

고혈압 환자에서 Losartan(Cozaar®)의 임상적 효과

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The Clinical Effects of Losartan(Cozaar®) on Hypertensive Patients

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ABSTRACT

Background : Losartan potassium, one of an orally active, selective type 1 angiotensin receptor blocker, has been introduced recently as an antihypertensive agent. **Method :** Losartan, angiotensin receptor blocker, was administrated as an initial antihypertensive agent over 12 weeks in 30 patients (11 male, 19 female, 60.1 ± 7.2 years) with stage 1 to 3 hypertension in order to observe the clinical effects. Changes in quality of life, side effects, electrocardiogram and left ventricular function were also evaluated before and after losartan therapy. **Results :** 1) After 12 weeks treatment with 50 to 100 mg of losartan, blood pressure was lowered markedly in 18 (60%), moderately in 9 (30%) and mildly in 1 (3%) out of 30 patients studied. The average of blood pressures of the 30 subjects were systolic 159.0 ± 13.2 mmHg and diastolic 100.7 ± 9.4 mmHg before treatment, which were lowered to 130.7 ± 15.6 and 85.9 ± 9.1 mmHg respectively after 12 weeks ($p < 0.005$). 2) Heart rates were not changed with losartan. 3) Quality of life including general well-being, physical symptom, sleep and sexual dysfunction improved markedly in 2 (7%) and slightly in 17 (57%) out of 30 subjects. 4) Laboratory findings revealed no significant changes. 5) In electrocardiographic and echocardiographic follow-up 1 patient with ST-T abnormality and 2 patients with mild LV systolic dysfunction improved to normal. 6) Undesirable side effects were observed in 2 cases with dizziness, 1 dry cough, 1 skin rash, 1 leg edema and 1 epigastric discomfort, among whom one with dizziness stopped losartan. 7) In the final clinical assessment according to the scores of hypotensive effect, quality of life, LV function and side effect, losartan was very useful in 3 (10%), useful in 18 (60%) and slightly useful in 3 (10%) out of 30 hypertensive patients. **Conclusion :** Losartan can be used as an effective initial agent for the treatment of hypertension of various severities with the improvement of quality of life and low side effects. (**Korean Circulation J 1998;28(8):1299-1306**)

KEY WORDS : Hypertension · Losartan · Angiotensin receptor blocker.

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서 론

가

2

(wash - out period) , 1 1 50

mg 2

4 가

100 mg

가 5

Korotkoff 1

5

12 , , , ,

3)4)

가

3)4)

가

ance P , bradykinin, subst -

가

+3

+2 +1

, 0

(angioedema) 가 가

II

5)

12

(+4 +5), (+2 +3),

(+1), (<0)

결 과

대상 환자 및 방법

1998 1 4

, 3

90 mmHg

20

1997

(Joint National Committee)⁶⁾

임상적 양상

30 ,

6 , 16 , 8 (Table 1).

60.1 ± 7.2 11 ,

Table 1. Classification of hypertension in studied patients

Classification	Number
Mild (140 - 159/90 - 99 mmHg)	6
Moderate (160 - 179/100 - 109 mmHg)	16
Severe (≥ 180/110 mmHg)	8

19 (Table 2).
13 , ST - T
7 , 10

67.3 ± 11.1%

Table 2. Age and sex distribution

Age	Male	Female	Total
49	2	0	2
50 - 59	3	9	12
60 - 69	3	9	12
70	3	1	4
Total	11	19	30

Table 3. Clinical characteristics and losartan dosage

Case No.	Age/Sex	B.P.	Dosage	EKG	Creatinine	LVEF	TC/HDL-C
1	60/M	170/100	100	WNL	0.9	44	252/40
2	48/M	170/110	100	LVH + ST	1.2	72	164/27
3	56/F	160/100	50	LVH	0.8	68	243/58
4	56/F	160/100		WNL	0.8		236/37
5	50/F	160/100	50	ST	0.8	74	252/45
6	61/F	150/100	50	LVH + ST	0.8	77	232/42
7	53/M	150/100	50	LVH + ST	1.1	65	268/103
8	68/F	150/90	50	WNL	0.8	81	165/21
9	51/M	160/100	50	ST	1.4	69	256/31
10	63/F	170/100	50	ST	0.9	56	278/62
11	70/M	160/90	50	LVH	1.1	76	
12	59/F	170/120	50	WNL	0.7	63	201/70
13	49/M	150/100	50	LVH + ST	0.8	44	164/43
14	57/F	150/90	50	WNL	0.7	61	113/44
15	74/M	170/100	50	WNL	1.3	80	223/43
16	52/F	180/110	100	LVH + ST	0.7	76	194/68
17	70/F	140/90	50	LVH	1.2		193/44
18	58/M	160/110	50	ST	1.0	63	190/44
19	61/M	150/90	100	WNL	0.9		179/33
20	72/M	140/90	50	LVH	1.1	61	231/47
21	69/F	140/90	50	ST	0.7	49	213/51
22	55/F	140/100	50	WNL	1.2		200/50
23	57/F	160/110	50	LVH	1.1	89	240/63
24	67/F	170/110	50	WNL	0.8	73	246/45
23	61/F	160/100	50	ST	0.8	76	222/45
26	53/F	150/90	50	LVH	0.9	62	192/38
27	65/F	170/130	100	LVH + ST	0.7	75	209/42
28	60/F	200/100	100	LVH + ST	0.8	60	173/44
29	68/F	150/100	50	ST	0.6	66	172/44
30	60/M	160/100	100	WNL	1.1	69	162/49

LVEF : left ventricular ejection fraction, TC : total cholesterol, HDL-C : high density lipoprotein-cholesterol, WNL : within normal limit, LVH : left ventricular hypertrophy, ST : ST-T segment abnormality

혈압변화

15 mmHg(20 mmHg)
(marked fall), 20 29 mmHg,
10 14 mmHg(13 19 mmHg)가
(moderate fall),
10 19 mmHg, 5 9 mmHg(7
12 mmHg)가 (mild fall),
10 mmHg, 4 mmHg(6 mmHg)

1.5 mg/dl (Table 3).

30 mmHg,

(no change) 생활의 질에 관한 변화

가 , 가

90% 27 , 27 , 4 , 15 , 8 13 , 4 , 2 , 4 .

(Table 4).

159.0± 13.2 mmHg, 100.7±9.4 mmHg, 2 142.4±21.0 2 (7%)

mm Hg, 90.5±11.2 mmHg, 4 136.0±20.1 mmHg, +3 17

89.0±11.3 mmHg , 8 127.8±12.2 (57%) +2 +1 , 11

mmHg, 83.3±8.4 mmHg 가 , 12 130.7 (36%) (Table 6).

±15.6 mmHg, 85.9±9.1 mmHg 12

(p<0.005, Fig. 1). 검사실 소견의 변화

12

심박동수의 변화

73.0±9.9 , , 70.8±8.2 , (Table 5).

Table 4. Hypotensive effects on the severity of hypertension

Changes	Hypertension			
	Mild	Moderate	Severe	Total (%)
Marked fall	2	11	5	18 (60)
Moderate fall	2	4	3	9 (30)
Mild fall	1	0	0	1 (3)
No change	1	1	0	2 (7)
Total	6	16	8	30

심전도 및 좌심실 기능의 변화

20 ST

T 가 1

가 2

67.3±11.1%

70.1±9.7% 가

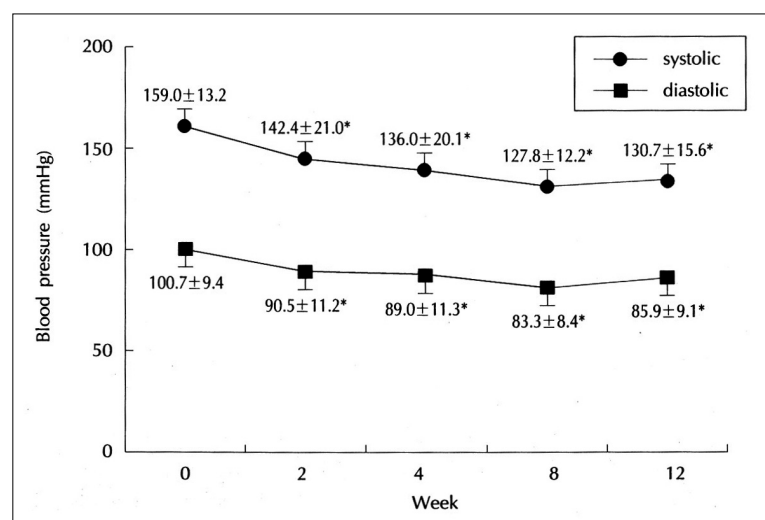


Fig. 1. Changes of systolic and diastolic blood pressure before and after losartan administration (*p<0.005).

Table 5. Blood pressure and heart rate changes before and after losartan administration

Case No.	Blood pressure (mmHg)		Heart rate (/min)	
	Before	After	Before	After
1	170/100	140/90	84	60
2	170/110	150/100	72	72
3	160/100	130/90	80	76
4	160/100	stop	92	stop
5	160/100	120/80	74	78
6	150/100	150/90	76	78
7	150/100	140/90	82	72
8	150/90	110/70	67	70
9	160/100	130/80	84	84
10	170/100	110/70	74	72
11	160/90	130/90	80	64
12	170/120	140/90	69	62
13	150/100	100/70	70	70
14	150/90	110/80	76	65
15	170/100	110/80	84	76
16	180/110	120/80	58	61
17	140/90	130/80	65	60
18	160/110	140/100	70	59
19	150/90	120/90	83	80
20	140/90	130/90	90	77
21	140/90	140/90	61	78
22	140/100	130/80	88	80
23	160/110	140/100	72	85
24	170/110	130/80	66	65
25	160/100	110/80	68	72
26	150/90	130/80	60	82
27	170/130	140/90	60	69
28	200/100	170/100	58	57
29	150/100	140/90	64	68
30	160/100	150/100	64	62
Mean 159.0 ± 13.2/ 130.7 ± 15.6/ 73.0 ± 9.9 70.8 ± 8.2 ± SD 100.7 ± 9.4 85.9 ± 9.1				

Table 6. Changes in quality of life

Case No.	General well-being	Physical symptom	Sleep and sexual dysfunction	Total score
1	-	+	+	+1
2	0	+	0	+1
3	-	-	0	-2
4	0	-	0	-1
5	+	+	0	+2
6	+	+	0	+2
7	+	+	0	+2
8	-	-	+	-1
9	+	+	0	+2
10	0	-	0	-1
11	0	-	0	-1
12	+	+	+	+3
13	+	0	0	+1
14	0	-	0	-1
15	0	+	0	+1
16	0	-	0	-1
17	0	+	0	+1
18	+	+	0	+2
19	0	+	0	+1
20	+	+	0	+2
21	0	+	0	+1
22	+	+	+	+3
23	0	+	0	+1
24	+	+	0	+2
25	+	-	0	0
26	+	+	0	+
27	-	0	0	-1
28	0	0	0	0
29	+	0	0	+1
30	0	0	0	0

+ : improved, 0 : no change, - : worsened, +3 : markedly improved, +1 +2 : slightly improved, 0 : no change, -1 -3 : aggravated

부작용

2 1
, , ,
, 1
(Table 7).

종합적 임상유용성 판정

, ,
,

, 3 (10%),
18 (60%), 3 (10%),
6 (20%) 80%
(Table 8).

고 찰

II I
가

Table 7. Side effects after losartan

Side effects	Case No.	Percentage (%)
Persistent cough	1	3
Skin rash	1	3
Dizziness	2	6
Leg edema	1	3
Epigastric discomfort	1	3
Total	6	20

Table 8. Final assessment of losartan effects

Case No.	Hypotensive effect	Quality of life	Side effect	Improvement of LV function	Total score	Conclusion
1	++	+		+	+4	very useful
2	+	+			+2	useful
3	++	-	-		0	useless
4	0	-	-		-2	useless
5	++	+			+3	useful
6	+	+			+2	useful
7	+	+			+2	useful
8	++	-			+1	slightly useful
9	++	+			+3	useful
10	++	-	-		0	useless
11	++	-	-		0	useless
12	++	++			++	very useful
13	++	+			+3	useful
14	++	-	-		0	useless
15	++	+			+2	useful
16	++	-			+1	slightly useful
17	+	+			+2	useful
18	+	+			+2	useful
19	++	+			+3	useful
20	+	+			+2	useful
21	0	+	+		+2	useful
22	++	++			+4	very useful
23	+	+			+2	useful
24	++	+			+3	useful
25	++	0			+2	useful
26	+	+			+2	useful
27	++	-	-		0	useless
28	++	0			+2	useful
29	+	+			+2	useful
30	+	0			+1	slightly useful

+4 +5 : very useful, +2 +3 : useful, +1 : slightly useful, <0 : useless

가 57%

가

(bioavailability)

가 2

가 가 ag -

onist activity

AT

8-11) bradykinin, substance P

19)20)

가

5)12-17) Gradman 12)

enalapril 4.3%

3.3% Park 5)

Jeong 4)

captopril

1 50 mg 24 10% 1

가 가 trough ()

50 mg 20 mg

가 , Park 5)

2

trough

4

50 mg 100 mg 90%

50 100 mg 가

요 약

Croog 18)

연구배경 :

5가

가 가

방 법 :

II

가 13 , 30 1 50

4 , 4 100 mg

7%

결 과 :

1) 4 , 15 , 8
moderate fall
159.0 ± 13.2 mmHg,
100.7 ± 9.4 mmHg ,
130.7 ± 15.6 mmHg, 85.9 ± 9.1 mmHg
(p<0.005). 2)
73.0 ± 9.9 , 70.8 ± 8.2
. 3)
2 (7%) , 17 (57%)
. 4)
. 5)
ST T 가 1
6) 가 2 . 7)
2 1
, , ,
1 ,
. 8) , , ,
가
3 (10%), 18 (60%),
3 (10%)
결 론 :

중심 단어 : . . II .

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