

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

강석민<sup>1</sup> · 정남식<sup>1</sup> · 최동훈<sup>1</sup> · 안신기<sup>1</sup> · 임세중<sup>1</sup> · 하종원<sup>1</sup>  
장양수<sup>1</sup> · 심원흠<sup>1</sup> · 조승연<sup>1</sup> · 김성순<sup>1</sup> · 이선호<sup>2</sup>

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

Seokmin Kang, MD<sup>1</sup>, Namsik Chung, MD<sup>1</sup>, Dong Hoon Choi, MD<sup>1</sup>, Shinki Ahn, MD<sup>1</sup>,  
Sejoong Rim, MD<sup>1</sup>, Jon Won Ha, MD<sup>1</sup>, Yangsoo Jang, MD<sup>1</sup>, Won Heum Shim, MD<sup>1</sup>,  
Seung Yeon Cho, MD<sup>1</sup>, Sung Soon Kim, MD<sup>1</sup> and Sunho Lee, PhD<sup>2</sup>

<sup>1</sup>Cardiology Division, Yonsei Cardiovascular Center, College of Medicine, Yonsei University, Seoul

<sup>2</sup>Division of Applied Mathematics, Sejong University, Seoul, Korea

### 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 :  $53.5 \pm 1.2$  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  $164.1 \pm 2.1$  mmHg and diastolic  $106.3 \pm 0.8$  mmHg before treatment, which were lowered to  $135.4 \pm 2.0$  mmHg and  $89.1 \pm 1.1$  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 :  $97.8 \pm 0.9$  mmHg, 16 mg :  $91.3 \pm 1.1$  mmHg,  $p < 0.05$ ). 3) Heart rate was not significantly changed before and after treatment during the treatment with candesartan cilexetil ( $72.2 \pm 1.2$ /min vs.  $72.0 \pm 1.3$ /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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: (02) 361 - 7264 · : (02) 393 - 2041

E - mail : namsikc@yumc.yonsei.ac.kr

## 서 론

## 대상 및 방법

### 대 상

1998 9 1999 1

가 .

. 18

75

95 114 mm

가 Hg 52

1

가

1

51

가

가

가

가

, 6

가

(pheochromocytoma),

가

가 2 mg/dl

, AST, ALT가

2

<sup>1)2)</sup>

가

가

prostaglandin, bradykinin, subs -

tance P

### 방 법

candesartan cilexetil 8

mg

16 mg

11

가

가

2 4

<sup>3-5)</sup>

prosta -

glandin, bradykinin, substance P

가

, X

8

12

, 가

losartan

<sup>6)7)</sup>

22 26

candesartan

1997

JNC - (Joint Na -

cilexetil(Atacand®) 8

tional Committee )<sup>9)</sup>

가

5

1 2 .

95 109 mm

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 8

, 2

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
2 ×	+			
=	3			

**Table 2**

혈압 및 심박동수의 변화

2 , 4 8

(p<0.05 vs. ).

가 (Fig. 1).

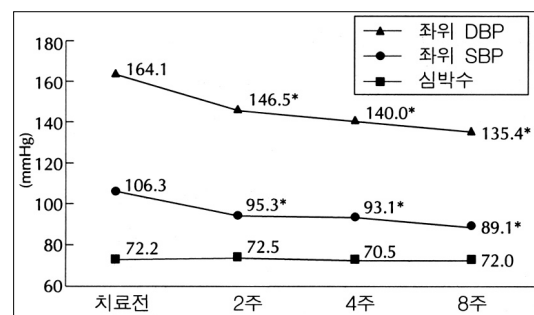
강압효과의 판정

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 <sup>†</sup> ± 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)
	11	16	26	9
	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

**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).

, , 가 6  
가가 ,  
3

10 - 12)

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

16

가

15 , ST - T 1 .

3 가

1 가 ST - T

가

1 가

가

1 가

(dichlorthiazide)

bradykinin,  
 (pro - inflammatory)

가

(angioedema)

5)

가

15) bradykinin

norepineprine

가

16)

가

고 찰

가

losartan(Cozaar®)

가

가

가

2가

가

Type

Gradman 20)

losartan

(enalapril)

mg

20 mg

가

losartan

losartan 50

8)

ni -

가

losartan

Kim 7)

50 mg

100 mg losartan

90%

6)

Park

(fosinopril)

losartan (12.5 mg, 25 mg) hydrochlorothiazide losartan 50 mg (21)(22) flat dose response curve 50 mg

가 (18)(23)(24) Candesartan cilexetil(Atacand®) 1990 CV - 11974 Candesartan cilexetil type agonist effect type (dissociation)가 가

8 mg 16 mg 가 (25 - 28) candesartan cilexetil 8 mg 16 mg , 8 90% candesartan cilexetil 가 가 가 losartan 3.3% 4.3% (6)(7) 가 1 가 (dichlorthiazide)

8 candesartan cilexetil

요 약

연구배경 : candesartan cilexetil 가

대상 및 방법 : 51 ( : 25, : 26, :  $53.5 \pm 1.2$  ) candesartan cilexetil 8 mg 16 mg 8

결 과 :

1) Candesartan cilexetil 164.  $1 \pm 2.1$  mmHg,  $106.3 \pm 0.8$  mmHg, 8  $135.4 \pm 2.0$  mmHg,  $89.1 \pm 1.1$  mmHg (p<0.05).

2) (35 ) 8 mg 9.7 mmHg , 16 mg 16.2 mmHg 가 가 (8 mg :  $97.8 \pm 0.9$  mmHg, 16 mg :  $91.3 \pm 1.1$  mmHg ; p<0.05).

3)  $72.2 \pm 1.2$  , 8  $72.0 \pm 1.3$  (p>0.05).

4)

5) 3

6)

결 론 :

8 8 mg 16 mg candesartan cilexetil

중심 단어 :

Candesartan cilexetil.

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