.3

Individual Clinical and laboratory Test Results of patients (Cont.)

No	Result of Skin prick test												Peak Expirtory flow Rate Recording (L/m)		(Elisa) Interlukin 10 Serum level (pg/ml)	
	Milk	Fish	Egg	chocuit	House dust	Dog Hair	Cot hair	Mixed mold mm	Mixed polur mp	Mite	Tvetre	- ve Control	during attack	after attack	during attack	after attack
23		+ 3 ml	+ 3ml		+ 2.5ml						+	+ 0.5m	120	250	8.1	9.4
24					+ 2.5 ml						+ 3.5ml	–	130	270	10.1	11.1
25								+ 3 ml			+	+ 1ml	110	220	7.6	9.2
26		+ 3ml			+ 3ml					+	+	–	130	260	7.2	10.3
27										2.5 ml	+	–	110	260	7.8	8.9
28			+ 3ml	+3 ml	+					+ 3ML	+	+ 1 ml	120	270	8.3	9.1
29	+ 3ml									+ 3 ml	+	+ 1ml	110	250	8.5	10.1
30	+ 3.5ml		+ m l						+ 3ml		+	–	120	270	7.4	9.2
31								+ 3ml	+ 3ml	+ 3ml	+	+ 1ml	130	240	7.9	9.9
32	+ 3.5 ml			+ 3ml							+	+ 1ml	140	280	9.2	10.9
33				+				+ 4ml			+	+ 2 ml	140	270	8.5	10.9
34			+ 3ml					+		+ 3ml	+	+ 1 ml	150	280	10.2	12.00
35					+ 3ml					+ 3ml	+	+ 1ml	130	280	7.3	9.5

Table (2) : **Individual Clinical and Laboratory Data of the Control**

NO	Age	Sex	Personnal History of atopy	Family H. of atopy	P E F R L / m	S . level of IL.10 (pg/ml)
1	7	male	–	–	250	9.9
2	14	male	–	+	380	10.3
3	11	female	–	–	370	11.4
4	10	female	–	–	380	9.7
5	10	male	–	–	390	10.2
6	12	male	–	–	360	11.6
7	13	male	–	–	380	12.0
8	9	male	–	–	360	11.7
9	9	male	–	–	250	10.9
10	13	male	–	–	270	10.7
11	9	male	–	–	300	12.2
12	7	female	–	+	300	9.8
13	8	male	–	–	290	11.3
14	9	female	–	–	390	10.11
15	10	female	–	–	320	10.6

Table (3) : Some clinical data of asthmatic patients in comparison to control group

	Patients n = 35	Controls n = 15	Statistics	P
Age (yr) Range Mean ± S D	 7-14 9.80 ±2.10	 7-14 10.07±2.15	t = 0.41	> 0.05
Sex M/F	22/13	10/5	X2 = 0.07	> 0.05
P.H of Allergy	57.1 %	0.0 %	z = 3.78	< 0.001*
F. H of atopy	100 %	13.3%	z = 6.40	< 0.001 *

P.H : Personal History F.H : Family History

Table (4) : Distribution of the studied cases according to the age of onset of disease :

Age of onset of the disease in years	No. of Cases	%
1y	22	62.9
2y	5	14.3
3y	4	11.4
4y	4	11.4
5y	0	0.0
Total	**35**	**100.0**
Rage	**1 - 4**	
Mean	**1.17**	
± S D	**1.07**	

Table (5) : Distribution of the studied cases according to diurnal variation of asthma symptoms

	No	%
Morning	6	17.1
Evening	26	74.3
No diurnal variation	3	8.6
Total	**35**	**100.0**

Table (6) : Distribution of the studied cases according to seasonal variation

	No	%
winter	24	68.6
Spring	8	22.9
Autumn	4	11.4
Summer	0	0.0
No. seasonal variation	2	5.7

Table (7) : Distribution of the studied cases according to complaint

	No	%
Dyspnea	35	100.0
Wheeze	34	97.1
Cough	20	57.1
Sputum	6	17.1

Table (8) : Distribution of the studied cases according to frequency (number of attacks) / year

No. of attacks / year	No. of cases	%
1	16	45.7
2	17	48.6
3	2	5.7
Total	**35**	**100.0**
Rage	**1 - 3**	
Mean	**1.60**	
± S D	**0.60**	

Table (9) : Distribution of the studied cases according to number of hospital admissions / year

No. of hosp. admissions / year	No	%
0	14	40.0
1	15	42.9
2	6	17.1
Total	**35**	**100.0**
Rage	**0-2**	
Mean	**0.77**	
± S D	**0.73**	

Table (10) : Distribution of the studied asthmatic patients according to results of skin prick testing

Allergen	No	%
Histamine (+ ve control)	35	100.0
House dust	16	45.7
Mite	14	40.0
Pollen	10	28.6
Mould	6	17.1
Cat hair	1	2.9
Dog hair	1	2.9
Egg	7	20.0
Fish	7	20.0
Chocolate	6	17.1
Milk	6	17.1
- ve control	0	0.0

Table (11) : Comparison between PEFR results among cases during the acute asthma attack and after treatment

PEFR (Litre / minute)	During attack	after ttt
Range	110-150	210-360
Mean	124.57	260.57
± S D	13.14	28.59
% reduction during attacks = (% of improvment)	52.19 %	
t (paired)	39.31	
P	< 0.001 *	

* Significant

Table (12) : PEFR in asthmatic patients (after ttt) compared to control group

PEFR (Litre/minute)	astmatic after treatment	Control group	t value	P
Range Mean ± SD	210-360 260.57±28.59	250-390 328.678±52.08	4.77	< 0.001*

Table (13) : Comparison between cases and controls as regards serum level IL10 (Pg / ml)

	Cases n = 35	Controls n = 15	t (value)	P
during attack Range Mean ± S D	 7.2 - 10.8 8.65 1.02	 9.7 - 12.2 10.83 0.83	7.14	< 0.001*
after ttt Range Mean ± S D	 8.9 - 12.1 10.20 0.92	 9.7 - 12.2 10.83 0.83	0.65	> 0.05
t (paired)	6.56			
P	< 0.001 *			

* Significant

Table (14) : Correlations coefficient between IL-10 and other variables in studied cases

	IL 10 pre ttt (R)	IL 10 post ttt
IL 10 pre ttt	-	0.008
IL 10 post ttt	0.008	-
Age	0.177	0.017
Duration	0.266	0.052
Admissions no.	0.037	-0.165
Frequency of attacks	-0.040	0.84
No. Of +ve skin test	-0.067	0.078
PEFR pre ttt	0.239	0.005
PEFR post ttt	0.150	-0.033

P value for all > 0.05 insignificant

Fig. (1)

Sex Distribution among Cases and Controls

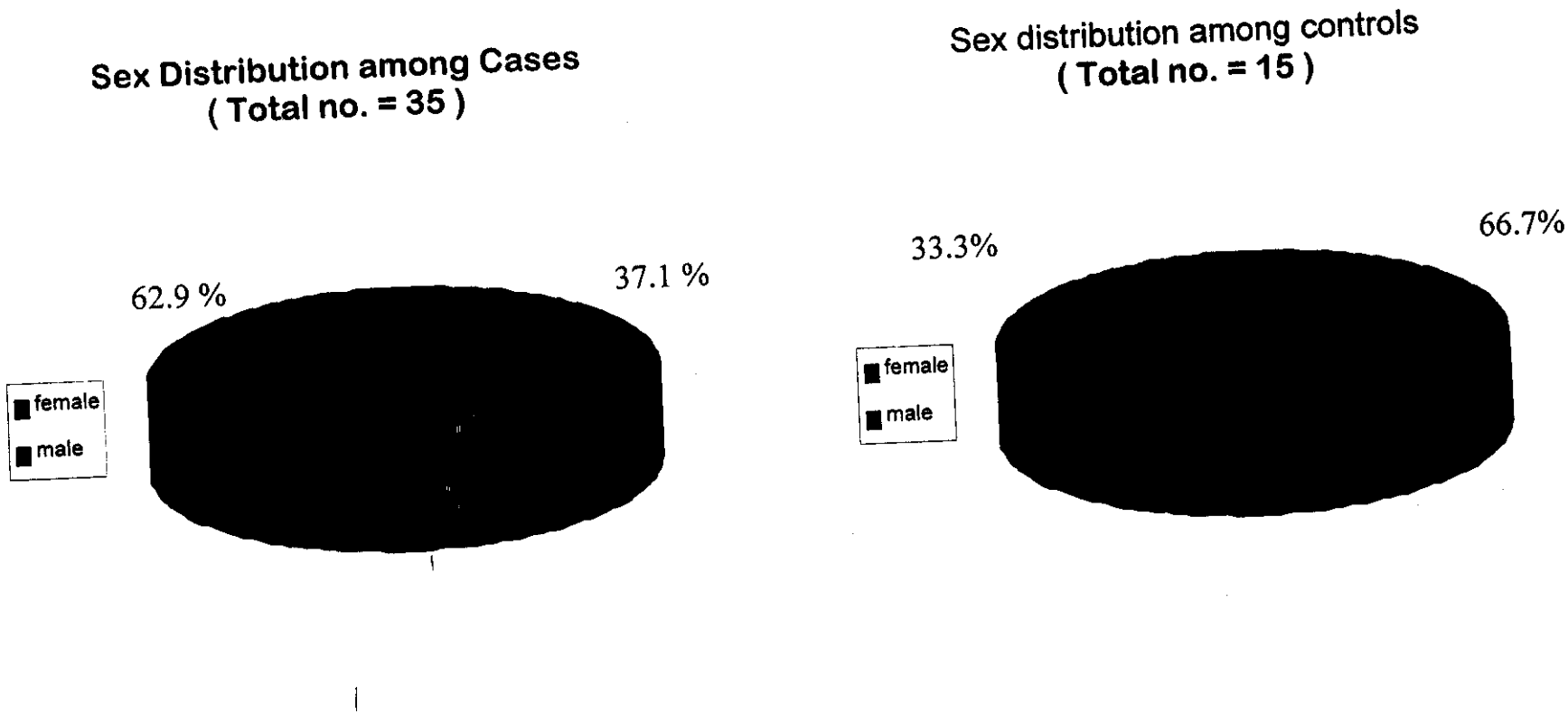
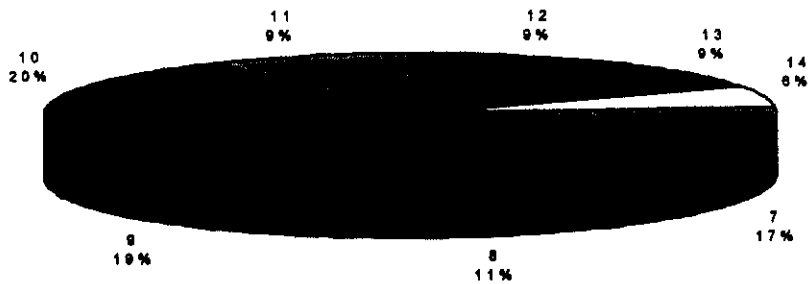


Fig. (2)
Age Distribution among Cases and Controls

Age Distribution among Cases
(Total no. = 35)



Age Distribution among Control
(Total no. = 15)

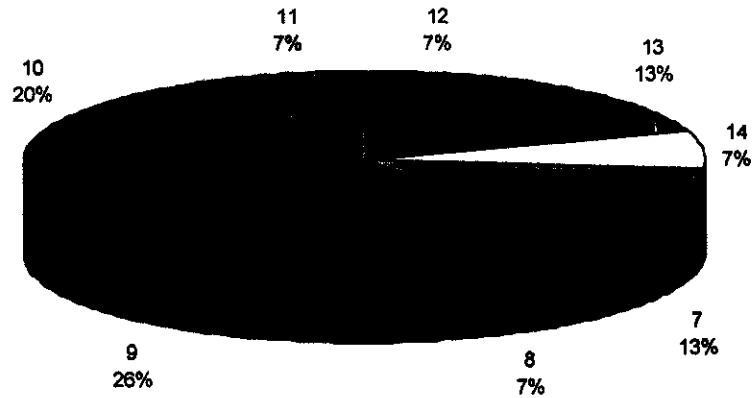


Fig. (3) : Results of Skin Prick Testing in asthmatic patient

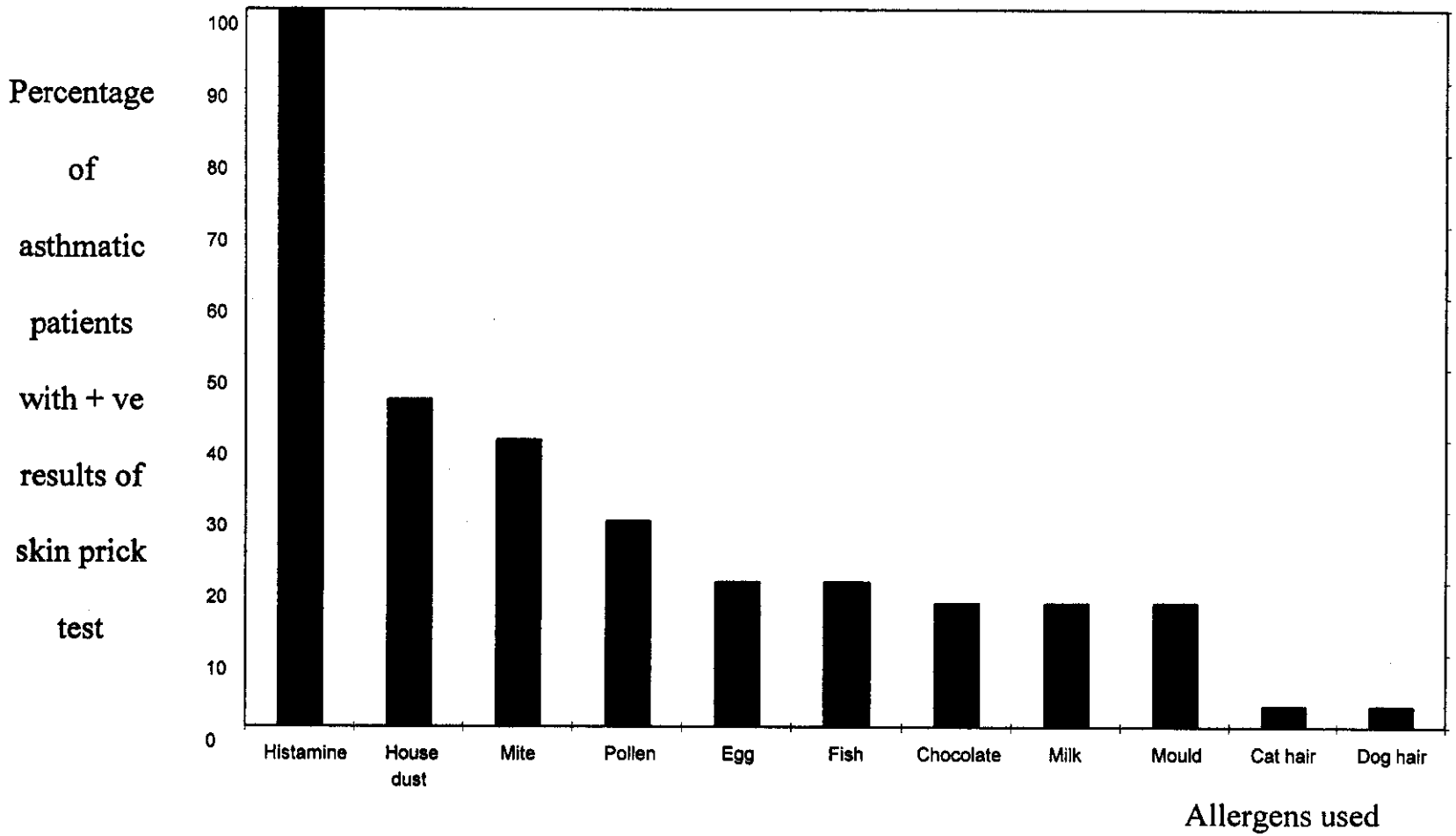


Fig. (4) : Range and mean levels of serum IL-10 in asthmatic and control groups (Pg/ml)

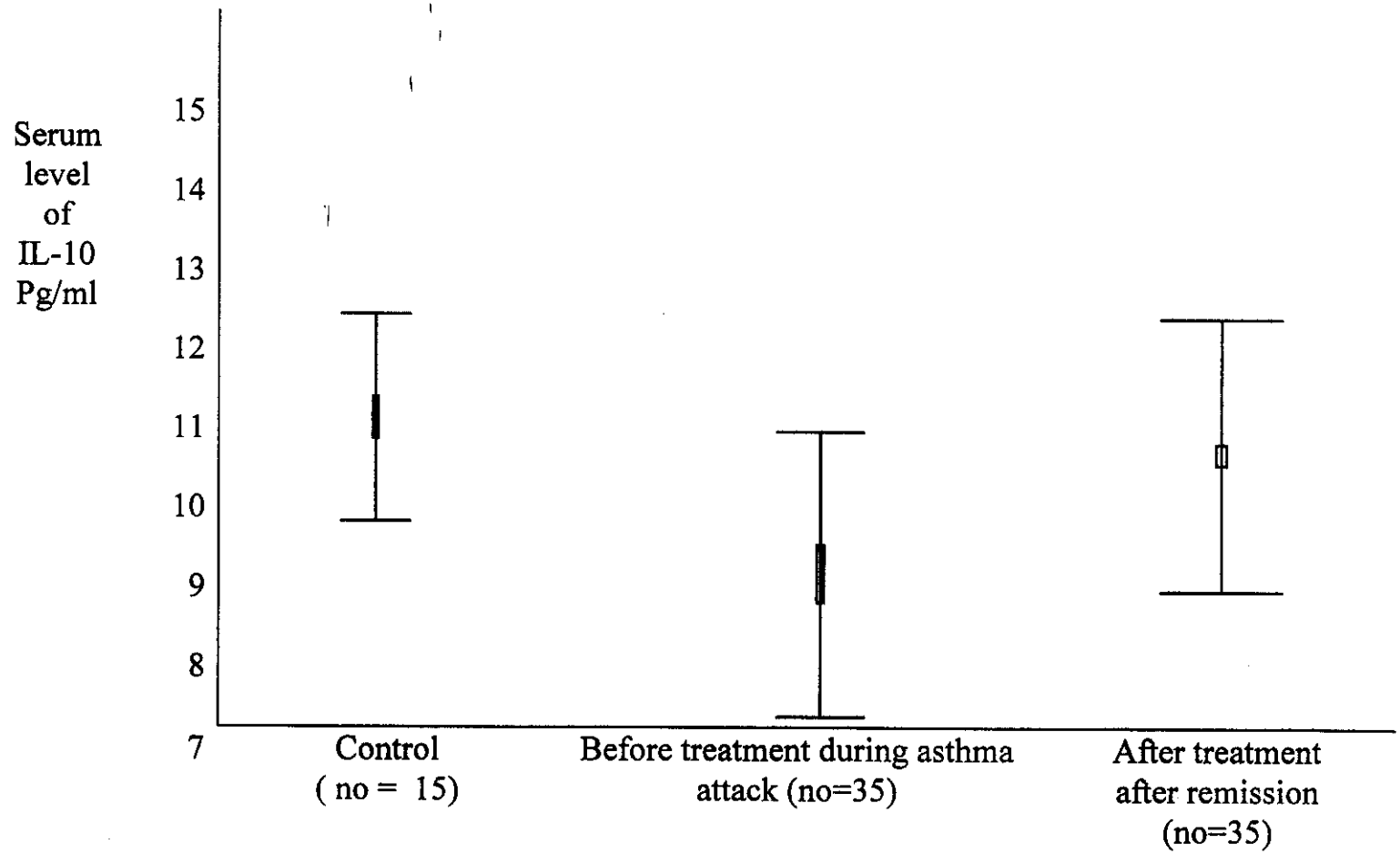


Fig. (5) : Mean Serum IL-10 Level in the Studied Children (pg/mL)