

## 고혈압의 약물 치료

이 밤 허

## Treatment of Hypertension : Drug Therapy

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가

가

## 고혈압 - 언제 치료 할 것인가?

가

1993 (WHO/ISH)<sup>1)</sup>, 5 mmHg) (stage 1) (140 159/90 99 (JNC V)<sup>2)</sup>, 3 6 (Fig. 1)  
<sup>3)</sup>, 4) 1992 , (stage 2, 160  
<sup>5)</sup> 1994 6)

가

1993 1994

가

5가

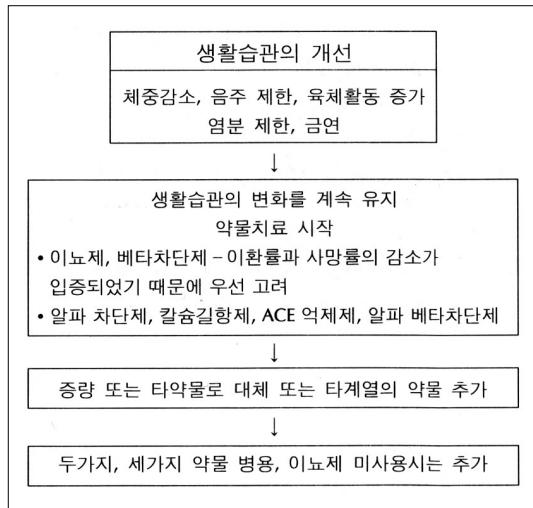
71

712

가?

가?

六



**Fig. 1.** 제 5 차 미국 합동위원회 보고에 의한 치료지침.

**Table 1.** 표적장기 손상에 의한 고혈압의 분류(WHO/ISH)

Stage	K-W :	90	94mmHg
	or creatinine > 1.2 - 2.0mg/dL	.	150/95mmHg
Stage		WHO/ISH	가 (Table 2).
		95mmHg	160mmHg
			100mmHg
Stage			
	TIA,	가	90mmHg
	K-W :	.	160mmHg
	-creatinine > 2.0mg/dL,	(Table 2).	
	( )		

**Table 2.** 강압제 투여 개시의 혈압기준

	( + )		
JNC V(1993)	140*	90*	
	150*	95	90
WHO/ISH(1993)	160	95	140/90
(1993)	160	100	90
Canada(1993)	160	100	140/90
Australia(1994)	160	95	140/90
New Zealand (1992)	150	90	

\* 179/100 109mmHg)

(Table 1)

(Medical Research Council) Trial<sup>7)</sup>

100mmHg

MRFIT(Multiple Risk Factor Intervention Trial)<sup>8)</sup> 100m mHg

MRC

75

가

혈압 - 어디까지 내려야 하나?

SHEP(Systolic Hypertension in the Elderly Program)<sup>9)</sup>

140/90mmHg

JNC V  
140/90mmHg ( )Cruickshank<sup>12)</sup>

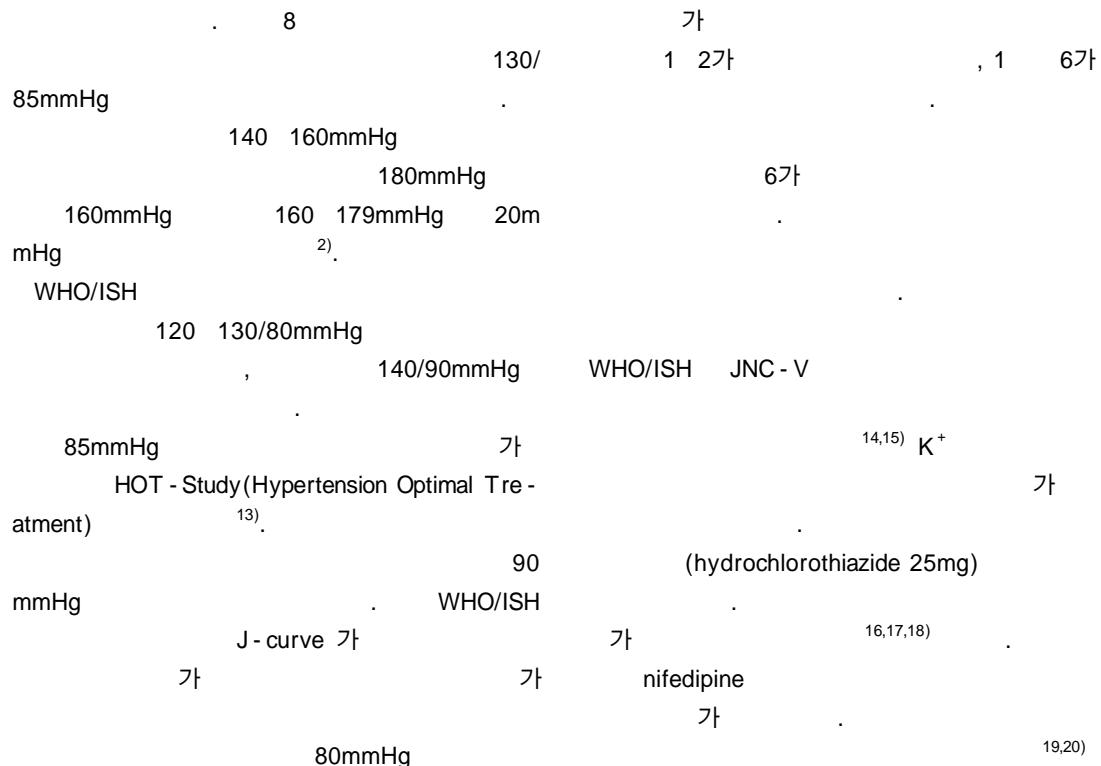
90mmHg

140 149mmHg,

JNC - V

140/90mmHg

가 130/85mmHg



## 치료약제 - 어떻게 선택해야 하나?

## 1. 초기약제의 선택

가

1 2

1

가

## 2 2차약의 선택

가

가

(enantiomeric excess)

71

가  
, ACE

가

가

(Fig. 1)

WHO/ISH

ACE  
ACE Ca  
ACE . Ca

Table 3. 저항성 고혈압의 원인

- Drug interactions
- Non-compliance
- Measurement artifact
- Secondary hypertension
- False tolerance

**Table 4.** 강압제의 효과를 감소시키는 약물

- Non-specific interactions
  - Non-steroidal anti-inflammatory drugs(e.g. indomethacin, ibuprofen)
  - Sympathomimetic drugs in cold cures(e.g. phenylpropanolamine, pseudoephedrine)
  - Synthetic estrogens(in oral pills)
  - Corticosteroids
  - Carbenoxolone sodium
  - Sodium-containing preparations(e. g. sodium bicarbonate)
  - Cyclosporin
  - Erythropoietin
  - Anabolic steroids
  - Cocaine
- Specific interactions
  - Amitriptyline and adrenergic blockers(e. g. guanethidine)
  - Amitriptyline and centrally acting drugs(e.g. methyldopa, clonidine)

Table 4 가

가 가

drenergic neuron blockers

가

가 , thiazide

..... false tolerance

Table 3

Table 5. 저항성 고혈압의 치료

1. 가	.	ACE				
2.	compliance	.				
3. 24	가					
4.	,					
5.	pheochromocytoma	가	(nondipper)	가	2	
6. False tolerance	가	furosemide	8%	21%	3	(di -
40mg	가	.				pper)
7. 가	.					,
8. Pseudohypertension	가	,				,
9. 가	(					)
	.					
가	.	non - dipper			24	
	.					,

(Table 5).

23)

### 활동중 혈압측정과 강압제

nifedipine 가 ACE

가

### 타질환 동반시의 고혈압치료

가 가 가  
( ) , , , 50%  
isolated systolic hypertension, , , , 가  
, , , , 24)  
가 (Table 6)  
가 (Table 7).

24

### 1. 관상동맥질환 환자에서의 고혈압의 치료

가

trough to peak ratio(T/P

)

가

Sta -

nton 22)

**Table 6.** 강압제의 부작용

	Thiazide	dL	K			(Cr. 1.5mg/
	Loop		K			Na
	K (Aldactone)	K (	aldosterone ),			
-	1 2					
	1 (Tenormin )					
Ca	Nifedipine(Adalat )					
	Nicardipine(Perdipine )					
	Diltiazem(Herben )		( )			
ACE	Captopril	K (	aldosterone ),			
	Enalapril(Renitec)					
1	Prazosin(Minipress) Terazosin					
	Hydralazine(Apresoline )					
	Clonidine(Catapres)				rebound	
	-methyldopa(Aldomet)				, impotence,	

**Table 7.** 개인별 약제 선택

			Ca	ACE
2	0	1	1	1
0	2	1	2	1
1	2	1	2	1
2	X	1	X	2
1	1	0	2	2
2	0	1	2	2
X	X	2	1	2
X	X	2	1	1
1	X	1	1	1
( 2 > 1 > 0, X )				

가 (Propranolol, Metoprolol ). K<sup>+</sup> Mg<sup>++</sup>

**Table 8.** 강압제와 혈증 지질

(1)	: Clonidine(Catapres)
(2) α-	: Prazosin(Minipress), Terazosin(Hytrin)
(3)	: Nifedipine(Procardia), Nicardipine (Perdipine), Verapamil(Isoptin), Diltiazem(Herben), Nifendipine(Baypress)
(1)	: Thiazide, Furosemide(Lasix)
(2)	: Propranolol(Inderal), Atenolol(Tenormin), Metoprolol(Lopressor), Nadolol(Corgard)
(3)	Methyldopa(Aldomet)
(4)	Reserpine
(1)	Pindolol(Visken), Acebutolol(Sectral)
(2)	Hydralazine(apresoline)
(3)	Minoxidil(Loniten)
(4) ACF	: Captopril(Capoten), Enalapril(Renitec), Lisinopril(Prinivil, Zestril)

(1) 1 : Propranolol, Atenolol, Metoprolol,  
, Clonidine

(2) 2 : ACE , Prazosin, Terazosin

(3) : Pindolol, Acebutolol,  
(Hydralazine )

(1) 1 : , Clonidine, Prazosin

(2) 2 : ACE , , Pindolol,  
Acebutolol

(3) : Propranolol, Atenolol, , Methy -  
ldopa, Reserpine

## 2. 당뇨병 환자에서의 고혈압 치료 가

가 .  
K<sup>+</sup>

catecholamine  
nterregulation

, ,  
ACE  
1  
2  
nin 가

## 3. 뇌혈관 질환시의 고혈압 치료 가

cou -  
가  
(TIA)  
105mmHg  
1  
re -  
60mmHg

**Table 9.** 강압제와 당대사

			HbA <sub>1C</sub>
Non-selective	?	?	?
Cardioselective			?
with ISA	?	?	?
with alpha	?	?	?
ACE	/		
	/	/	
Sympatholytics			?
+ -			?
+ ACE			?
+ -		?	?

. ACE  
ACE .  
K  
K  
creatinine 2.5mg/dl K

- (1) 1 : ACE , Clonidine
- (2) 2 : , Prazosin,
- (3) : , Methyldopa, Reserpine Minoxidil

#### 4. 만성 폐쇄성 폐질환 및 기관지 천식시의 고혈압 치료

COPD .  
GFR RBF  
K

- 1 -  
Labetolol  
Sympathomimetic agent  
Phenylpropanola -  
mine Ephedrine Guanethidine Reserpine

- (1) 1 : , Prazosin, Clonidine
- (2) 2 : ACE , ,
- (3) : , Reserpine

#### 6. 울혈성 심부전증시의 고혈압 치료

. ACE COPD  
K  
Methylxanthines, steroid ,

. COPD .  
angiotensin K  
K ACE  
tensin K  
ACE angio -  
(NYHA class )  
(3) : , Reserpine, Guanethidine ACE

#### 5. 신장질환시의 고혈압 치료

. Class  
hydralazine  
1  
K  
2  
creatinine 1.3mg/dL(50% )  
K  
creatinine 2.5mg/dl  
clearance 25ml/  
K Furosemide  
K creatinine Thiazide  
loop  
down regulation prolol meto -  
(1) 1 : ACE , , Prazosin,  
(Hydralazine ), Nitrendipine  
(2) 2 : Clonidine, Diltiazem, Nitrendipine

(3) : , Verapamil, Reserpine

7. 좌심실비대를 동반한 고혈압의 치료  
가 가  
가

(1) 1 : ,

(2) 2 : Clonidine

(3) : , Reserpine

9. 말초 혈관 질환시의 고혈압 치료

가

가

( )

Raynaud

ACE

, ACE ,  
Methyldopa

Raynaud

Ray -

가

Minoxidil Hydralazine

(1) 1 : ACE , , Pra -

가 가 .

zosin,

(2) 2 : (ISA가 Ace -

butolol, Pindolol ), Clonidine

(1) 1 : ACE , , Pra -

Idopa, Clonidine, Prazosin

10. 만성 간질환시의 고혈압 치료

(2) 2 : ,

Methyldopa

(3) : Minoxidil, Hydralazine

8. 부정맥을 동반한 고혈압의 치료

Clonidine, ,

K Mg

Thi -

(1) 1 : Clonidine, , Prazosin

azide Furosemide

(2) 2 : ACE , ,

, ACE K

(3) : Methyldopa,

가

11. 임신 중독증시의 고혈압

Thiazide,

(1) 1 : , Verapamil, Clonidine

Hydralazine

Meth -

(2) 2 : ACE , , Prazosin

Methyldopa

(3) : Pindolol, Acebutolol,

(1) 1 : Hydralazine

- (2) 2 : ACE , , Me -  
thyldopa, Clonidine, Prazosin  
(3) : , , Reserpine, Guan -  
ethidine

## 12. 통풍시의 고혈압

Thiazide

- ,  
(1) 1 : ACE , , Cloni -  
dine, Methyldopa, Prazosin  
(2) 2 :  
(3) : ,

## 13. 정신질환 환자의 고혈압

- , , nightmare , Rese -  
rpine, Methyldopa  
Propranolol Metoprolol  
가

- (1) 1 : ACE , ,  
(Prazosin ),  
(2) 2 : Clonidine  
(3) : Reserpine, Methyldopa,

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