

## 경증 및 중등도 본태성 고혈압 환자에서 Candesartan Cilexetil(Atacand®)의 강압효과 및 임상적 안전성에 대한 연구

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### A Clinical Study on Anti-Hypertensive Effect and Safety of Candesartan Cilexetil (Atacand®) in Mild to Moderate Hypertensive Patients

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#### ABSTRACT

**Background and Objectives :** Candesartan cilexetil (Atacand®), a selective type angiotensin receptor blocker, has recently been introduced as a new antihypertensive agent. We evaluated its anti-hypertensive effect and safety in mild to moderate hypertensive patients. **Materials and Methods :** Candesartan cilexetil, 8 mg or 16 mg, was administered once a day over 8 weeks period in the patients with mild to moderate hypertension (25 male, 26 female, mean age : 53.5 ± 1.2 years). For safety evaluation, laboratory tests were performed before and after treatment with candesartan cilexetil. Changes in blood pressure, heart rate and electrocardiogram were also observed. **Results :** 1) The mean blood pressures in the sitting position were systolic 164.1 ± 2.1 mmHg and diastolic 106.3 ± 0.8 mmHg before treatment, which were lowered to 135.4 ± 2.0 mmHg and 89.1 ± 1.1 mmHg, respectively after 8 weeks of treatment (p < 0.05). 2) Candesartan cilexetil had a significant dose-dependent antihypertensive effect for diastolic pressure in 35 patients (8 mg : 97.8 ± 0.9 mmHg, 16 mg : 91.3 ± 1.1 mmHg, p < 0.05). 3) Heart rate was not significantly changed before and after treatment during the treatment with candesartan cilexetil (72.2 ± 1.2/min vs. 72.0 ± 1.3/min ; p > 0.05). 4) Laboratory tests revealed no significant abnormality by the treatment with candesartan cilexetil. 5) Left ventricular hypertrophy by ECG criteria detected in 3 cases disappeared after treatment with candesartan cilexetil. 6) No significant side effects were observed during the treatment period. **Conclusion :** Candesartan cilexetil, 8 mg or 16 mg, once a day is an effective and well tolerated antihypertensive treatment. It has a significant dose-dependent antihypertensive effect. (**Korean Circulation J 1999;29(2):937-943**)

**KEY WORDS :** Hypertension · Angiotensin receptor blocker · Candesartan cilexetil.

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서 론

대상 및 방법

대상 . 1998 9 1999 1 . 18 . 75 95 114 mm Hg 52 가 1 51 가 가 . 가 가 , , 6 , (pheochromocytoma), 가 2 mg/dl , AST, ALT가 2 , , 가 , , 가 prostaglandin, bradykinin, substance P . 방법 candesartan cilexetil 8 mg 16 mg . 11 가 2 4 . 3-5) . prostaglandin, bradykinin, substance P , X , 가 8 12 , 가 . losartan . 6)7) 22 26 candesartan cilexetil(Atacand®) 8 가 1997 JNC- (Joint National Committee )<sup>9)</sup> . 5

1 2  
 95 109 mmHg  
 Hg 2  
 110 114 mmHg  
 90 mmHg cand -  
 esartan cilexetil 8 mg , 90 mmHg  
 16 mg 4  
 가  
 가  
 10 mmHg ,  
 20 mmHg  
 5 9 mmHg, 10 19 mmHg

8  
 140/90 mmHg

(Table 1).

1 2 8

paired t - test

4 8

p 0.05

±

결 과

임상적 양상

**Table 1.** Classification of antihypertensive effect according to changes of mean blood pressure

(mmHg)	- 13	- 12	- 7	- 6 - 6
	2x	+		
	= 3			

**Table 2**

혈압 및 심박동수의 변화

2 , 4 8

(p<0.05 vs. ).

가 (Fig. 1).

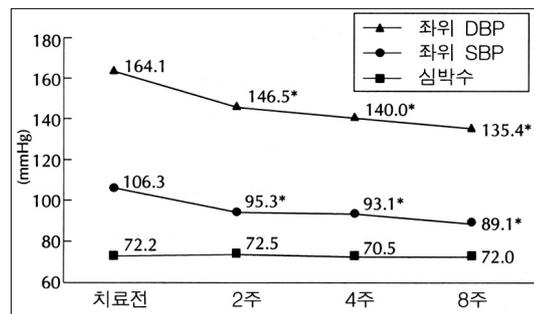
강압효과의 판정

8

(106.3

**Table 2.** Clinical characteristics of the study subjects

	Number (n=51)
/	25/26
( )	53.5 ± 1.2
30 - 39	2
40 - 49	15
50 - 59	22
60 - 69	10
70 - 79	2
(kg)	67.5 ± 1.6
(cm)	162.3 ± 1.1
(JNC-VI )	
Stage 1	8
2	20
3	23
1	11
1 5	20
5	20



**Fig. 1.** Comparison of blood pressure and heart rate before and after the treatment with candesartan cilexetil. \* : p<0.05 vs. 치료전, DBP : diastolic blood pressure, SBP : systolic blood pressure.

**Table 3.** Comparison of diastolic pressure before and after the treatment with candesartan cilexetil

	(mmHg)	4 (mmHg)	8 (mmHg)
(n=16)	103.6 ± 1.4	107.5 ± 0.9	82.9* ± 1.5
(n=35)	97.8* ± 0.9	84.4* ± 1.8	91.3† ± 1.1
(n=51)	106.3 ± 0.8	93.1* ± 1.2	89.1* ± 1.1

\* : p<0.05 vs. , † : p<0.05 vs. 4

**Table 4.** Response of blood pressure after the treatment with candesartan cilexetil

	4		8	
	(mmHg)	(mmHg)	(mmHg)	(mmHg)
(n)	29	33	38	43
(n)	12	12	9	6
(n)	10	6	3	2
(n)	0	0	1	0
	80.4%	69.5%	91.3%	88.2%
95%	79.4%	97.1%	92.2%	84.8%
	99.5%	96.1%	90.8%	100.0%

**Table 5.** Normalization rate of blood pressure after the treatment with candesartan cilexetil

	4		8	
	(n)	(n)	(n)	(n)
(n)	11	16	26	9
(n)	2	7	2	4
(%)	25.5		51.0	

± 0.8 mmHg vs. 89.1 ± 1.1 mmHg ; p<0.05). 4  
 90 mmHg 35  
 16 mg ,  
 8 mg 9.7 mmHg  
 , 16 mg 16.2 mmHg  
 가 가 (8 mg : 97.8 ± 0.9 mmHg, 16 mg : 91.3 ± 1.1 mmHg ; p 0.05, Table 3).

8  
 92.2% 96.1% (Table 4). 8  
 140/90 mmHg  
 51.0% (Table 5).

안전성

3

**Table 6.** Result of the laboratory tests

	8 *	
Hemoglobin (g/dL)	14.08 ± 0.22	4.67 ± 0.06
RBC ( × 106/uL)	41.87 ± 0.56	255.96 ± 7.87
Hematocrit (%)	6.27 ± 0.20	37.09 ± 0.94
Platelet ( × 103/uL)	6.42 ± 0.37	52.71 ± 1.19
WBC ( × 103/uL)	3.30 ± 0.39	0.52 ± 0.05
Lymphocyte (%)	7.51 ± 0.05	4.46 ± 0.03
Monocyte (%)	213.33 ± 4.67	13.10 ± 0.43
Neutrophil (%)	27.10 ± 1.19	26.31 ± 1.96
Eosinophil (%)	1.05 ± 0.02	4.78 ± 0.17
Basophil (%)	139.63 ± 0.25	4.10 ± 0.05
Total protein (g/dL)	100.69 ± 0.34	9.34 ± 0.04
Albumin (g/dL)	3.58 ± 0.08	72.04 ± 2.90
T. cholesterol (mg/dL)	179.80 ± 5.47	91.10 ± 5.88
BUN (mg/dL)	91.63 ± 4.14	13.68 ± 0.21
SGOT (IU/L)	4.48 ± 0.07	40.67 ± 0.58
SGPT (IU/L)	261.39 ± 10.51	6.31 ± 0.31
Creatinine (mg/dL)	37.75 ± 1.28	7.26 ± 0.24
Urate (mg/dL)	50.80 ± 1.54	3.68 ± 0.48
Na (mmol/L)	0.53 ± 0.04	7.53 ± 0.05
K (mmol/L)	4.49 ± 0.03	208.63 ± 4.97
Cl (mmol/L)	14.22 ± 0.59	26.51 ± 1.16
Ca (mmol/L)	26.69 ± 2.31	1.04 ± 0.02
P (mmol/L)	4.75 ± 0.18	140.86 ± 0.28
Alk. Phos. (IU/L)	4.28 ± 0.06	102.24 ± 0.32
LDH (IU/L)	9.42 ± 0.05	3.68 ± 0.07
CK (IU/L)	70.14 ± 2.96	166.59 ± 4.16
Glucose (mg/dL)	90.76 ± 7.28	92.06 ± 3.60

\* : p>0.05 vs. ,

, 2  
 .  
 (Table 6).

51

2

가 6  
 가가

3

15 가 ST-T 1

1 가 3 가 ST-T

가 1 가

1 가 (dichlorthiazide) 가

고 찰

가 가

2가 가 . Type , antinatriuresis type , apoptosis, natriuresis ni - tric oxide type 가

cardiac chymase cath - epsin G non - ACE(angiotensin converting enzyme) pathway

bradykinin, substance P (pro - inflammatory)

가 (angioedema) 가

1 가 norepineprine 가

bradykinin 16)

가

가 14)

losartan(Cozaar®)

가 16)17-20)

Gradman 20) losartan (enalapril) 20 mg losartan 50 mg , Park 6) (fosinopril)

Kim 7) 50 mg 90%

losartan (12.5 mg, 25 mg) hydrochlorothiazide losartan 50 mg<sup>21)22)</sup> flat dose response curve 50 mg<sup>18)23)24)</sup> Candesartan cilexetil (Atacand<sup>®</sup>) 1990 CV-11974 Candesartan cilexetil type agonist effect type (dissociation)가 가 8 mg 16 mg 가<sup>25-28)</sup> candesartan cilexetil 8 mg 16 mg , 8 90% candesartan cilexetil 가 가 1 losartan 3.3% 4.3%<sup>6)7)</sup> 가 1 가 (dichlorthiazide)

8 candesartan cilexetil 요 약 연구배경 : candesartan cilexetil 가 대상 및 방법 : 51 ( : 25, : 26, : 53.5 ± 1.2 ) candesartan cilexetil 8 mg 16 mg 8 결 과 : 1) Candesartan cilexetil 164. 1 ± 2.1 mmHg, 106.3 ± 0.8 mmHg 8 135.4 ± 2.0 mmHg, 89.1 ± 1.1 mmHg (p < 0.05). 2) (35 ) 8 mg 9.7 mmHg , 16 mg 16.2 mmHg 가 가 (8 mg : 97.8 ± 0.9 mmHg, 16 mg : 91.3 ± 1.1 mmHg ; p < 0.05). 3) 72.2 ± 1.2 , 8 72.0 ± 1.3 (p > 0.05). 4) 5) 3 6) 결 론 : 8 8 mg 16 mg candesartan cilexetil

중심 단어 :

Candesartan cilexetil.

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