

## CHAPTER III



## RESULTS

In order to study the effects of fenoterol aerosol compared with placebo to relieve bronchospasm, 25 subjects were participated in this study for two separate days. All of them fulfilled the criterial for the diagnosis of acute asthmatic attack.

Mean percentage changes in the peak expiratory flow rate (PEFR) after one puff of 200 micrograms fenoterol aerosols and placebo of inert propellant were shown in table 3, whereas the comparison of mean percentage changes were shown in Figure 3.

Fenoterol produced significant increases in PEFR for up to at least 5 hours after inhalations compared with placebo (Table 3). Number of subjects remaining after 5 hours were insufficient for statistical evaluation due to asthmatic attack after the inhalations. However, the mean percentage changes of PEFR of subjects remaining at 6, 7 and 8 hours showed significant differences with placebo ( $p < 0.05$ ).

Table 4. showed the mean percentage changes in pulse rate after the drugs. There were no significant differences of changes in pulse rate between fenoterol and placebo ( $p > 0.05$ ).

The results of blood pressure changes after fenoterol and

placebo were presented in table 5. and 6. There were no significant differences at any time ( $p > 0.05$ ).

EKG changes after fenoterol and placebo were shown in Table 7. There were no significant differences between these two drugs ( $p > 0.05$ ).

Other side effects such as muscular tremor, shakiness were not shown in all patients.

Table 1. PEFR values (L/min.) before and after one puff (200 micrograms) of fenoterol aerosols.

Patient no.	Peak expiratory flow rate values (L/min.)											
	base-line	1/60 h.	1/4 h.	1/2 h.	1 h.	2 h.	3 h.	4 h.	5 h.	6 h.	7 h.	8 h.
1	415	485	505	525	520	510	510	510	500	500	490	490
2	365	385	405	400	400	420	405	390	395	380	385	-
3	300	390	420	370	375	390	380	390	365	300	-	-
4	440	470	485	500	490	510	510	495	510	495	480	480
5	210	250	265	305	305	300	300	270	195	-	-	-
6	190	235	270	290	310	300	270	255	225	-	-	-
7	250	260	290	295	300	290	290	285	260	240	-	-
8	240	340	350	320	330	340	340	360	310	310	300	300
9	350	470	480	480	480	470	490	470	350	-	-	-
10	275	320	390	375	375	380	385	375	365	320	-	-
11	300	360	380	395	385	390	360	315	300	260	-	-
12	205	290	330	360	385	360	360	360	310	345	345	340
13	240	250	285	310	300	300	285	280	280	-	-	-



Table 1 (cont.) PEFR value (L/min.) before and after one puff (200 micrograms) of fenoterol aerosols.

Patient no.	Peak expiratory flow rate value (L/min.)											
	base-line	1/60 h.	1/4 h.	1/2 h.	1 h.	2 h.	3 h.	4 h.	5 h.	6 h.	7 h.	8 h.
14	210	300	280	340	340	310	310	370	360	320	320	300
15	280	350	370	400	405	390	390	390	390	320	320	300
16	255	275	300	325	305	290	305	295	260	-	-	-
17	220	230	250	260	270	260	285	250	220	-	-	-
18	340	395	400	410	440	465	445	420	390	-	-	-
19	290	400	470	490	510	535	530	535	550	430	420	390
20	175	190	190	270	260	245	270	190	200	-	-	-
21	70	190	215	200	185	180	250	190	260	240	230	210
22	205	250	355	350	370	355	380	425	365	360	350	320
23	350	380	470	475	470	470	430	425	420	415	410	410
24	500	530	550	560	540	555	550	540	485	-	-	-
25	175	200	245	230	210	180	175	150	-	-	-	-

Table 2. PEFR values (L/min.) before and after one puff of placebo.

Patient no.	Peak expiratory flow rate values (L/min.)											
	base-line	1/60 h.	1/4 h.	1/2 h.	1 h.	2 h.	3 h.	4 h.	5 h.	6 h.	7 h.	8 h.
1	450	455	430	430	445	430	420	440	430	430	420	420
2	215	250	265	270	250	250	230	230	-	-	-	-
3	420	380	380	440	455	400	425	420	380	-	-	-
4	455	450	450	430	450	430	450	460	440	-	-	-
5	250	260	230	270	260	240	260	210	-	-	-	-
6	240	240	245	275	255	235	200	210	-	-	-	-
7	265	260	265	265	250	260	240	250	230	225	-	-
8	310	350	310	370	310	290	310	355	240	240	240	240
9	415	410	425	450	440	430	390	-	-	-	-	-
10	150	120	175	200	200	170	170	125	170	160	150	-
11	275	265	290	270	255	220	220	200	-	-	-	-
12	305	370	390	370	370	375	355	350	350	340	330	330
13	290	265	280	250	250	310	280	290	-	-	-	-

Table 2 (cont.) PEFR values (L/min.) before and after one puff of placebo.

Patient no.	Peak expiratory flow rate values (L/min.)											
	base- line	1/60 h.	1/4 h.	1/2 h.	1 h.	2 h.	3 h.	4 h.	5 h.	6 h.	7 h.	8 h.
14	290	335	340	330	320	275	310	270	310	310	310	310
15	300	300	290	330	300	300	290	310	305	-	-	-
16	310	270	280	290	260	260	255	280	250	-	-	-
17	175	180	175	160	170	125	110	140	120	-	-	-
18	365	400	390	370	430	390	390	355	350	-	-	-
19	500	510	490	480	450	450	445	445	445	440	440	440
20	285	220	160	160	160	170	150	150	-	-	-	-
21	220	160	160	265	310	310	310	290	320	320	300	300
22	430	430	430	440	450	460	440	460	440	410	430	430
23	280	280	275	235	260	255	270	260	190	-	-	-
24	430	420	475	470	450	450	420	430	-	-	-	-
25	170	170	170	160	185	160	170	120	125	-	-	-

Table 3. Mean percentage changes and standard deviation of PEFR values after the inhalation of drugs.

Time (hour)	Mean percentage changes in PEFR (L/min.)		P-Value
	after fenoterol	after placebo	
1/60	25.16 $\pm$ 33.04 (25)	-1.0 $\pm$ 11.62 (25)	< 0.001
1/4	37.92 $\pm$ 39.31 (25)	-0.1 $\pm$ 14.45 (25)	< 0.001
1/2	42.48 $\pm$ 35.18 (25)	3.4 $\pm$ 16.04 (25)	< 0.001
1	42.46 $\pm$ 33.48 (25)	3.1 $\pm$ 16.68 (25)	< 0.001
2	40.16 $\pm$ 31.90 (25)	-1.1 $\pm$ 16.28 (25)	< 0.001
3	43.71 $\pm$ 49.57 (25)	-4.0 $\pm$ 16.86 (25)	< 0.001
4	36.90 $\pm$ 39.77 (25)	-5.05 $\pm$ 16.48 (24)	< 0.001
5	33.72 $\pm$ 56.89 (24)	-6.28 $\pm$ 19.19 (17)	< 0.001
6	39.04 $\pm$ 62.12 (15)	1.31 $\pm$ 20.01 (9)	< 0.05
7	50.35 $\pm$ 63.51 (11)	1.28 $\pm$ 17.42 (8)	< 0.05
8	47.57 $\pm$ 57.01 (10)	1.47 $\pm$ 18.81 (7)	< 0.05

P-Value = Paired Student's t-test.

Figure 3. The comparison of mean percentage changes and standard error in PEFR of asthmatic patients after the inhalation of fenoterol and placebo.

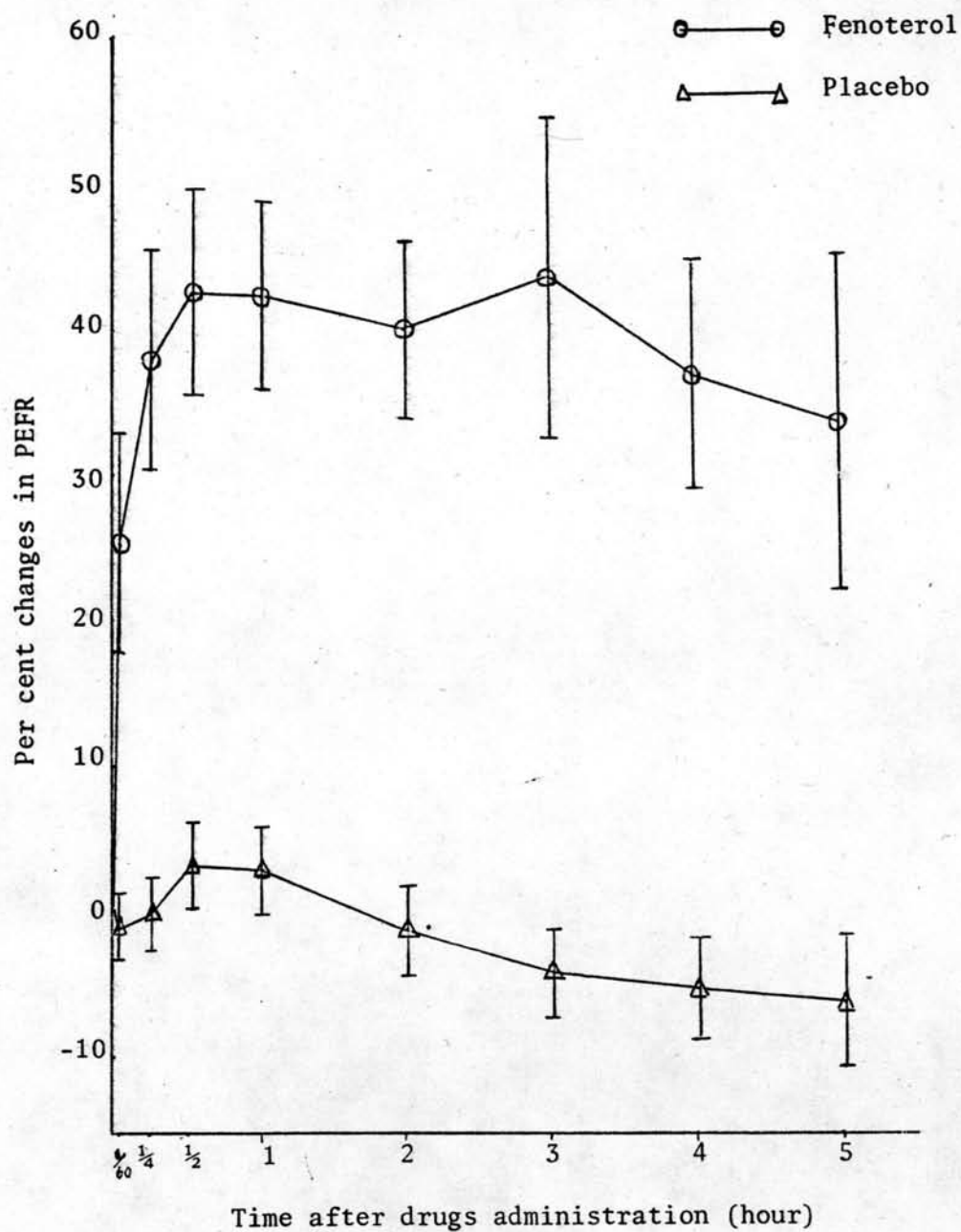




Table 4. Mean percentage changes and standard deviation in pulse rate after the inhalation of drugs.

Time (hour)	Mean percentage changes in pulse rate		P-Value
	after fenoterol	after placebo	
1/6	-1.42 $\pm$ 6.59 (25)	0.42 $\pm$ 4.95 (25)	NS
1/3	-2.10 $\pm$ 5.87 (25)	0.26 $\pm$ 7.06 (25)	NS
1/2	-0.91 $\pm$ 4.78 (25)	-0.96 $\pm$ 6.26 (25)	NS
2/3	-2.56 $\pm$ 5.56 (25)	-0.58 $\pm$ 7.41 (25)	NS
5/6	-2.70 $\pm$ 4.60 (25)	-1.24 $\pm$ 6.26 (25)	NS
1	-3.30 $\pm$ 4.02 (25)	-0.78 $\pm$ 7.91 (25)	NS
2	-3.39 $\pm$ 5.68 (25)	-0.98 $\pm$ 8.86 (25)	NS
3	-3.41 $\pm$ 5.68 (25)	-1.07 $\pm$ 8.43 (25)	NS
4	-3.64 $\pm$ 5.64 (25)	-0.96 $\pm$ 6.88 (24)	NS
5	-2.88 $\pm$ 6.49 (24)	-1.61 $\pm$ 5.34 (17)	NS
6	-5.95 $\pm$ 6.99 (15)	-1.96 $\pm$ 5.07 (9)	NS
7	-2.38 $\pm$ 5.39 (11)	-1.69 $\pm$ 4.64 (8)	NS
8	-3.39 $\pm$ 4.45 (10)	-1.94 $\pm$ 5.74 (7)	NS

NS = not significant ( $p > 0.05$ ).

Table 5. Mean percentage changes and standard deviation of systolic pressure after the inhalation of drugs.

Time (hour)	Mean percentage changes in systolic pressure		P-Value
	after fenoterol	after placebo	
1/4	-0.18 ± 3.12 (25)	-1.02 ± 3.99 (25)	NS
1/2	-0.56 ± 4.37 (25)	-0.10 ± 4.06 (25)	NS
1	-1.4 ± 4.84 (25)	-1.09 ± 4.23 (25)	NS
2	-0.67 ± 3.66 (25)	-0.63 ± 4.38 (25)	NS
3	-2.35 ± 5.80 (25)	-0.69 ± 5.45 (25)	NS
4	-1.56 ± 4.81 (25)	-0.34 ± 4.11 (24)	NS
5	-0.73 ± 3.95 (24)	-1.56 ± 5.39 (17)	NS
6	-1.51 ± 5.75 (15)	-1.01 ± 6.81 (9)	NS
7	-0.95 ± 5.11 (11)	0.11 ± 6.32 (8)	NS
8	-1.82 ± 3.84 (10)	-0.36 ± 6.67 (7)	NS

NS = not significant ( p > 0.05).

Table 6. Mean percentage changes and standard deviation of diastolic pressure after the inhalation of drugs.

Time (hour)	Mean percentage changes in diastolic pressure		P-Value
	after fenoterol	after placebo	
1/4	-0.14 $\pm$ 5.51 (25)	-1.41 $\pm$ 3.85 (25)	NS
1/2	-0.14 $\pm$ 5.56 (25)	-1.88 $\pm$ 5.92 (25)	NS
1	-1.44 $\pm$ 4.66 (25)	-2.04 $\pm$ 5.39 (25)	NS
2	-1.22 $\pm$ 4.79 (25)	-0.32 $\pm$ 6.24 (25)	NS
3	-1.19 $\pm$ 4.89 (25)	-0.14 $\pm$ 7.40 (25)	NS
4	-1.39 $\pm$ 6.08 (25)	-0.96 $\pm$ 6.78 (24)	NS
5	-2.09 $\pm$ 4.61 (24)	-2.64 $\pm$ 6.98 (17)	NS
6	-2.01 $\pm$ 5.39 (15)	-0.63 $\pm$ 8.34 (9)	NS
7	-2.79 $\pm$ 5.50 (11)	-0.71 $\pm$ 8.92 (8)	NS
8	-3.07 $\pm$ 5.71 (10)	-2.96 $\pm$ 7.49 (7)	NS

NS = not significant (  $p > 0.05$  )

Table 7. EKG changes after fenoterol and placebo compared with control EKG.

Medications	no. of patients affected EKG changes		
	Normal	tachycardia	total
fenoterol	24	1	25
placebo	22	3	25

There are no significant differences of EKG changes after fenoterol and placebo ( $p > 0.05$ ).