

## 급성 하벽 심근경색증 환자에서 전흉부 유도상 ST분절 하강의 임상적 의의

전대진 · 배준호 · 홍그루 · 박종선 · 신동구 · 김영조 · 심봉섭

### Clinical Significance of Precordial ST Segment Depression in Acute Inferior Myocardial Infarction

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#### ABSTRACT

**Background and Objectives :** To evaluate the clinical and prognostic significance of precordial ST segment depression in precordial leads on admission electrocardiogram (ECG) in acute inferior myocardial infarction treated with intravenous thrombolytic therapy. We analysed about clinical and angiographic characters. **Materials and Method :** ECG findings in 50 patients with acute inferior myocardial infarction were retrospectively studied with results of coronary angiography and clinical informations. We classified all patients in two group according to the admission ECG. Twenty nine patients (Group A) had no or <1.0 mm ST depression in precordial lead and Twenty one patients (Group B) had  $\geq 1.0$  mm ST depression in two or more precordial ( $V_1$  -  $V_6$ ) leads were included in this group. **Results :** In precordial ST segment depression in acute inferior myocardial infarction patients had higher plasma peak mean CK levels ( $1945 \pm 1419$  vs  $3547 \pm 2728$  IU/L,  $p = 0.027$ ) and lower LV ejection fraction ( $62 \pm 10\%$  vs  $53 \pm 11\%$ ,  $p = 0.008$ ) and lower left ventricle global chordal shortening ( $0.89 \pm 0.71$  vs  $-1.39 \pm 0.94$ ,  $p = 0.046$ ) and inferior wall chordal shortening ( $-1.68 \pm 1.11$  vs  $-2.43 \pm 0.74$ ,  $p = 0.014$ ) and higher Killip class ( $1.3 \pm 0.8$  vs  $2.4 \pm 1.4$ ,  $p = 0.002$ ) than without precordial ST segment depression patients. **Conclusion :** In conclusion acute inferior myocardial infarction with precordial ST depression patients had more extensive myocardial damage with global and inferior left ventricle severe wall motion dysfunction. Therefore, this suggests a worse prognosis in acute inferior myocardial infarction with precordial ST depression than without precordial ST depression patients. We need more aggressive diagnosis and treatment in this patients to prevent extending myocardial damage. (Korean Circulation J 1999;29(3):285-291)

**KEY WORDS :** Acute inferior myocardial infarction · Precordial ST segment depression.

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서 론

재료 및 방법

40 50% 가 .

환자 선택 1992 8 1995 6 12

ST .

가 ST 30 , II, III, aVF 2 leads 0.1 mV ST

1) , Creatine kinase 가 3가 2 .

ST

1980 Shah 2) . 치료전략 50 . 24 (Urokinase rt - PA)

ST Heparin (300 mg/ ) (50 mg/ )

가 , (Reciprocal change),<sup>3)4)</sup> ,

심전도기준 25 mm/sec 1 cm = 1 mV

(ischemic shift) II, III, aVF 2 sodium - potassium gradient 0.1 mV ST TP <sup>2)5-7)</sup> ST Caliper milimeter 1.0 mm 6 2 .

7) .

ST A , ST B 1992 8 1995 6 50 ST

(A ) (B ) Killip class I, II, III, IV . Creatine kinase(CK) 8 가 .

심혈관 촬영

Philips Poly - Diagnost C2  
 RAO 90°  
 LAD 50°; Cranial 20°  
 Area  
 length method<sup>4)</sup>  
 70%  
 가

100 chord  
 chords 10 60  
 , chords 60 90

통계적 분석

SPSS 7.5  
 t - test  
 chi - square test  
 p<0.05

결 과

임상적 특징

50

**Table 1.** Baseline clinical characteristics of the study population

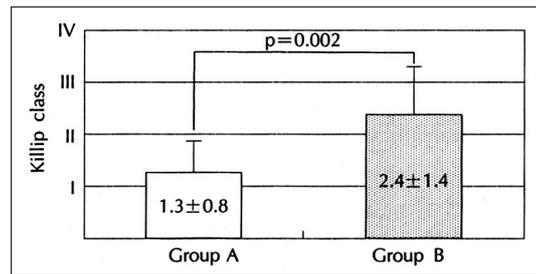
|                      | Group A<br>(n = 29) | Group B<br>(n = 21) | P value |
|----------------------|---------------------|---------------------|---------|
| Age (years)          | 58 ± 9              | 63 ± 13             | NS      |
| Sex (male %)         | 22 (76%)            | 16 (76%)            | NS      |
| Time to ECG (hours)  | 7.2 ± 7.6           | 5.9 ± 6.9           | NS      |
| DM                   | 3 (10%)             | 5 (24%)             | NS      |
| Hypertension         | 6 (21%)             | 7 (33%)             | NS      |
| Previous angina      | 9 (31%)             | 7 (33%)             | NS      |
| Hyperlipidemia       | 10 (34%)            | 7 (32%)             | NS      |
| Current smoking      | 12 (43%)            | 11 (52%)            | NS      |
| Peak serum CK (IU/L) | 1945 ± 1419         | 3547 ± 2728         | 0.027   |
| Killip class         | 1.3 ± 0.8           | 2.4 ± 1.4           | 0.002   |

NS : Not significant

ST A 29 ,  
 B 21  
 A 58 ± 9 , B 63 ± 13  
 ( )  
 22 (76%) 16 (76%) 가 ,  
 7.2  
 ± 7.6 5.9 ± 6.9 가 .  
 ( , , , ) ,

(Table 1).

Killip Class A 1.3 ± 0.8, B  
 2.4 ± 1.4 (p<0.005),  
 creatinine kinase A  
 1945 ± 1419 IU/L, B 3547 ± 2728 IU/L  
 ST (p = 0.027)  
 (Fig. 1).



**Fig. 1.** Comparison Killip class level between with pre-cordial ST depression and without ST depression in acute myocardial infarction.

**Table 2.** Coronary angiographic findings in two group

|                          | Group A<br>(n = 29) | Group B<br>(n = 21) | P value |
|--------------------------|---------------------|---------------------|---------|
| Significant stenosis*    |                     |                     |         |
| LAD                      | 4 (14%)             | 1 (5%)              | NS      |
| RCA                      | 19 (66%)            | 15 (71%)            | NS      |
| LCX                      | 10 (34%)            | 8 (38%)             | NS      |
| 2 vessel                 | 6 (21%)             | 4 (19%)             | NS      |
| IRA                      |                     |                     |         |
| RCA                      | 20 (69%)            | 15 (71%)            | NS      |
| LCX                      | 9 (31%)             | 6 (29%)             | NS      |
| IRA patency (TIMI grade) | 1.9 ± 1.4           | 1.3 ± 1.4           | NS      |

\* Significant stenosis was defined as the presence of a 70% reduction in luminal diameter

IRA : infarct-related artery

LAD : left anterior descending artery

RCA : right coronary artery

LCX : left circumflex artery

NS : not significant

관상동맥 조영술 소견

70%

A 4 (14%)  
 B 1 (5%), A  
 19 (66%) B 15 (71%),  
 A 10 (34%) B 8 (38%)  
 . 2  
 A 6 (21%) B 4 (19%)

(IRA) patency TIMI grade

A 1.9±1.4, B 1.3±1.4 ST

(Table 2).

50

A 29 15 (52%),

B 21 9 (43%)

(42, 43 p=0.002)

(Table 3).

**Table 3.** Thrombolytic therapy received by both groups on admission

|                      | Group A<br>(n=29) | Group B<br>(n=21) | P value |
|----------------------|-------------------|-------------------|---------|
| Thrombolytic therapy | 15 (52%)          | 9 (43%)           | NS      |
| Thrombolytic agent   |                   |                   |         |
| Urokinase            | 8                 | 7                 |         |
| rTPA                 | 7                 | 2                 |         |
| Time window* (hours) | 4±2               | 4±3               | NS      |

\* Time window means interval between onset of symptom and thrombolytic therapy

NS : Not significant

rTPA : Recombinant tissue-type plasminogen activator

좌심실 조영술 소견

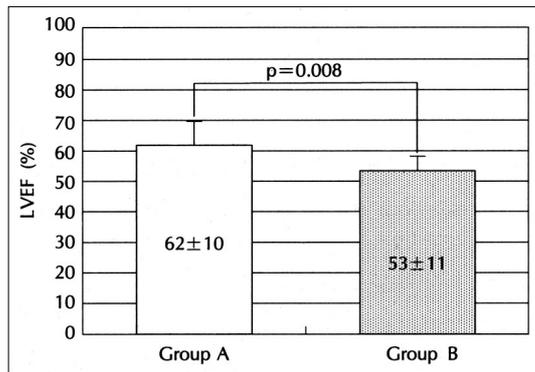
A 62±10%, B

53±11% ST

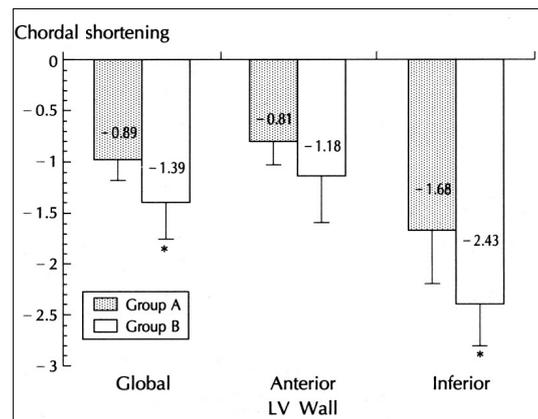
(p=0.008) (Fig. 2).

(chord

shortening)<sup>8)</sup> A -0.89±0.71, B



**Fig. 2.** Comparison global LV function (LVEF) between with precordial ST depression and ST depression in acute inferior myocardial infarction.



**Fig. 3.** LV wall motion difference in acute inferior myocardial infarction with ST depression and without ST depression in precordial leads. \*p<0.05 vs ST depression (-)

**Table 4.** Angiographic findings between two groups with or without precordial ST depression in acute inferior wall infarction

|                                   | Group A<br>(n=29) | Group B<br>(n=21) | P value |
|-----------------------------------|-------------------|-------------------|---------|
| Ejection fraction (%)             | 62 ± 10           | 53 ± 11           | 0.008   |
| Wall motion (Chordal shortening*) |                   |                   |         |
| Global (chord 1 - 100)            | -0.89 ± 0.71      | -1.39 ± 0.94      | 0.046   |
| Anterior wall (Chord 10 - 60)     | -0.81 ± 0.72      | -1.18 ± 1.28      | NS      |
| Inferior wall (Chord 60 - 90)     | -1.68 ± 1.11      | -2.43 ± 0.74      | 0.014   |

CK : creatinine kinase, IRA : infarct-related artery

LAD : left anterior descending artery, RCA : right coronary artery, LCX : left circumflex artery, NS : not significant

\* Chordal shortening (by centreline chordal shortening method) : chord 10 - 60 = LAD

chord 60 - 90 = RCA

- 1.39 ± 0.94 ST  
가 (p=0.046),  
A - 1.68 ± 1.11, B

- 2.43 ± 0.74 ST  
(p<0.014).  
A - 0.81 ± 0.72, B - 1.18 ±

1.28 B  
(Fig. 3, Table 4).

고 찰

ST  
. (Chord 60 90)  
A - 1.68 ± 1.11, B

ST  
가  
, 2)9)11)12)  
ST

Picher 15)  
Cha 4)  
ST  
CK(Creatinine kinase)  
566 IU/L 1776 IU/L ST  
CK , Ishikawa 14)  
1042 IU/L 1506 IU/L ST  
CK

, Salcedo 5)  
ST  
96% , Tuner

, 16) Miler 17)  
, 1945  
± 1419 IU/L, 2549 ± 2728 IU/L ST  
CK (p=0.027).  
Wasserman 19)

ST  
가  
. (Chord 10 60) A  
- 0.81 ± 0.72, B - 1.18 ± 1.28 ST

. Peterson 14)  
ST

ST  
56% 54% ST  
가  
Jo 18)  
가 . Shah 2)  
ST  
가 ST  
, Shah  
ST 62 ± , 가

가 III, IV) 가 A 1.3±0.8, B  
 2.4±1.4 B (p=.002).  
 A 62±10%, B 53  
 ±11% B  
 (p=.008). (Regional chordal  
 shortening)  
 ST (Chord 1 100) ST B -1.39±  
 0.9 ST A -0.89±0.71  
 Hsadia<sup>21)</sup> V1-V3 (p=.046) (Chord 60  
 V4-V6 90) B -2.43±0.74, A -1.68±1.11  
 ST 가 ST  
 (p=0.014).  
 가 결 론 :

요 약

연구배경 :

ST

ST

방 법 :

1992 8 1995 6

중심 단어 :

가

ST

50

ST A ST

B

IRA patency TIMI grade

결 과 :

CK - 1945±1419 IU/L  
 3547±2728 IU/L(p=0.027) B  
 Killip class(I, II,

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