

급성 심근 경색증 환자에서 구제적 관상 동맥 중재술의 장기적 임상 고찰

홍영준 · 정명호 · 이승현 · 박옥영 · 정우곤 · 이상록 · 김 원 · 김계훈
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The Long-term Clinical Outcomes after Rescue Percutaneous Coronary Intervention in Patients with Acute Myocardial Infarction

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ABSTRACT

Background and Objectives : Rescue percutaneous coronary intervention (PCI) has been used to treat the patients after failed thrombolysis in acute myocardial infarction. However, the short- and long-term benefits of rescue PCI has not been known exactly. The goal of this study was to examine the clinical and angiographic outcomes, success rate of the procedure, and the long-term survival rate following rescue PCI. **Materials and Methods :** The clinical and angiographic outcomes of 31 patients (Group ; 59.7 ± 11.4 years, 80.6% male), who underwent rescue PCI were compared with those of 177 patients (Group ; 59.7 ± 9.7 years, 79.7% male), who underwent primary PCI at Chonnam National University Hospital between January 1997 and December 1999. **Results :** There were no significant differences in the risk factors for coronary artery diseases, with the exception of for smoking (Group ; 24/31, 77.4% vs. Group ; 76/177, 42.9%, $p < 0.05$). The incidence of cardiogenic shock was higher in Group than in Group (Group ; 7/31, 22.6% vs. Group ; 11/177, 6.2%, $p < 0.05$). The coronary angiographic findings were not different between the two groups. Thrombolysis in Myocardial Infarction flow of Group was lower than in Group (Group ; 1.14 ± 0.93 vs. Group ; 1.61 ± 1.14 , $p < 0.05$). The primary success rate was 93.6% (29/31) in Group and 94.9% (168/177) in Group ($p < 0.05$). The baseline ejection fraction was lower in Group than in Group (Group ; $44.2 \pm 8.9\%$ vs. Group ; 50.8 ± 11.7 , $p < 0.05$), and improved in both groups (Group ; $51.7 \pm 7.9\%$ vs. Group ; $60.7 \pm 13.4\%$, $p < 0.05$) at six months after the procedures. The survival rate of Group was 93.5%, 93.5% and 90.3% and that of Group was 94.5%, 93.7% and 91% at 1 month, 6 and 12 months, respectively. **Conclusion :** Rescue PCI was associated with the risk factor of smoking and the high incidence of cardiogenic shock. The success rate of rescue PCI was comparable to

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primary PCI. Additionally, left ventricular function was improved following rescue PCI on the long-term clinical follow-up with a relatively high survival rate. (**Korean Circulation J 2001;31(2):173-181**)

KEY WORDS : Acute myocardial infarction · Primary percutaneous coronary intervention · Thrombolytic therapy · Rescue percutaneous coronary intervention.

서론

1 mV ST 2 2 mV ST

90

ST

30 mmHg 200

1-3) Ellis 4) (: 31

92% 59.7 ± 11.4 , : = 25 : 6)

Ross 5) (: 177 ,

59.4 ± 9.7 , : = 141 : 36)

방 법

Simpson

31

90

5000U

177

가 1 ,

6 , 12 (infarct related

대상 및 방법

Thrombolysis in My -

ocardial Infarction(TIMI) score⁶⁾ . TIMI

0 가

, TIMI 가

, TIMI

1997 1 1999 12

6

30

American College of Cardiology/American Heart Association(ACC/AHA)⁷⁾

A, B₁, B₂, C
⁸⁾
 6
⁹⁾
 가 TIMI
 tissue plasminogen activator가
 100 300 mg
 activated partial thromboplastin
 time 2 4
 1, 6, 12

통계 및 분석

MS Windows® SPSS-PC 10.0
 (Statistical package for the social sciences, SPSS
 Inc. Chicago, IL, U.S.A.) unpaired t-
 test, Chi-square test
 ± p 0.05

결 과

임상적 특징

59.7 ± 11.4, 59.7
 ± 9.7, (n=31)
 25, 6, (n=177)
 141, 36
 (Table 1).

13 (41.9%), 68 (38.4%),
 7 (22.6%), 38 (21.4%), 10
 (32.2%), 51 (28.8%) 가
 24 (77.4%), 76 (42.9%)

Table 1. Baseline clinical characteristics of group underwent rescue percutaneous coronary intervention (PCI, Group) and primary PCI (Group)

	Group (n = 31)	Group (n = 177)	p value
Age	59.7 ± 11.4	59.7 ± 9.7	NS
Male (%)	25 (80.6)	141 (79.7)	NS
Systolic blood pressure <90 mmHg (%)	7 (22.6)	11 (6.2)	<0.05
Risk factors (%)			
Smoking	24 (77.4)	76 (42.9)	<0.05
Hypertension	13 (41.9)	68 (38.4)	NS
Diabetes mellitus	7 (22.6)	38 (21.4)	NS
Dyslipidemia	10 (32.2)	51 (28.8)	NS
Pain to door time (mim)	195 ± 120	188 ± 90	NS
Pain to PCI time (mim)	277 ± 96	223 ± 99	NS

가 (p<0.05,
 Table 1).

, , ,
 90/60 mmHg
 7 (22.6%), 11 (6.2%)
 (p<0.05, Table 1).

관상동맥 조영술상 특징

17 (54.8%), 9 (29%),
 5 (16.1%), ,
 98 (55.4%), 58 (32.8%),
 21 (11.9%)
 (p=NS, Table 2).

14 (45.2%),
 0 (0%), 17 (54.8%),
 91 (51.4%), 14 (7.9%),
 72 (40.7%)
 가 가

ACC/AHA A

Table 2. Coronary angiographic findings in patients underwent rescue percutaneous coronary intervention (PCI, Group) and primary PCI (Group)

	Group (n = 31)	Group (n = 177)	p value
Number of involved vessel (%)			NS
One	17 (54.8)	98(55.4)	
Two	9 (29)	58(32.8)	
Three	5 (16.1)	21(11.9)	
Target coronary artery (%)			NS
Left anterior descending artery	14 (45.2)	91(51.4)	
Left circumflex artery	0 (0)	14(7.9)	
Right coronary artery	17 (54.8)	72(40.7)	
ACC/AHA classification (%)			NS
Type A	1 (3.2)	7(3.95)	
Type B ₁	11 (35.5)	94(53.1)	
Type B ₂	8 (25.8)	34(19.2)	
Type C	11 (35.5)	42(23.7)	
Intra-coronary thrombosis (%)	25 (80.6)	19(10.7)	<0.05

ACC/AHA : American College of Cardiology/American Heart Association

1 (3.2%), B₁ 11 (35.5%), B₂ 8 (25.8%), C 11 (35.5%), A 7 (3.95%), B₁ 94 (53.1%), B₂ 34 (19.2%), C 42 (23.7%) (Table 2).

25 (80.6%), 19 (10.7%)
가 (p<0.05, Table 2).

TIMI 0가 10 (32.3%), 8 (25.8%), 가 12 (38.7%), 가 1 (3.2%), 0가 50 (28.2%), 12 (6.8%), 가 72 (40.7%), 가 43 (24.3%), TIMI 1.14 ± 0.93, 1.61 ± 1.14 (p<0.05, Fig. 1).

관상동맥 중재술의 결과

120 , 188 ± 90 , 195 ± 120 , 277 ± 96 , 223 ± 99 (Table 1).
TIMI 0가 0 (0%), 2 (6.5%), 가 3 (9.7%), 가 26

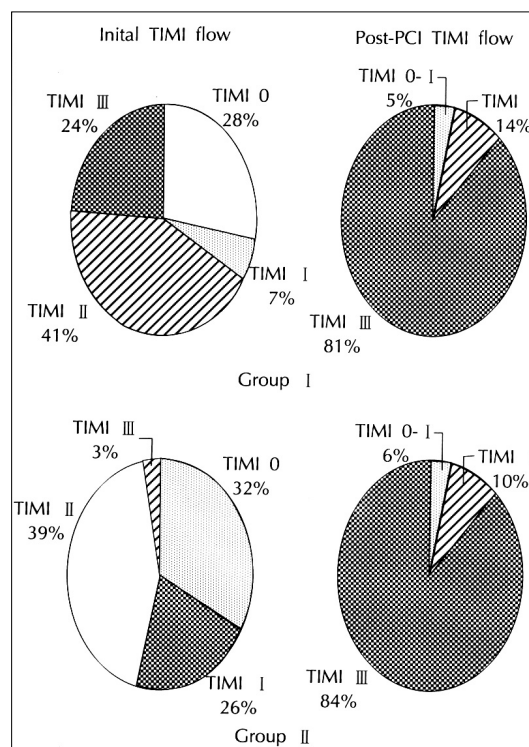


Fig. 1. Initial Thrombolysis in Myocardial Infarction (TIMI) flow improved after percutaneous coronary intervention (PCI) in both groups underwent rescue PCI (Group) and primary PCI (Group).

(83.9%) , 0가 0 (0%), 9 (5.1%), 가 24 (13.6%), 가 144 (81.4%)
TIMI 29 (93.5%), 168 (94.9%)
(p=NS, Fig. 1).

40 ± 15%, 39 ± 13%

좌심실 구혈률

6
Simpson
가 . 44.2 ± 8.9%, 50.8 ± 11.7% (p< 0.05).
6
51.7 ± 7.9%, 60.7 ± 13.4% (p<0.05,

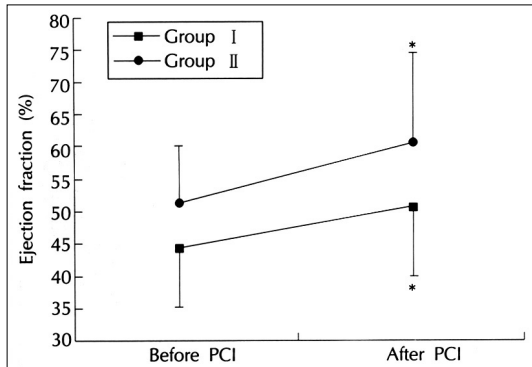


Fig. 2. The ejection fraction by echocardiogram improved six months after percutaneous coronary intervention (PCI) in both groups underwent rescue PCI (Group II) and primary PCI (Group I). *: $p < 0.05$

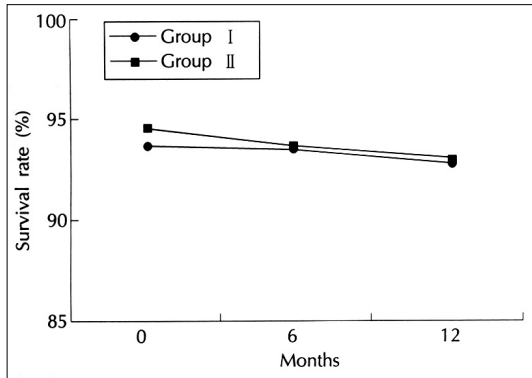


Fig. 3. Event-free survival of hospital survivors underwent rescue percutaneous coronary intervention (PCI) (Group II) and primary PCI (Group I) were not different between two groups ($p = NS$) during the period of one-year clinical follow-up.

Fig. 2).

장기 생존율

1, 6, 12
1
93.5%,
6 93.5%, 12 90.3%
1 94.5%, 6 93.
7%, 12 91%
(Fig. 3).

고 찰

¹⁰⁻¹²⁾ Thrombolysis in Myocardial Infarction in Korea(TIMIKO) ¹³⁾
Urokinase AI-
teplase 90
Thrombolysis In Myocardial Infarction(TIMI)
69.9%, 67.8% 가
Ellis ⁴⁾ 78

92%
The Cohort of Rescue Angioplasty in Myocardial Infarction(CO-RAMI) study group¹⁴⁾ 90%
Ross ⁵⁾ 88% TIMI

가
The large Global Use of Strategies To Open occluded arteries in acute coronary syndromes(GUSTO b) angiographic sub-study¹⁵⁾
93% TIMI 73%
31 93.5% TIMI
83.9%
177
94.9% 가

Kim ¹⁶⁾

가

Juliard ¹⁷⁾ 가

Park ²¹⁾ 가

2

90 mmHg 가

Goldberg ¹⁸⁾ 7.5% Jeon

¹⁹⁾ 11.1% Gibson ²⁰⁾ , Khan ²²⁾

가 2% Juliard ¹⁷⁾ 2%, Jeong ²³⁾

0.5% , Ross ⁵⁾ 11.1% b/ a

(ReoPro[®]) ReoPro[®] 97%

22.6%, 6.2% 가 , 97.8%

가 가 가 b/ a

(ReoPro[®])

가 Cho ²⁴⁾

ACC/AHA TIMI

25 (80.6%), 19 (10.7%)

가

TIMI TIMI 가 58%,

35% , TIMI 1 2

41.9%, 65% , TIMI

1.14±0.93, 1.61±1.14 TIMI Holmes DR Jr ²⁵⁾

가

(47% vs. 58%),

가 , 1

(47% vs. 36%)

6

가

Holmes DR Jr²⁵⁾

4 89%,

4 97% . CORAMI Study

Group¹⁴⁾

18 92%

1 , 6 , 12 93.5%,

93.5%, 90.3%

1 , 6 , 12

94.5%, 93.7%, 91%

가

(ventricular re -

modeling)

요 약

연구목적 :

대상 및 방법 :

1997 1 1999 12

90

ST

31 (: 59.7 ± 11.4 , : $=25 : 6$)

177 (: 59.7 ± 9.7 , : $=141 : 36$)

1 , 6 , 12

결 과 :

1) (; 24/31 , 77.4% vs. 76/177 , 42.9%, $p < 0.05$)

가 , 90/60 mmHg

가 (; 7/31 , 22.6% vs. ; 11/177 , 6.2%, $p < 0.05$).

2) , American College of Cardiology/American Heart Association , 가 Thrombolysis in Myocardial Infarction 가 (; 1.14 ± 0.93 vs. ; 1.61 ± 1.14 , $p < 0.05$), 가 (; 25/31 , 80.6% vs. ; 19/177 , 10.7%, $p < 0.05$).

3) 가 (; 195 ± 120 , 277 ± 96 vs. ; 188 ± 90 , 223 ± 99), 가 (; 29/31 , 93.6% vs. ; 168/177 , 94.9%), 6 (; $44.2 \pm 8.9\%$ vs. $51.7 \pm 7.9\%$, ; $50.8 \pm 11.7\%$ vs. $60.7 \pm 13.4\%$, $p < 0.05$).

4) 1 93.5%, 6 93.5%, 12 90.3% , 1 94.5%, 6 93.7%, 12 91%

결 론 :

중심 단어 :

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