

급성 심근경색증에서 심근경색증 발생 직전에 발병한 협심증으로 유도된 허혈전조치 효과에 관한 연구

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The Effect of Ischemic Preconditioning on Patients Who Experienced Angina Pectoris Immediately before Acute Myocardial Infarction

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ABSTRACT

Background and Objectives : Ischemic preconditioning (IP) has been shown to reduce the infarct size and severity of arrhythmia in a post-ischemic reperfused heart. Angina before myocardial infarction reflects brief episodes of myocardial ischemia and may be a marker of ischemic preconditioning. We studied the effect of a history of previous angina on early outcomes (infarct size, left ventricular (LV) function and residual myocardial ischemia) for patients with acute myocardial infarction (AMI) after thrombolytic therapy. **Materials and Method :** We examined prospectively 58 consecutive patients who had AMI and arrived hospital within 6 hours after chest pain developed. IP was defined as prodromal angina within 24 hours before myocardial infarction. Patients were divided 2 groups : Group (Gr , 30 cases) without IP, Group (Gr , 28 cases) with IP. Thrombolytic therapy was done 23 cases (77%) and 21 cases (75%) respectively in each groups. Thereafter, electrocardiographic findings, infarct size on the basis of peak creatine kinase, LV function on the 2-D echocardiographic findings, recurrent myocardial ischemia were examined between 2 groups. **Results :** In predischARGE 2-D echocardiographic findings, LV dilatation and normal regional wall motion did not differ between two groups. But, there were significantly smaller creatine kinase (CK)-determined infarct size in Gr than that in Gr (peak CK level, Gr : 1566.3 ± 960.0 IU/L vs Gr : 1066.9 ± 773.2 ; $p < 0.05$). The time interval between the onset of infarction and peak CK level was shorter in Gr than that in Gr (Gr : 18.3 ± 8.3 vs Gr : 10.7 ± 3.4 hours ; $p < 0.001$). There were significantly more common incidences of residual myocardial ischemia in Gr (Gr : 26.7% vs Gr : 60.7% ; $p < 0.01$). **Conclusion :** Patients with a history of prodromal angina preceding myocardial infarction had small infarct size and earlier reperfusion of infarct related artery. However, there were significantly more common residual myocardial ischemia in these patients and a trend toward re-infarction on same previous infarction sites. (Korean Circulation J 1998;28(10):1677-1684)

KEY WORDS : Ischemic preconditioning · Prodromal angina · Acute myocardial infarction · Residual myocardial ischemia.

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서 론

대상 및 방법

Murray¹⁾ 대 상
1991 1 1992 9
6 58
가 , (:37 , :21)
(ischemic preconditioning ;
IP) . 30
, 12
2 2 mm
IP³⁾ ,⁴⁾ ST²⁾ (CK CK - MB)
가 가
IP
(thre -
shold)가
가 ST 방 법
가 IP 가
IP⁵⁾⁶⁾ 30 (;20 , ;10),
IP 가
28 (;17 , ;11)
10 , 11
가 가 24
IP 가
IP 가 . Q (anterior wall),
(inferior wall) (lateral wall)
Q
가 ST - T 가
Q (NQMI)
⁷⁾ IP EKG Q 가
55 mm
(regional wall motion abnormality)
IP 가 4 chamber view
가 2 chamber view
()
(CK ; creatine phosphokinase, CK - MB)

24 6 , 2 8 ² test . p

, 3 12 24 0.05 .

CK ; 160 IU/L , CK -

MB CK 5% 가

결 과

가 24 기초 임상 특성

60 , 56 .

24 ST 1 mm

가 3 가 .

가 Bru - 8 (26.7%),

ce Naughton protocol , 17 (60.7%) (p>0.

5 10 3 , 01). , NQMI

12 가 (p>0.05).

, 10 mmHg 23 (77%),

2 mm ST 21 (75%)

ST 2 J 80 5 , 12

ms ST 1 mm (horizo - 1 .

ntal) (downsloping) 3 , 9 .

urokinase 300 1 ,

, 6 () .

ST , 16 , 17

1 mm , 2 mm (anterior wall) . 12 , 9

, 2 .

가

(p>0.05)(Table 1).

가 심초음파 소견

caliper 가 가

. 50% 10 , 6

가 가

11 , 12 가

(p>0.05). (LV dimension) parasternal

1 2 short axis view

,

55.8±6.3 mm, 52.

6±7.0 mm, 37.4±10.1 mm,

통계분석 39.7±8.2 mm 가 (p>

0.05)(Table 2).

CK CK - MB CK unp -

aired t test , , ,

혈청 심근 효소치와 최고 심근효소치에 이르는 시간

CK 307.9±34

Table 1. Clinical characteristics of 58 study subjects

	Group (n=30)	Group (n=28)	p-value
Age (year)	59.7 ± 11.3	56.1 ± 9.0	NS
Gender (male : female)	20 : 10	17 : 11	
Follow-up (months)	9.5 ± 5.9	10.9 ± 6.7	NS
Time interval (hour)	3.1 ± 1.4	3.0 ± 1.2	NS
Location of AMI			
Anterior	16	17	NS
Inferior (including posterior)	12	9	NS
Lateral	2	2	NS
Frequency of NQMI after AMI	7 (23.3%)	8 (28.6%)	NS
Thrombolytic therapy	23 (77%)	21 (75%)	NS
Death	1	1	

Values are mean ± S.D., Time interval : from the symptom onset of infarction to receive thrombolytic therapy, AMI : Acute Myocardial Infarction, NQMI : Non Q wave myocardial infarction, NS : not significant

Table 2. Echocardiographic findings between two groups

	Group (n=30)	Group (n=28)	p-value
LVE	10	6	NS
RWM (normal)	11	12	NS
LVED (mm)	55.8 ± 6.3	52.6 ± 7.0	NS
LVES (mm)	37.4 ± 10.1	39.7 ± 8.2	NS

Values are mean ± S.D., LVE : Left ventricular enlargement, (LVED 55mm), RWM : Regional Wall Motion, LVED : Left Ventricular end-diastolic Dimension, LVES : Left Ventricular end-systolic Dimension, NS : not significant

9.3 IU/L, 202.6 ± 218.0 IU/L 가
(p>0.05). CK 1566.3 ±
960.0 IU/L, 1066.9 ± 773.2 IU/L
가 (p<0.05). , CK - MB
19.5 ± 7.2%, 18.1 ± 8.7% 가
(p>0.05) (Table 3).
CK 18.3 ± 8.3 ,
10.7 ± 3.4
(p<0.001). CK 12 24
, 12
CK 12 (40%), 23
(82.1%) (p<0.001). ,
24 23 (76.7%) ,
28 (100%) 가 (Table 4).

잔류심근허혈과 재심근경색증의 발생

8 (26.7%) 6 가

3

Table 3. Cardiac enzyme profile between two groups

	Group (n=30)	Group (n=28)	p-value
Elevation of initial CK	13	9	NS
Initial CK level (IU/L)	307.9 ± 349.3	202.6 ± 218.0	NS
Peak CK level (IU/L)	1566.3 ± 960.0	1066.9 ± 773.2	<0.05
Peak CK-MB fraction (%)	19.5 ± 7.2	18.1 ± 8.7	NS

Values are mean ± S.D., CK : Total creatine phosphokinase, NS : not significant

Table 4. Time to reach peak CK between two groups

	Group (n=30)	Group (n=28)	p-value
Mean time (hour)	18.3 ± 8.3	10.7 ± 3.4	<0.001
< 12 hour	12 (40.0%)	23 (82.1%)	<0.001
< 24 hour	23 (76.7%)	28 (100%)	NS

Values are mean ± S.D., CK : Total creatine phosphokinase, NS : not significant

. 17 (60.7%) 가
9
. 6 , 5 가
가 (p>0.05).

3 , 3 ,

3 2 가

, 5

(Table 5).

ploli 25) . Na - 가 , 가 , 가 가 (Score) , integration 가 IP 5 (TIMI grade) IP 가 Andreotti 요 약 24) 24 2 가 2 연구배경 : (ischemic preconditioning) minimal luminal diameter (%) , 90 가 , 24 (%)가 가 , Ogasawara 26) 3 4 가 방 법 : IP 9 3 58 24 가 28 가 30 , 가 23 (77%), 21 (75%) 가 가 ,

결 과 :

CK 가
($p < 0.05$). CK
($p < 0.001$).
0.001), 12
($p < 0.01$),
가 ($p > 0.05$).
, 5

결 론 :

가
가
가

중심 단어 :

1992

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