

## 급성 전벽 심근경색환자에서 경색심근의 재관류가 좌심실의 재구도에 미치는 영향

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### ■ Abstract ■

#### Myocardial Reperfusion and Long-Term Change of Left Ventricular Volume after Acute Anterior Wall Myocardial Infarction

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**Background :** In acute myocardial infarction, left ventricular remodeling, which was influenced by infarct size, location, and patency of infarct related artery (IRA), is a important prognostic factor for chronic heart failure and survival. Recently, several reports suggested that patent IRA does not always mean true myocardial reperfusion, and myocardial contrast echocardiography (MCE) may be a useful tool for assessing infarct size and viability of infarcted myocardium. So, we investigated the association between the degree of myocardial reperfusion assessed by MCE and long term change of left ventricular volume in acute anterior wall myocardial infarction patients who had patent IRA.

**Methods :** The study population was consisted of 17 patients with first acute anterior wall myocardial infarction patients who had patent left anterior descending artery by thrombolytic therapy or rescue PTCA. MCE was done immediately after coronary angiography within two weeks of myocardial infarction onset and analyzed by semiquantitative method to get opacification index. For analysis of left ventricular ejection fraction, wall motion abnormality and left ventricular volume, echocardiogram was taken within 2 weeks of myocardial infarction onset and 9 months later in each case. Wall motion abnormality was quantified as wall motion index.

According to serial changes of left ventricular volume, patients were divided into two groups ; group 1 (less than 10% increase of LV volume at follow-up compared to initial echocardiographic exam) and group 2 (more than 10% increase of left ventricular volume). We compared the opacification index of infarcted myocardium, wall motion abnormality, and ejection fraction between the two groups.

**Results :** Initial left ventricular volume and ejection fraction were not different between group 1



17 ( : 0 , : 1 , : 2 , : 3 , : 4 ) .

2. 방 법

1) 관동맥 조영술 및 심근 조영 심초음파 (myocardial contrast echo, MCE)

Seldinger

17 14 10~14

90 , 3 sonicated hexabrix

4 2

3cc, 2cc

HP Sonos gain

1500 1/2inch video

가 가

가

0, 1, 0.5

(opacification index, O.I)

2. 좌심실 기능 및 용적의 측정

2

9.8±4.5 Simpson 4

4 , 2 ,

5

(wall motion index, WMI) .

### 3. 통계학적 방법

17 10% 가 (1 , n=10) , 10% 가 (2 , n=7)

(multivariate analysis)

SPSS

p 0.05

## 결 과

### 1. 대상 환자의 특성

17 가 12 , 가 5

60±10 Q

6

90

14 ,

가 TIMI 2

2 , TIMI 3 12 TIMI 2

가

10

3 TIMI 3

13 , 4

가 11 ,

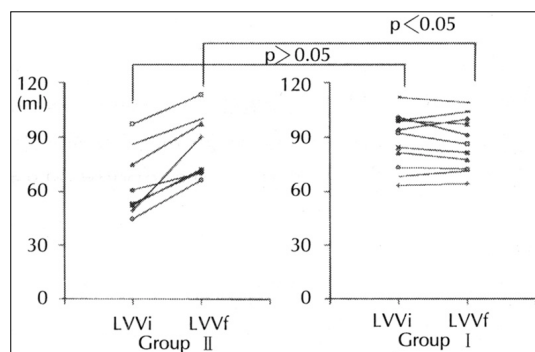
가 6 (Table 1).

**Table 1.** Basal characteristics of patients

Total 17 patients	
Male : Female	12 : 5
Age :	60±10 yrs
Infarct related artery : left anterior descending artery	
TIMI 2 : TIMI 3	2 : 15(pre PTCA)
Single-vessel : Multi-vessel	13 : 4
Collateral grade 0 : I : II : III	11 : 1 : 2 : 3

2. 좌심실 용적과 좌심실 구혈률, 벽운동지수, 조영지수와의 관계

가  
2  
9  
10%  
가 (1, n=10) 10%  
가 (2, n=7)



**Fig. 1.** Change of LV volume within and between groups.  
LVV : end diastolic left ventricular volume  
i : initial, f : follow up

TIMI 3가 1, 9, 2 1, 6  
(p<0.05).  
(LVVi) 1 90  
±15ml 2 103±4ml  
(LVVf) 88.0±15ml, 138±30ml 2  
(p=0.0003) (Fig. 1).  
1 0.85±0.09 2 0.52  
±0.17 (p<0.05),  
(WMI)  
2 1  
(EFi) 1 54.8±11.7% 2  
43.1±11.1%  
(EFf) 1 58.7±  
5.8% 2 43.6±8.6%  
(Table 2).

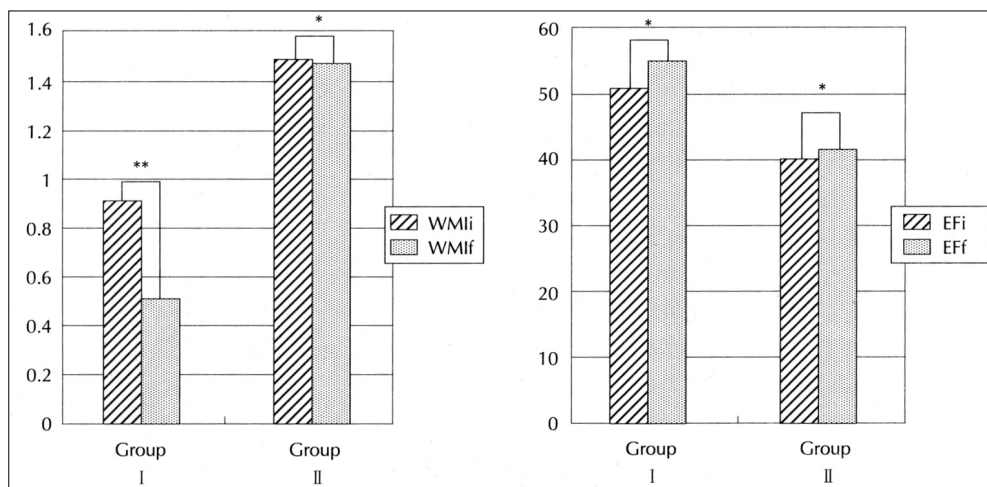
**Table 2.** Comparison of opacification index, ejection fraction, and wall motion index(mean ± SD)

	OI*	WMI*	WMI*	EFi(%)	EFf(%)*	LVVi(ml)
Group 1	0.85±0.09	0.99±0.43	0.56±0.34	54.8±11.7	58.7±5.83	89.8±14.6
Group 2	0.52±0.17	1.54±0.39	1.54±0.39	43.1±11.1	43.6±8.6	102.6±30.8

OI : opacification index, WMI : wall motion index, LVV : left ventricular volume

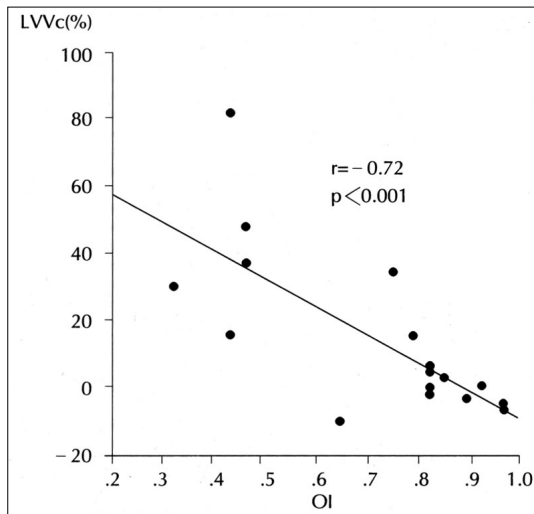
EF : ejection fraction, i : initial, f : follow up

\* : p<0.05 between group 1 and group 2



**Fig. 2.** Change of EF and WMI in each group. pared t-test \*\*: p<0.05, \* : p>0.05





**Fig. 4.** % change of LV volume according to opacification index.  
 $LVVc(\%) : (LVVf - LVVi) / LVVi$

dependent variables), 가 (LVVc)  
 (dependent variable)  
 (multivariate regression analysis)

( $p=0.0056$ ),

subset (p=0.0002). Best  
 가 가

EFi, WMli

고 안

(remodeling) , 가  
 가 .

Mckey<sup>12)</sup> Grossman<sup>13)</sup>

(expansion)  
 oad)

Anversa<sup>14)</sup>

(volume overl

15)

16)

가

5,6)

가

17 - 19)

(Asynergy)

20,17)

18 - 20)

1

가

가

가

PET scan, MRI,

(MCE)

가

(air -

filled microbubble)

가

가

21)

가

TIMI 3

가

10%

가 1 (n=10)

10%

가

2 (n=7)

가

가

( $p=0.28$ )



10% 가 2 가

1

3)

가 2

2

4)

가

5)

(multivariate analysis)

가

대상 및 방법 :

Q

17

9

2

가

9

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- 10% 가 (1 , n=10) 10%
- 가 (2 , n=7)
- 가
- 결 과 :
- 1)
- TIMI 2 TIMI
- (collateral blood flow)
- 가
- 2)
- 1 0.85 ± 0.09, 2 0.52 ±
- 0.17 1 (p<0.05),
- 가
- 1 58.7 ±
- 5.83%, 2 43.6 ± 8.6%(p<0.05)



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