
RESULTS

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This study was carried on 50 subjects, suffering from bilateral nasal polypi and 10 volunteers (control group). However, some of the subjects were lost during this study and so the post-operative evaluation was done only for, (23) subjects in group II (subjects with nasal polyps only without respiratory complications) and (21) subjects in group III (subjects with nasal polyps and bronchial asthma). The results were Statistically evaluated.

Age and Sex Distribution :

Table (1) show the age and sex distribution among the different group of the study.

In group I control group (non hyperreactive non asthmatic subjects without nasal polypi), the age of the volunteers ranged from 18 to 45 years, the mean average age was 28.4 ± 9.1 years. Six volunteers were males (60%) and four volunteers were females (40%) as shown in Fig.(1).

In group II (subjects with polyps only without respiratory complications), the age of the subjects ranged from 17 to 53 years, the mean average age was 28.5 ± 9.9 years. Fifteen subjects were males (65.2%) and eight subjects were females (34.7%) as shown in Fig.(1).

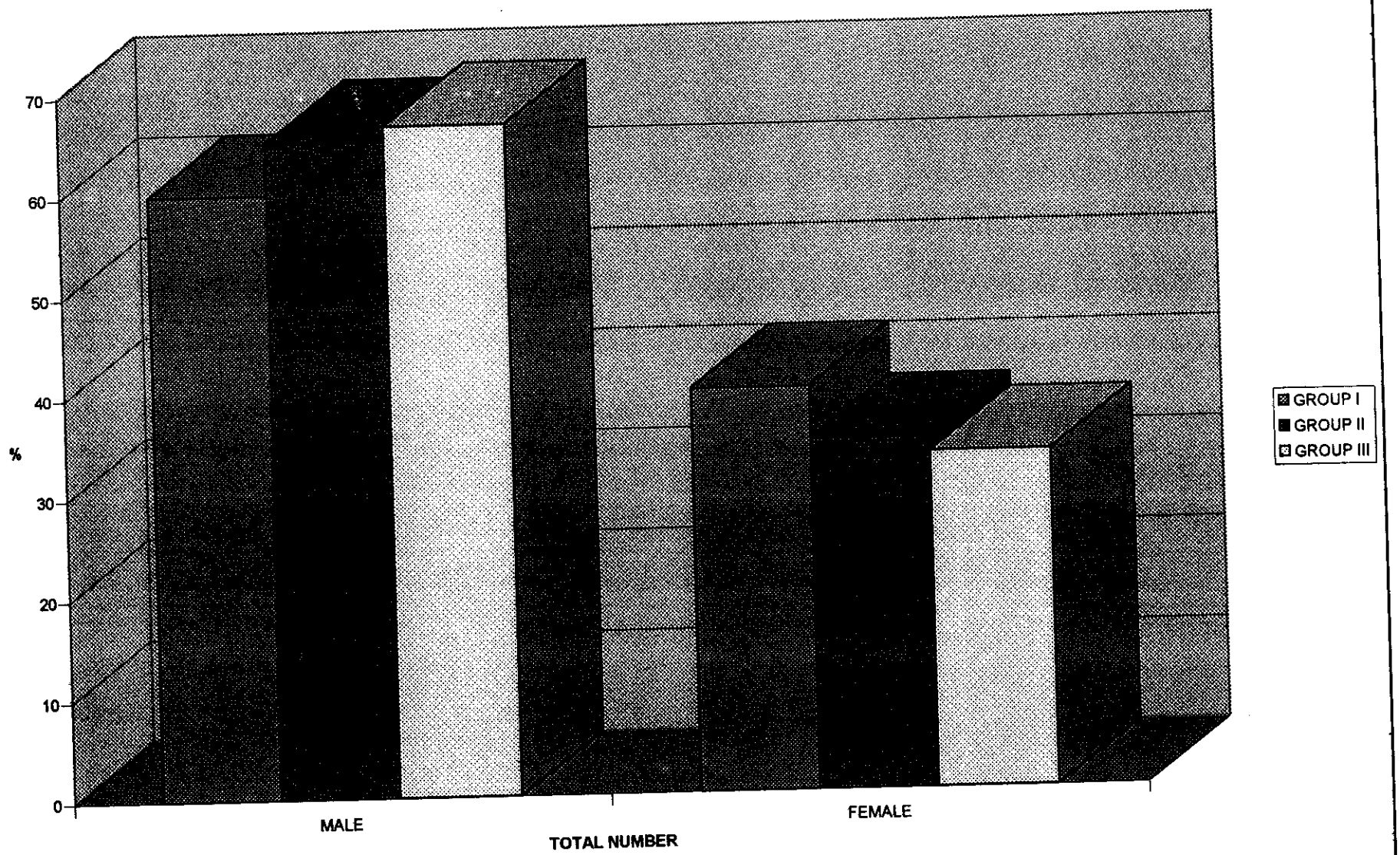
In group III (subjects with nasal polyps and bronchial asthma), the age of the subjects ranged from 18 to 50 years, the mean average

age was 29.7 ± 8.6 years. Fourteen patients were males (66.6%) and seven patients were females (33.3%) as shown in Fig.(1).

Table (1) : Patients age and sex distribution among different groups of the study.

	Age			Sex		Total Number
	Range	$\bar{X}$	S.D.±	Male	Female	
Group I	18-45	28.4	9.1	6 (60%)	4 (40%)	10
Group II	17- 53	28.5	9.9	15 (65.2%)	8 (34.7%)	23
Group III	18-50	29.7	8.6	14 (66.6%)	7 (33.3%)	21

FIG. 1 PATIENTS' SEX DISTRIBUTION CHART



VENTILATORY FUNCTION STUDY RESULTS IN DIFFERENT GROUPS

The ventilatory function tests were :

A- The forced vital capacity (FVC) expressed as % of predicted value.

B- The forced expiratory volume in the first second (FEV1)% of predicted value.

C- FEV_1% of the patient's FVC.

D- The forced expiratory flow rates (FEF) expressed as % of predicted values.

- FEF_{max} : forced expiratory flow rate at maximal FVC.
- $FEF_{25-75\%}$: forced expiratory flow rate between 25% and 75% of FVC.
- $FEF_{25\%}$, $FEF_{50\%}$ and $FEF_{75\%}$.

GROUP I :

Group I included 10 healthy subjects (non asthmatic, non hyperreactive and without nasal polypi (control group).

Table (2) : A, B, C, D, E, F, G, H; shows the ventilatory function results in group I.

Table (2) A : Shows that the mean of FVC was 88.2 ± 5.82

Table (2) B : Shows that the mean of FEV_1 was 87.8 ± 3.7

Table (2) C : Shows that the mean of FEV_1/FVC% was 100 ± 5.1

Table (2) D : Shows that the mean of $FEF_{25-75\%}$ was 86.6 ± 6.2.

Table (2) E : Shows that the mean of FEF_{max} was 83.6 ± 6.

Table (2) F : Shows that the mean of $FEF_{25\%}$ was 83.1 ± 7.5

Table (2) G : Shows that the mean of $FEF_{50\%}$ was 86.8 ± 6.7

Table (2) H : Shows that the mean $FEF_{75\%}$ was 83.8 ± 6.1

Table (2-A) : Statistical analysis of FVC in group I.

FCV		
$\overline{X}$	S.D.±	S.E.±
88.2	5.82	0.229

Table (2-B): Statistical analysis of FEV_1 in group I.

FEV_1		
$\overline{X}$	S.D.±	S.E.±
87.8	3.7	0.12

Table (2-C): Statistical analysis of FEV_1/FVC% in group I.

FEV_1/FVC%		
$\overline{X}$	S.D.±	S.E.±
100	5.13	2.10

Table (2-D): Statistical analysis of $FEF_{25-75\%}$ in group I.

$FEF_{25-75\%}$		
$\overline{X}$	S.D.±	S.E.±
86.6	6.2	0.17

Table (2-E): Statistical analysis of FEF_{max} in group I.

FEF_{max}		
$\overline{X}$	S.D.±	S.E.±
83.6	6	0.27

Table (2-F): Statistical analysis of $FEF_{25\%}$ in group I.

$FEF_{25\%}$		
$\bar{X}$	S.D.±	S.E.±
83.1	7.5	0.32

Table (2-G): Statistical analysis of $FEF_{50\%}$ in group I.

$FEF_{50\%}$		
$\bar{X}$	S.D.±	S.E.±
86.8	6.7	0.79

Table (2H): Statistical analysis of $FEF_{75\%}$ in group I.

$FEF_{75\%}$		
$\bar{X}$	S.D.±	S.E.±
83.8	6.1	0.13

Group II :

Group II (patients with nasal polyps only without chest complications) included twenty three patients. Fifteen patients were discovered that they had nasal polyps with bronchial hyperreactivity known as group (II-A) and eight patients had nasal polyps alone group (II-B).

Table (3) : A, B, C, D, E, F, H shows the ventilatory functions reuslts of patients of groups (II-A) before and three months after endoscopic intranasal polypectomy. There is significant increase in the ventilatory functions three months after surgery except for the FEV_1/FVC% which shows non significant increase.

Table (3) A, shows that the mean FVC before surgery was 80.06 ± 3.57 and three months after surgery was 88.87 ± 3.03. The difference is Statistically significant ($P < 0.05$).

Table (3) B, and fig. 2 and 3 shows that the mean FEV_1 before surgery was 79 ± 4.5 and 3 months after surgery was 84 ± 5.6. The difference in Statistically significant ($P < 0.05$).

Table (3) C, shows that the mean FEV1/FVC% before surgery was 97 ± 5.2 and three months after surgery was 97.5 ± 3.2. The difference is Statistically non significant ($P > 0.05$).

Table (3) D, shows that the mean FEF 25-75% before surgery was 77.4 ± 2.7 and three months after surgery was 81.47 ± 4.7 the difference is Statistically significant ($P < 0.05$).

Table (3) E, shows that the mean FEF_{max} before surgery was 77.4 ± 4 and three months after surgery was 83 ± 4.3, the difference is Statistically significant ($P < 0.05$).

Table (3) F, shows that the mean $FEF_{25\%}$ before surgery was 76.7 ± 4 and three months after surgery was 81.1 ± 3.8 the difference is Statistically significant ($P<0.05$).

Table (3) G, shows that the mean FEF50% before surgery was 76.4 ± 2.73 and three months after surgery was 80.2 ± 3.7 the difference is Statistically significant ($P < 0.05$).

Table (3) H, shows that the mean FEF75% before surgery was 75.8 ± 3 and three months after surgery was 81.2 ± 4.8 the difference is Statistically significant (P M 0.05).

Table (4) A, B, C, D, E, F, G, H, shows the ventilatory function results of patients of group (II-B) before and three months after surgery. There was no significant difference between the ventilatory function tests before and three months postoperatively.

Table (4) A, shows that the mean FVC before surgery was 85.3 ± 6.5 and three months after surgery was 87.1 ± 2.85 the difference is Statistically non significant ($P > 0.05$).

Table (4) B and fig.(4) shows that the mean FEV_1 before surgery was 87 ± 2.3 and three months after surgery was 87.2 ± 2.47. The difference is Statistically non significant.

Table (4) C, shows that the mean $FEV_1/FVC\%$ before surgery was 99.5 ± 3.07 and three months after surgery was 99.75 ± 3.28 the difference is Statistically non significant.

Table (4) D, shows that the mean $FEF_{25-75\%}$ before surgery was 85.3 ± 3.42 and three months after surgery was 85.6 ± 3.66. The difference is Statistically non significant.

Table (4) E, shows that the mean FEF_{max} before surgery was 84.6 ± 4.6 and three months after surgery was 84.8 ± 4.5 the difference is Statistically non significant.

Table (4) F, shows that the mean $FEF_{25\%}$ before surgery was 84.1 ± 5.44 and three months after surgery was 84.37 ± 5.05 the difference is Statistically non significant.

Table (4) G, shows that the mean $FEF_{50\%}$ before surgery was 84.8 ± 3.9 and three months after surgery was 85.1 ± 4.19 the difference is Statistically non significant.

Table (4) H, shows that the mean $FEF_{75\%}$ before surgery was 80.1 ± 3.1 and three months after surgery was 80.3 ± 3.2 the difference is Statistically non significant.

Table (3-A) : Statistical analysis of FVC of patients of group (II-A) before and three months after surgery.

	FVC		
	$\bar{X}$	S.D.±	S.E.±
Before	80.07	3.71	0.16
After	88.87	3.03	0.42
T.value	7.2		
P.value	< 0.05		
Significance	S.		

S : Significant

N.S : Non significant

Table(3-B): Statistical analysis of FEV_1 of patients of group (II-A) before and three months after surgery.

	FEV_1		
	$\bar{X}$	S.D.±	S.E.±
Before	79	4.54	0.17
After	84	5.60	0.19
T.value	3		
P.value	< 0.05		
Significance	S.		

Table (3-C): Statistical analysis of $FEV_1/FVC\%$ of patients in group (II-A) before and three months after surgery.

	$FEV_1/FVC\%$		
	$\bar{X}$	S.D.±	S.E.±
Before	97	5.29	22.6
After	97.5	3.20	21.7
T.value	0.34		
P.value	> 0.05		
Significance	N.S.		

Table (3-D): Statistical analysis of $FEF_{25-75\%}$ of patients of group (II-A) before and three months after surgery.

	$FEF_{25-75\%}$		
	$\bar{X}$	S.D.±	S.E.±
Before	77.43	2.7	0.1
After	81.47	4.7	0.2
T.value	2.9		
P.value	< 0.05		
Significance	S.		

Table (3-E): Statistical analysis of FEF_{max} of patients of group (II-A) before and three months after surgery.

	FEF_{max}		
	$\bar{X}$	S.D.±	S.E.±
Before	77.4	4.09	0.3
After	83	4.32	0.5
T.value	3.49		
P.value	< 0.05		
Significance	S.		

Table (3-F): Statistical analysis of $FEF_{25\%}$ of patients of group (II-A) before and three months after surgery.

	$FEF_{25\%}$		
	$\bar{X}$	S.D.±	S.E.±
Before	76.7	4.06	0.6
After	81.1	3.81	0.3
T.value	3.02		
P.value	< 0.05		
Significance	S.		

Table (3-G): Statistical analysis of $FEF_{50\%}$ of patients of group (II-A) before and three months after surgery.

	$FEF_{50\%}$		
	$\bar{X}$	S.D.±	S.E.±
Before	76.4	2.73	0.28
After	80.2	3.76	0.27
T.value	3.1		
P.value	< 0.05		
Significance	S.		

Table (3-H): Statistical analysis of $FEF_{75\%}$ of patients of group (II-A) before and three months after surgery.

	$FEF_{75\%}$		
	$\bar{X}$	S.D.±	S.E.±
Before	75.8	3.09	0.27
After	81.2	4.86	0.18
T.value	3.6		
P.value	< 0.05		
Significance	S.		

Table (4-C): Statistical analysis of FEV_1 / FVC% of patients of group (II-B) before and three months after surgery.

	FEV_1/FVC%		
	$\bar{X}$	S.D.±	S.E.±
Before	99.5	3.07	29.91
After	99.75	3.28	28.92
T.value	0.208		
P.value	> 0.05		
Significance	N.S.		

Table (4-D) : Statistical analysis of $FEF_{25-75\%}$ of patients of group (II-B) before and three months after surgery.

	$FEF_{25-75\%}$		
	$\bar{X}$	S.D.±	S.E.±
Before	85.37	3.42	0.23
After	86.63	3.66	0.17
T.value	0.939		
P.value	> 0.05		
Significance	N.S.		

Table (4-E): Statistical analysis of FEF_{max} of patients of group (II-B) before and three months after surgery.

	FEF_{max}		
	$\overline{X}$	S.D.±	S.E.±
Before	84.6	4.6	0.31
After	84.8	4.5	0.32
T.value	0.07		
P.value	> 0.05		
Significance	N.S.		

Table (4-F): Statistical analysis of $FEF_{25\%}$ of patients of group (II-B) before and three months after surgery.

	$FEF_{25\%}$		
	$\overline{X}$	S.D.±	S.E.±
Before	84.12	5.44	0.40
After	84.37	5.05	0.39
T.value	0.126		
P.value	> 0.05		
Significance	N.S.		

Table (4-G): Statistical analysis of $FEF_{50\%}$ of patients of group (II-B) before and three months after surgery.

	$FEF_{50\%}$		
	$\overline{X}$	S.D.±	S.E.±
Before	84.87	3.94	0.20
After	85.12	4.19	0.22
T.value	0.163		
P.value	> 0.05		
Significance	N.S.		

Table (4-H): Statistical analysis of $FEF_{75\%}$ of patients of group (II-B) before and three months after surgery.

	$FEF_{75\%}$		
	$\overline{X}$	S.D.±	S.E.±
Before	80.1	3.1	0.33
After	80.3	3.2	0.08
T.value	0.105		
P.value	> 0.05		
Significance	N.S.		

Fig. (2) Mean FEV1 for patients of group (II-A) before and 3 months after surgery

(There is significant increase)

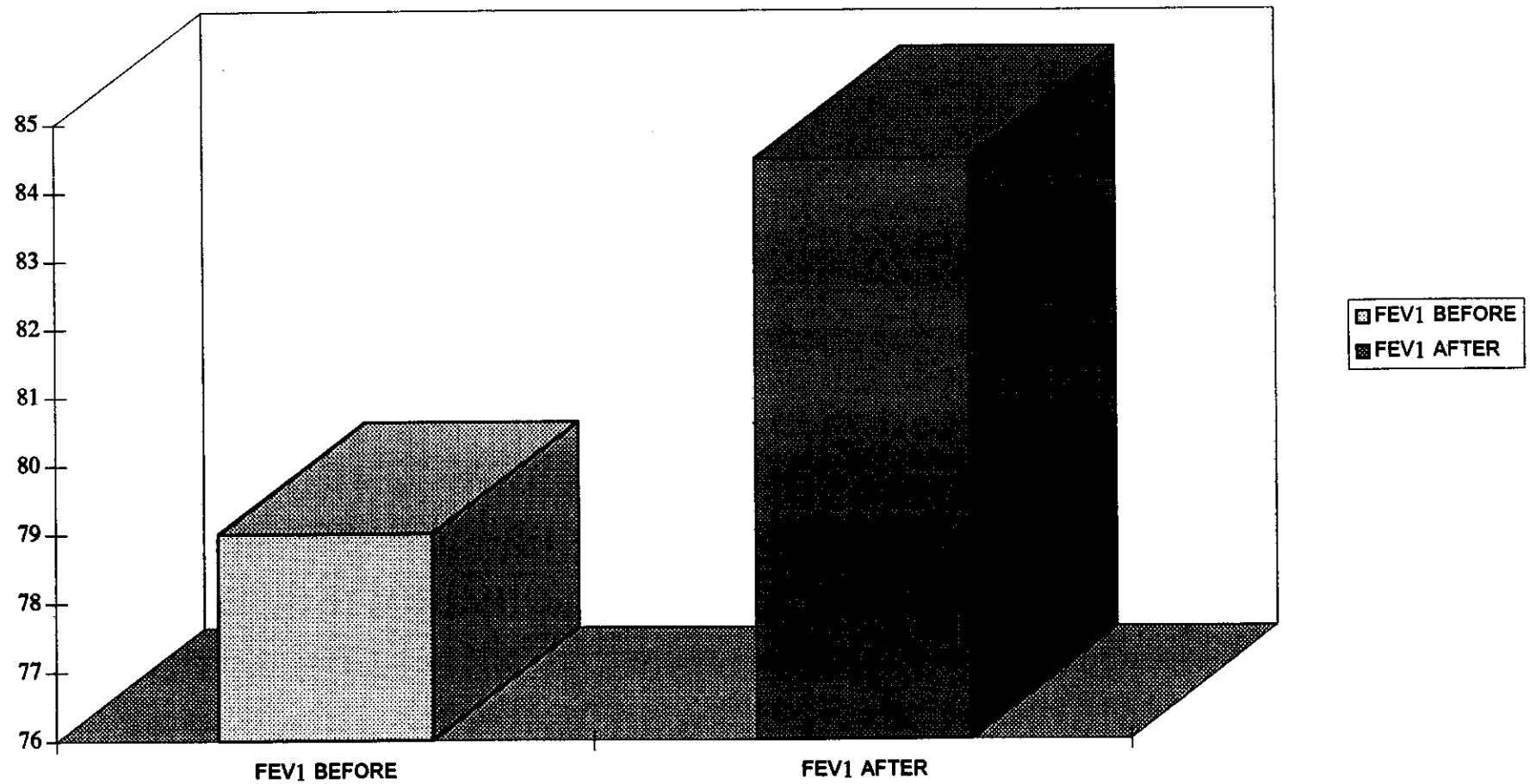


Fig. (3) :FEV1 changes for 15 patients of group (II-A) before and 3 months after the surgery

(there is significant increase)

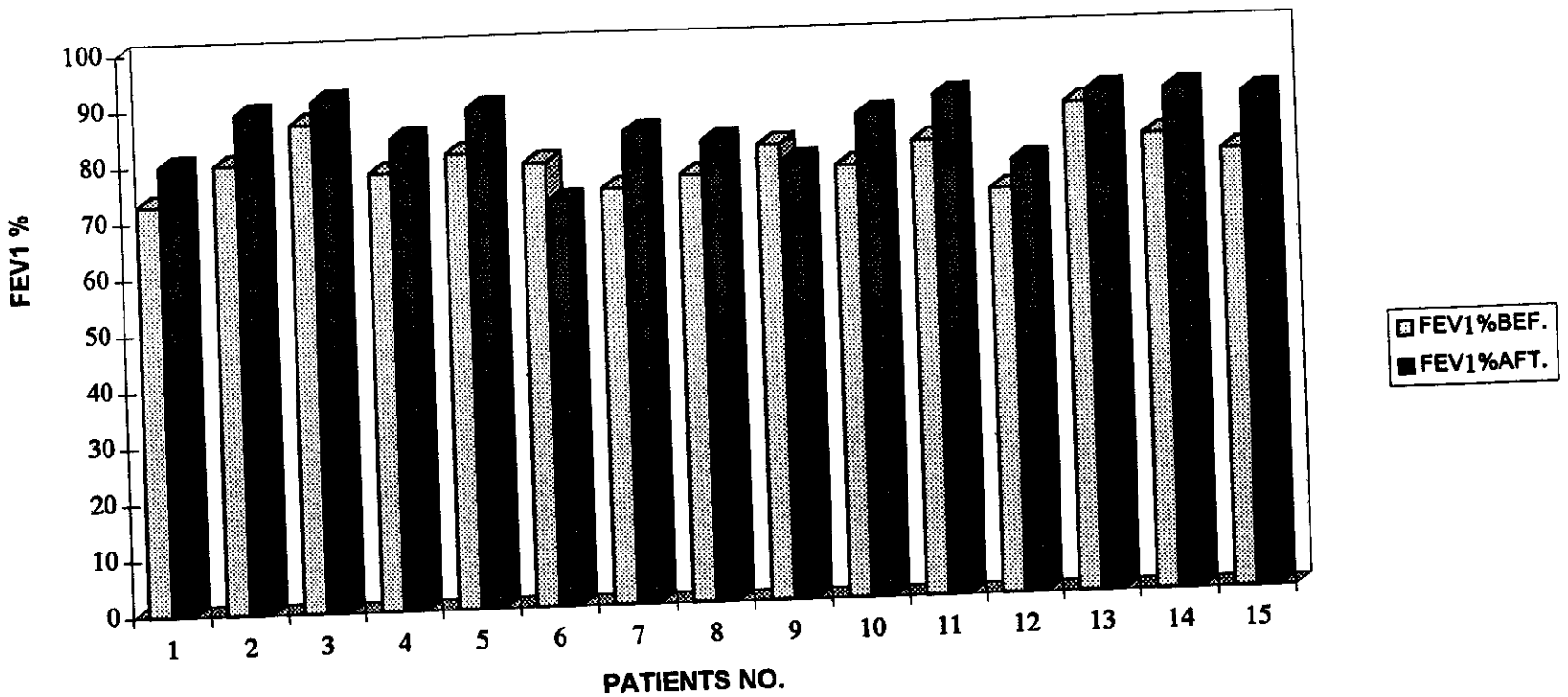


Fig. (4) : FEV1 changes for the patients of group (II-B) before and 3 months after the surgery

(thee is no significant change)

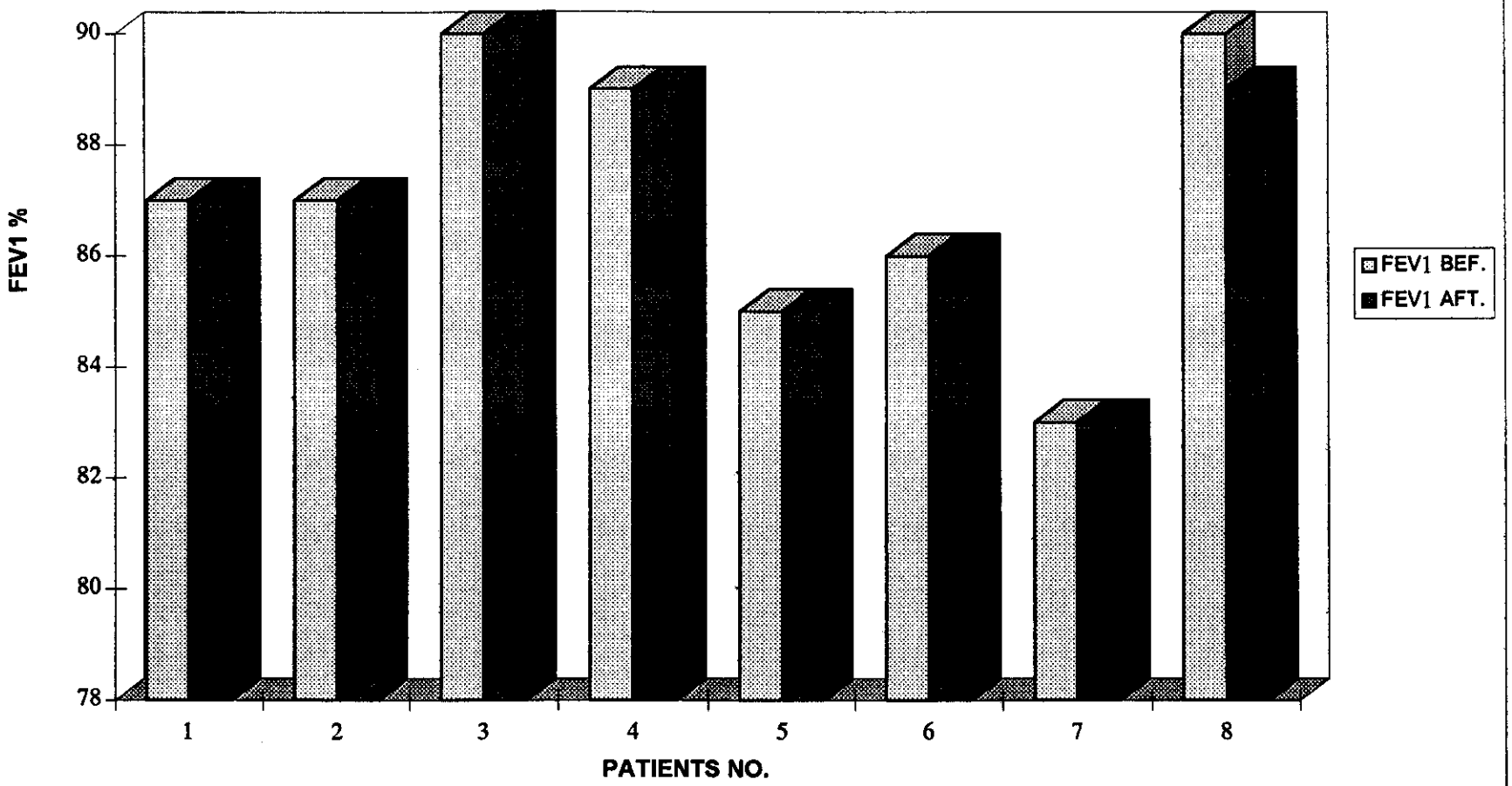


Table (5) E, shows that the mean FEF_{max} before surgery was 45 ± 19 and three months after surgery was 46 ± 19. The difference is Statistically non significant.

Table (5) F, shows that the mean FEF25% before surgery was 54.52± 9.7 and three months after surgery was 54.65 ± 10 the difference is Statistically non significant.

Table (5) G, shows that the mean $FEF_{50\%}$ before surgery was 38.9 ± 17 and three months after surgery was 39.5 ± 16 the difference is state non significant.

Table (5) H, shows that the mean $FEF_{75\%}$ before surgery was 35.85 ± 15 and three months after surgery was 36.1 ± 14 the difference is Statistically non significant.

Group III :

Group III (patients with nasal polyps and bronchial asthma) included twenty one patients.

Table (5) A, B, C, D, E, F, G,H shows the ventilatory functions results of group III before and three months after endosopic, intranasal polypectomy. There is no significant increase in the ventilatory functions three months after surgery.

Table (5) A, shows that the mean FVC before surgery was 75 ± 6.4 and three months after surgery was 75 ± 6.7 the difference is Statistically non significant ($P > 0.05$).

Table (5) B, and fig. (5 and 6) shows that the mean FEV_1 before surgery was 60.3 ± 8 and three months after surgery was 60.62 ± 7. The difference is Statistically non significant.

Table (5) C, shows that the mean $FEV_1/FVC\%$ before surgery was 80.65 ± 10 and three months after surgery was 80.95 ± 9.7. The difference is Statistically non significant.

Table (5) D, shows that the mean $FEF_{25-75\%}$ before surgery was 39.7 ± 16 and three months after surgery was 40.19 ± 16. The difference is Statistically non significant.

Table (5-A) : Statistical analysis of FVC of group III before and three months after surgery.

	FVC		
	$\bar{X}$	S.D.±	S.E.±
Before	75	6.4	0
After	75	6.7	0
T.value	0.2		
P.value	> 0.05		
Significance	N.S.		

Table (5-B): Statistical analysis of FEV_1 of group III before and three months after surgery.

	FEV_1		
	$\bar{X}$	S.D.±	S.E.±
Before	60.3	8	0.4
After	60.62	7	0.4
T.value	0.1		
P.value	> 0.05		
Significance	N.S.		

Table (5-C): Statistical analysis of FEV_1/FVC of group III before and three months after surgery.

	$FEV_1/FVC\%$		
	$\bar{X}$	S.D.±	S.E.±
Before	80.65	10.04	0.408
After	80.95	9.7	0.559
T.value	0.104		
P.value	> 0.05		
Significance	N.S.		

Table (5-D): Statistical analysis of $FEF_{25-75\%}$ of group III before and three months after surgery.

	$FEF_{25-75\%}$		
	$\bar{X}$	S.D.±	S.E.±
Before	39.7	16	0.472
After	40.19	16	0.49
T.value	0.13		
P.value	> 0.05		
Significance	N.S.		

Table (5-E): Statistical analysis of FEF_{max} of group III before and three months after surgery.

	FEF_{max}		
	$\bar{X}$	S.D.±	S.E.±
Before	45	19.23	1
After	46	19.75	1
T.value	0.27		
P.value	> 0.05		
Significance	N.S.		

Table (5-F) : Statistical analysis of $FEF_{25\%}$ of group III before and three months after surgery.

	$FEF_{25\%}$		
	$\bar{X}$	S.D.±	S.E.±
Before	54.52	9.7	0.7
After	54.65	10	0.8
T.value	0.01		
P.value	> 0.05		
Significance	N.S.		

Table (5-G): Statistical analysis of $FEF_{50\%}$ of group III before and three months after surgery.

	$FEF_{50\%}$		
	$\overline{X}$	S.D.±	S.E.±
Before	38.9	17	0.7
After	39.5	16	0.7
T.value	0.12		
P.value	> 0.05		
Significance	N.S.		

Table (5-H): Statistical analysis of $FEF_{75\%}$ of group III before and three months after surgery.

	$FEF_{75\%}$		
	$\overline{X}$	S.D.±	S.E.±
Before	35.85	15.02	0.3
After	36.14	14.8	0.3
T.value	0.067		
P.value	> 0.05		
Significance	N.S.		

fig. 5 MEAN FEV1 FOR PATIENTS OF GROUP III BEFORE & 3 MONTHS AFTER THE SURGERY .
(there is no significant increase)

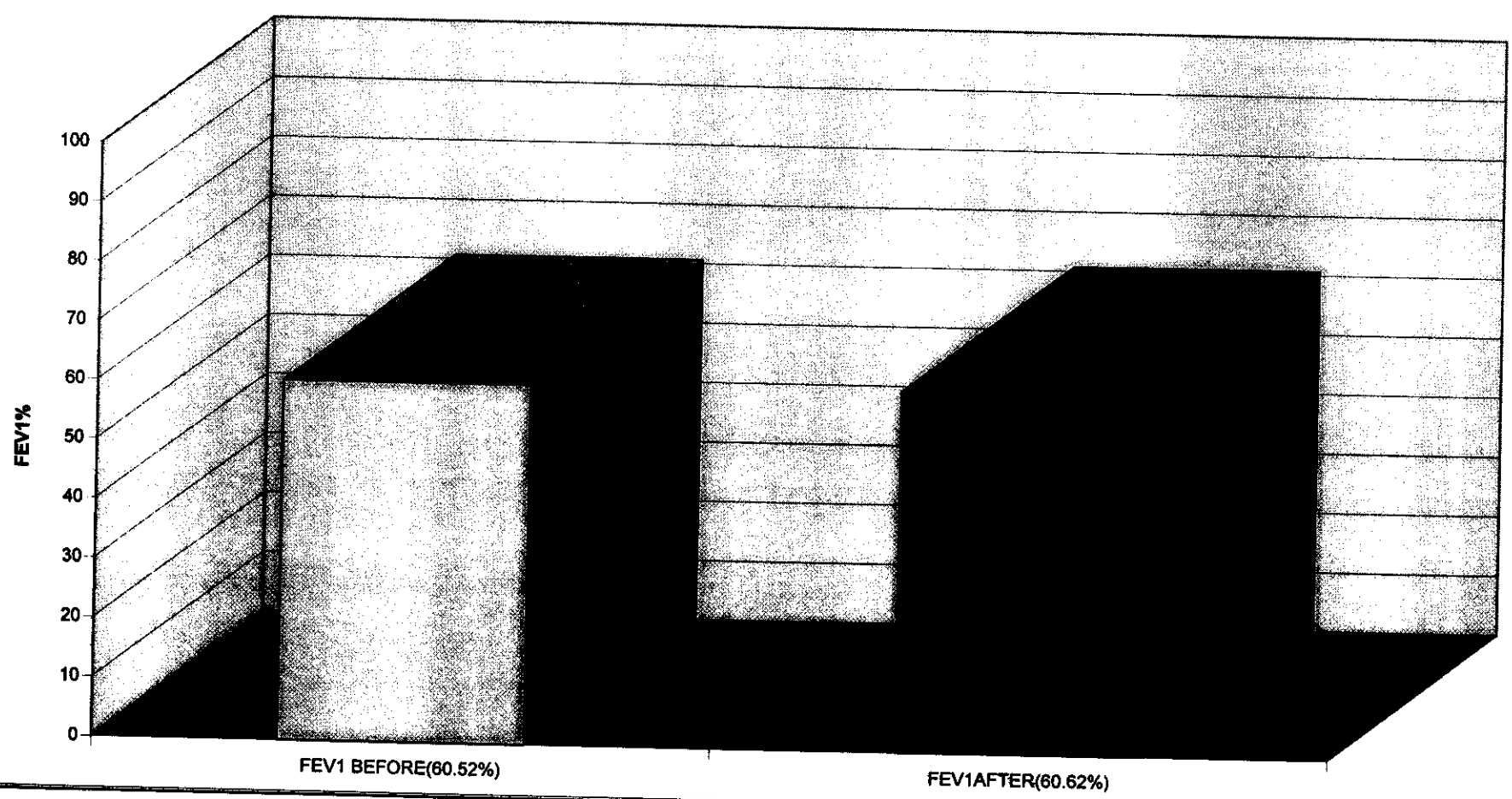
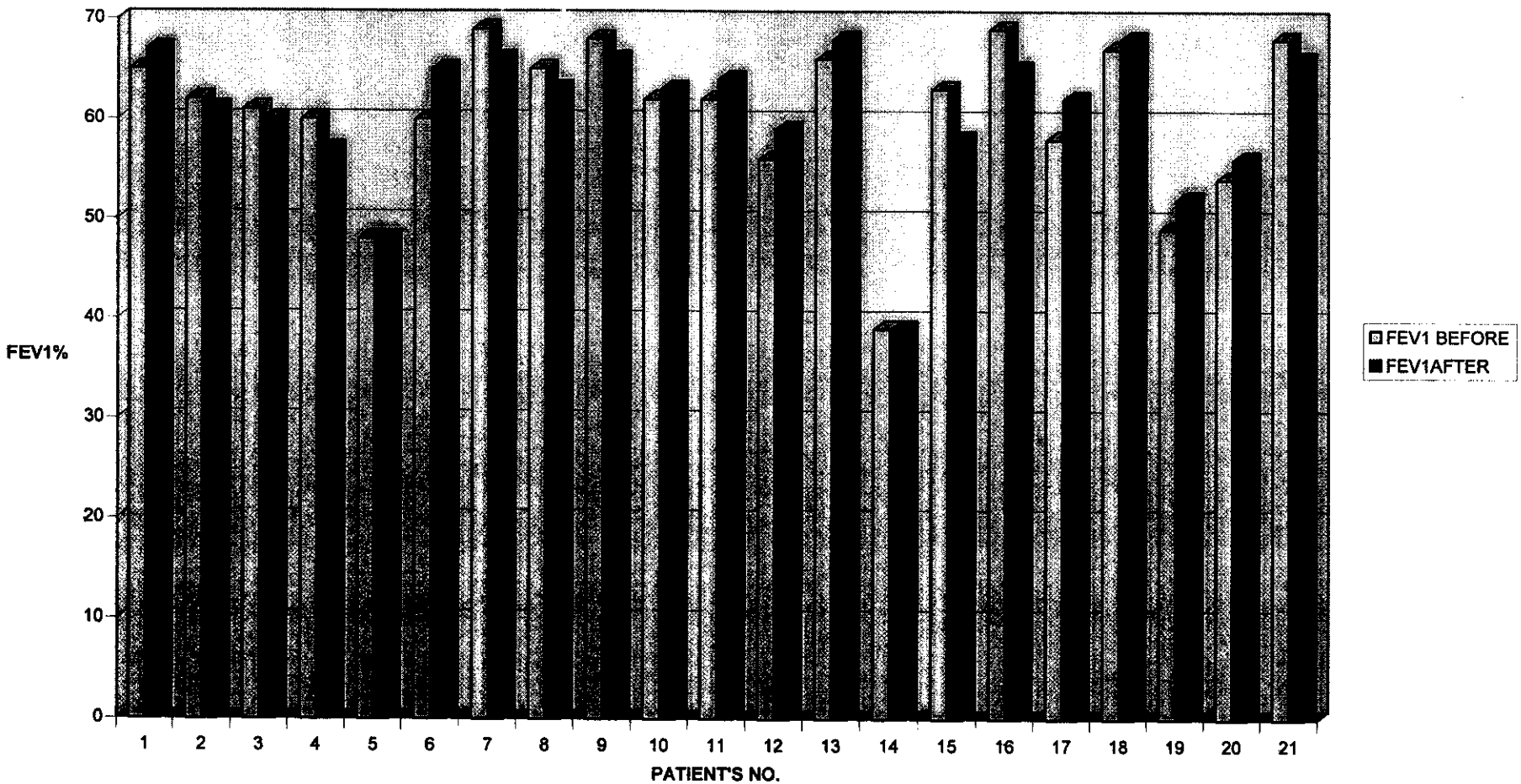


FIG. 6 FEV1 CHANGES FOR PATIENTS OF GROUP III BEFORE & 3 MONTHS AFTER SURGERY
(there is no significant increase)



Results of methacholine bronchoprovocation challenge test :

Group I :

The mean *PD20 of the patients of group I was 5130 μgm ±0.

*PD20 : the cummulative dose of methacholine in which causes 20% decrease in the base line FEV_1.

Group II :

This group included twenty three patients, fifteen patients were discovered that they had bronchial hyper reactivity (65%) and known as group (II-A) and eight patients (35%) known as group (II-B) were non-hyperreactive fig.(7).

- From the 15 hyperreactive patients 13 patients (87%) have improved and 2 patient (13%) are not improved (Fig.8).
- For the patients of group II-A, table (6) and Fig. 9 & 10 shows that the mean PD20μgm increased from 1863 ± 1083 μgm to 3030 ± 1131 three months after surgery. The difference is Statistically significant ($P < 0.05$).
- For the patients of group II-B table (7) and fig. (11) shows that the mean PD20 in μgm was 5130 μgm before and three months after surgery. There is no Statistical difference.

Group III :

Table (8) and fig.(12) shows that the mean PD20 of patient in group III was 262.3 ± 17.5 before surgery and three months after surgery was 289 ± 20.9 the difference is Statistically non significant.

Table (6): Statistical analysis of PD_{20} changes of patients of group (II-A) before and three months after surgery.

	Group II		
	$\overline{X}$	S.D.±	S.E.±
Before	1863	1083	0.35
After	3030	1131	0.29
T.value	2.63		
P.value	< 0.05		
Significance	S.		

* PD20 : Cumulative dose of methacholine in µgm which causes 20% decrease in the baseline FEV_1.

Table (7): Statistical analysis of PD_{20} changes of patients of group (II-B) before and three months after surgery.

	Group II		
	$\overline{X}$	S.D.±	S.E.±
Before	5130	0	0
After	5130	0	0
T.value	0		
P.value	> 0.05		
Significance	N.S. difference		

Table (8): Statistical analysis of PD_{20} changes of patients of group III before three months after surgery.

	Group III		
	$\bar{X}$	S.D.±	S.E.±
Before	262.3	175	0.26
After	289	209	0.17
T.value	0.788		
P.value	> 0.05		
Significance	N.S.		

Fig. (7) : Distribution of patients of group (II) according to bronchial hyperreactivity

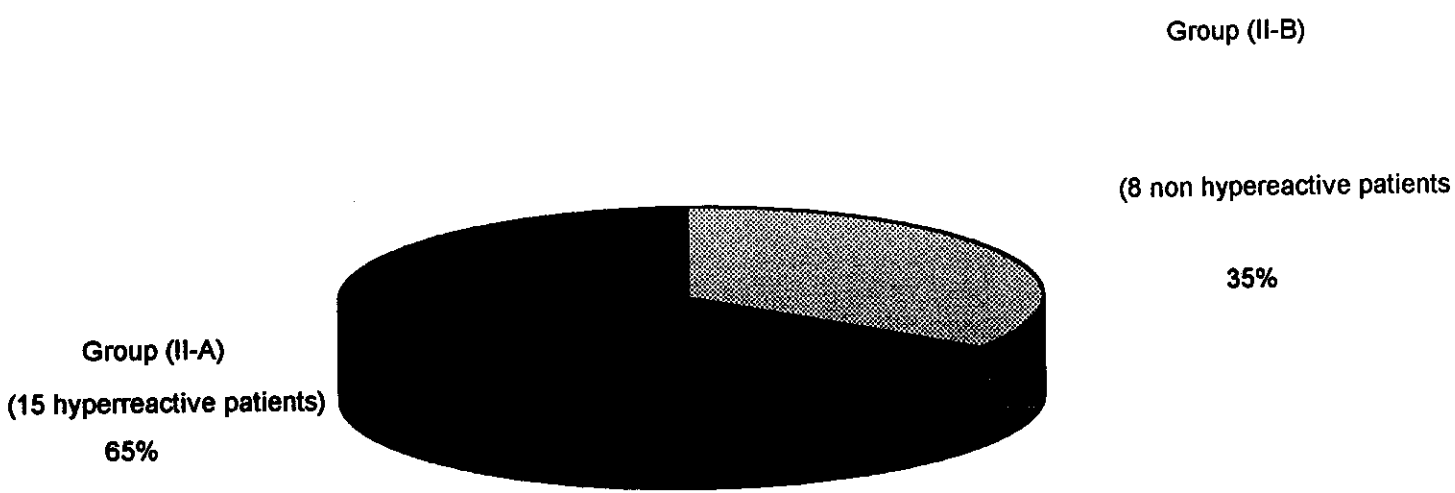


Fig. (8) : % of improvements of the patients of group (II-A) before and 3 months after surgery

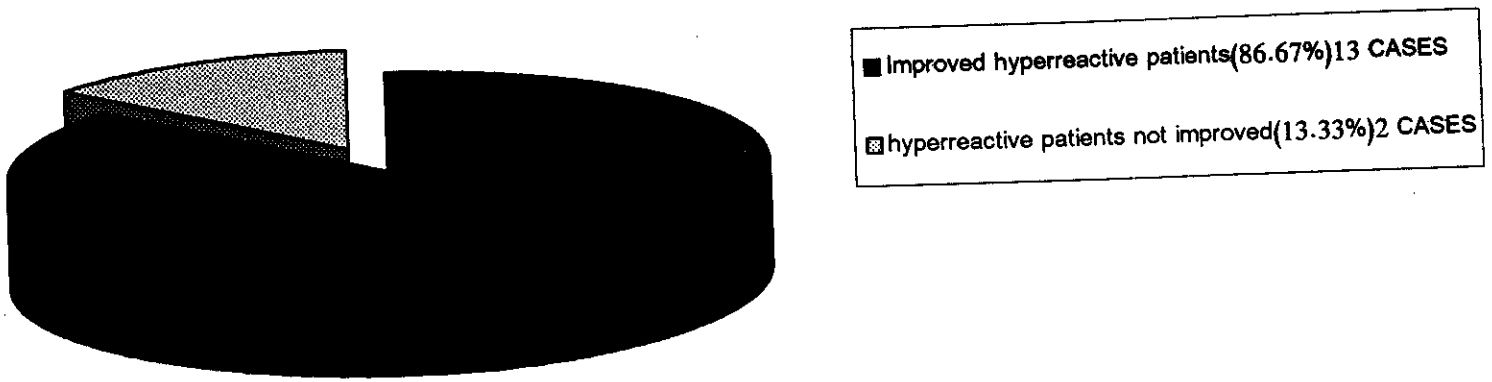


Fig. (9) : Mean PD20 of the patient of group (II-A) before and 3 months after the surgery

(There is significant increase)

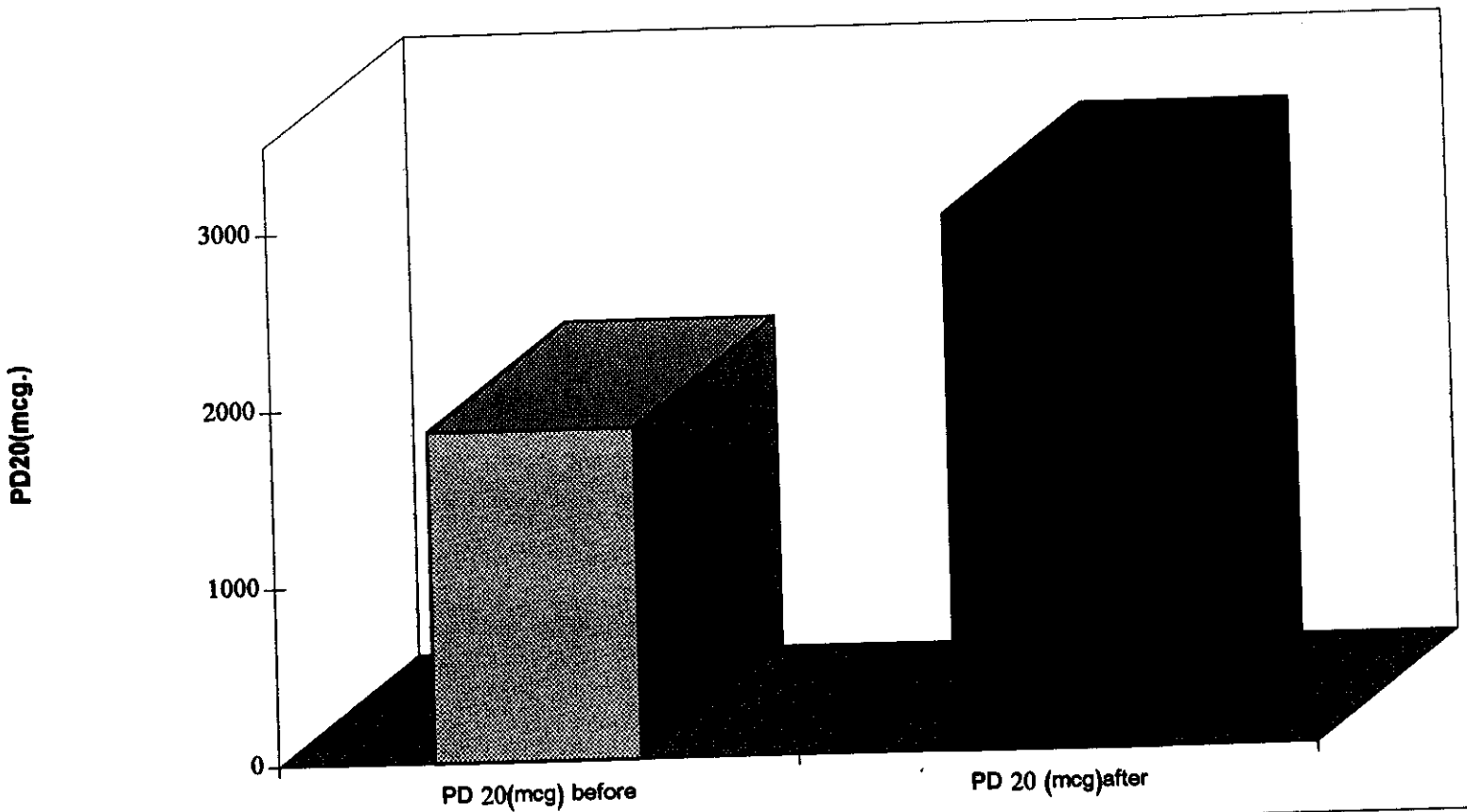


fig. 10 -PD 20 CHANGES OF THE PATIENTS OF GROUP II-B BEFORE & 3 MONTHS AFTER SURGERY (there is significant increase except for two cases)

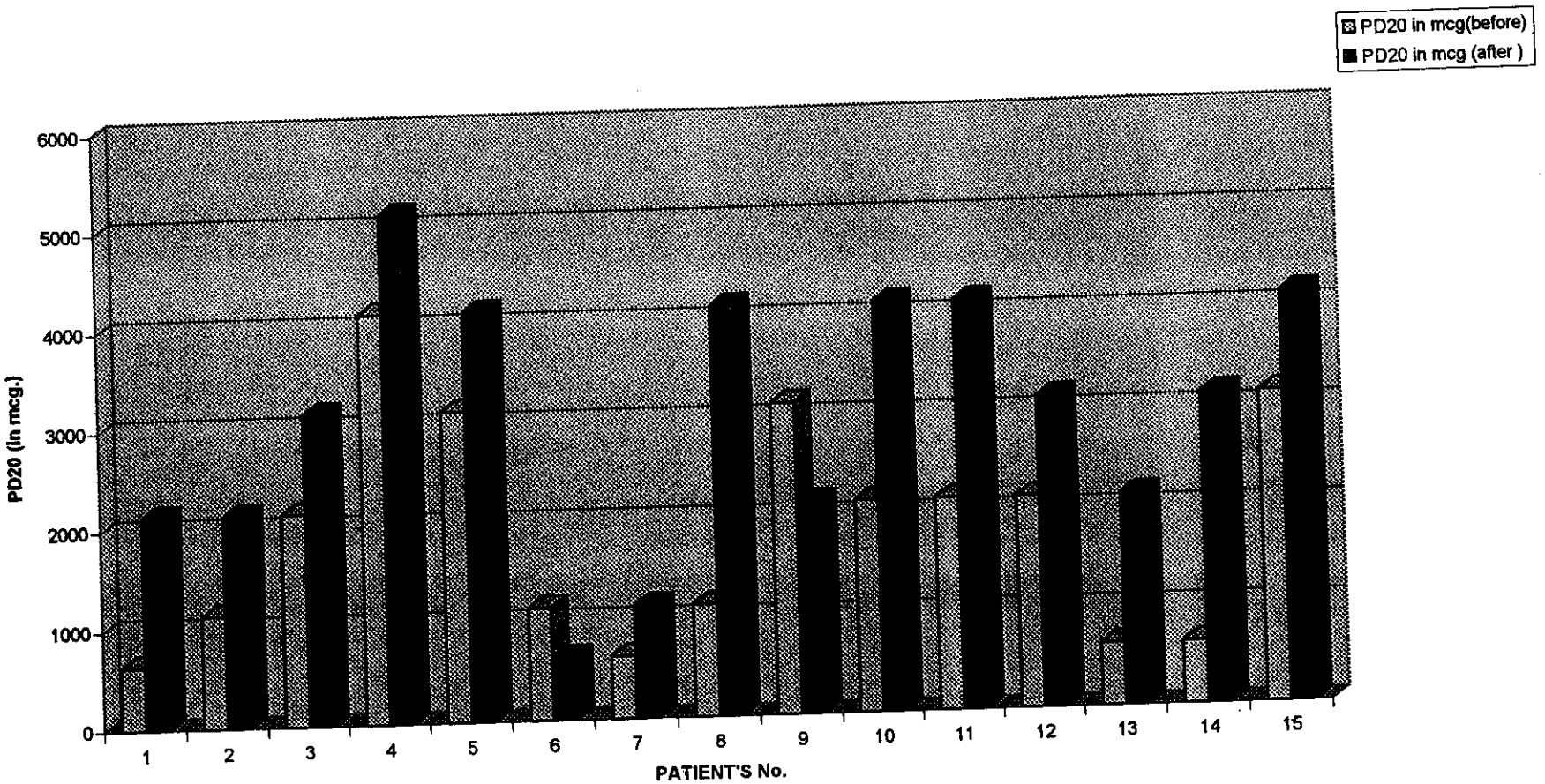


fig. 11-PD20 changes for the patients of group II-B before & 3 months after surgery
(there is no significant change)

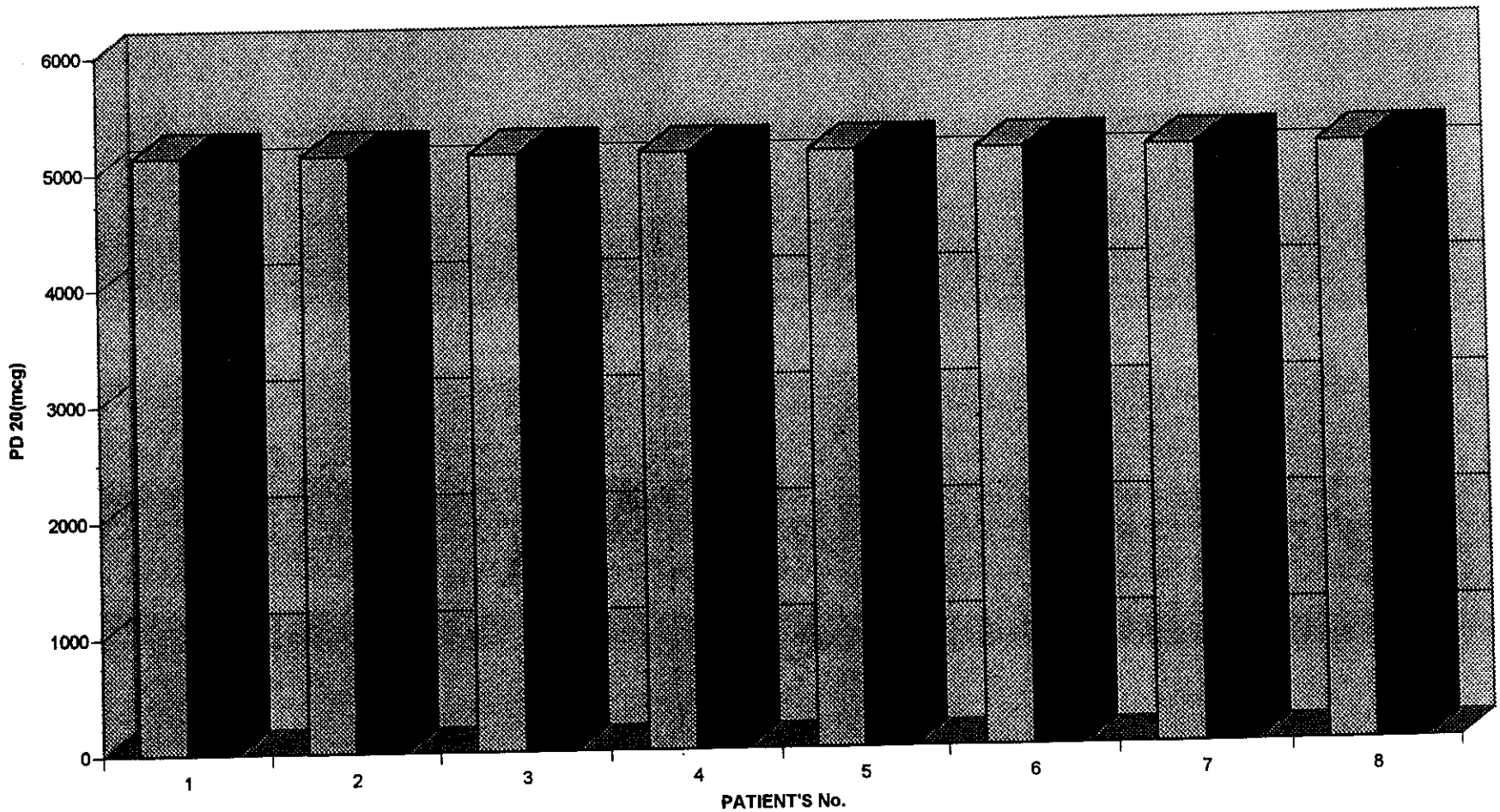


Fig. (12) : Mean PD20 of the patients of group (III) before and 3 months after surgery

(Thee is no significant increase)

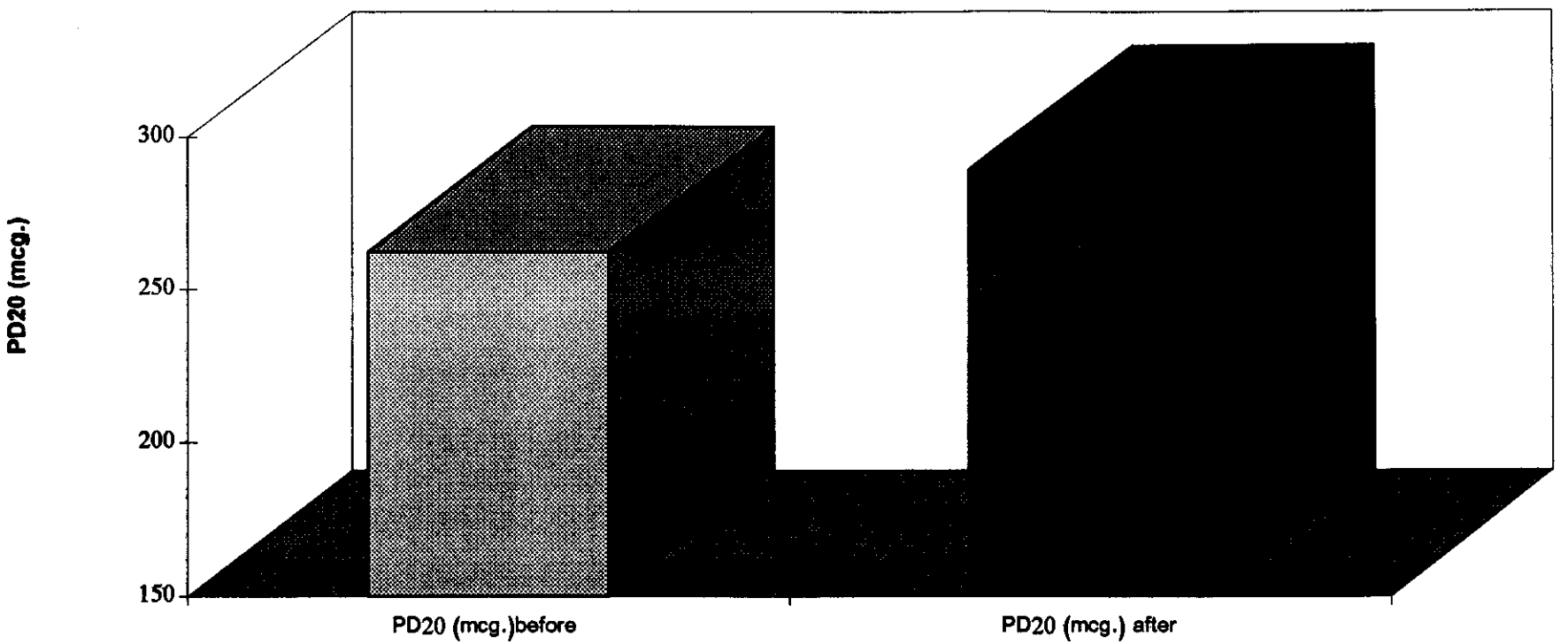


Table (9) shows bronchial hyperreactivity changes in different groups after surgery.

In group I :

Shows no bronchial hyperreactivity changes.

In group II :

For the total number of cases: two patients (8.6%) had increased bronchial hyperreactivity and 13 patients (56%) had decreased bronchial hyperreactivity with 8 patients, (34.7%), had no changes in bronchial hyperreactivity. For the 15 hyperreactive patients 13 patients (87%) had decreased bronchial hyperreactivity and 2 patients (13%) had increased bronchial hyperreactivity.

In group III :

Two patients (9.5%) had decreased bronchial hyperreactivity, 3 patients (14%) had increased bronchial hyperreactivity and 16 patients (76%) had no change in bronchial hyperreactivity.

Table (9) : Bronchial hyperreactivity (B.H.R) changes in different groups after surgery.

	Group II	Group III
No. of cases with no B.H.R. changes	8 (34.7)	16(76%)
No. of cases with increased B.H.R.	2 (8.6%)	3 (14%)
No. of cases with decreased B.H.R.	13 (56%)	2(9.5%)
Total No.	23	21

B.H.R. : Bronchial hyperreactivity.