

관상동맥 중재술후 재협착 병변 치료의 조기 성적

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= Abstract =

The Early Results of Clinical and Angiographic Follow-up after Coronary Interventions for Restenotic Lesions

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Background : Coronary intervention is a well established treatment of ischemic heart diseases. However, acute arterial occlusion and restenosis have remained as the principal limitations of coronary intervention. This study was aimed to analyze the acute and long-term and the clinical and angiographic results of coronary intervention for restenotic lesions.

Methods : Between March 1996 and July 1997 at Chonnam University Hospital, second interventions were performed in one hundred restenotic coronary lesions in ninety patients (58.5 ± 9.0 year, M : F = 5 : 1), i.e. percutaneous transluminal coronary angioplasty (PTCA) or stent implantation for the treatment of restenosis.

Results :

1) Initial interventions were PTCA in 75 lesions (Group) and stent in 25 lesions (Group). There were no differences in clinical manifestations, angiographic findings and follow-up periods between the two groups.

2) The method of the second intervention for restenotic lesions after PTCA were either PTCA or stent implantation ; in Group PTCA was performed in 27 (37%) lesions and stent in 46 (63%). In Group , PTCA was performed in 20 (91%) lesions and stent in 2 (9%) lesions. The overall success rate of the second intervention for the restenotic lesion was 96%.

3) Follow-up angiogram at 5.5 ± 2.9 months after the second intervention revealed the second restenosis rates of 44% (8/18) after stent and 50% (7/14) after PTCA.

Conclusion : Second intervention for restenotic lesion can be performed with high success rates.
Second restenosis rates are not different between the PTCA and stent groups.

KEY WORDS : PTCA · Stent · Restenosis · Second restenosis.

서 론

90

100

(PTCA : percutaneous transluminal coronary an-
gioplasty)

가

. Andreas Gruentzing¹⁾

가 PTCA
가

²⁻⁴⁾ . ,

가

가 ^{5,6)} ,

,
⁷⁻⁹⁾ .

대상 및 방법

1. 연구대상

1996 3 1997 7

50%

2. 연구방법

1) 관상동맥 조영술 및 판정

가 4.5 ± 2.0 (1
15) ,

, , , ,

, Judkins

PTCA 30 °(Right anterior oblique : RAO 30 °),
45 °(left anterior oblique : LAO 45 °),
(LAO with cranial angulation), (left
lateral view) ,
45 °(RAO 45 °) 45 °(LAO 45 °)
¹⁰⁾ .

가

50%

¹¹⁾ ,

(ACC/AHA)

¹²⁾

(Table 1).

2) 관동맥 질환의 위험인자

(140/90mmHg), (220
mg/dl), , ,

3) 관동맥 중재술

PTCA

1 unit ,

1.5mm 3.5mm monorail

4 10 30 180 1 3 6 12 18 가 PTCA 20% 50%

4) 임상적 추적관찰

가

Table 1. Morphologic classification of coronary artery lesion

Type A lesion	
Discrete(length < 10mm)	Little or no calcification
Concentric	Less than totally occlusive
Readily accessible	Not ostial location
Non-angulated segment (< 45°)	No major side branch involvement
Smooth contour	Absence of thrombus
Type B lesion*	
Tubular(length 10 to 20mm)	Moderate or heavy calcification
Eccentric	Total occlusion < 3 months old
Moderate tortuosity of proximal segment	Ostial lesion in location
Moderate(45°-90°) angle	Treatable bifurcation lesion
Irregular contour	Some thrombus present
Type C lesion	
Diffuse(length ≥ 20mm)	Total occlusion > 3 months
Excessive tortuosity of proximal segment	Bifurcation with non-protectable branch
Extremely angulated segment (> 90°)	Degenerative vein graft

*B1 : one of type B lesion characteristics,
B2 : more than one of type B lesion characteristics

5) 추적 관동맥 조영술

6 (1), 6 (2)

6) 통계분석

±, St-udent's unpaired t-test, Chi-square analysis

연구결과

1) 58.5 ± 9.0, 가 75, 15 5 : 1

2) 42 (46.6%), 13 (14.4%), 26 (28.9%), 23 (25.7%), 30 (33.3%), 32 (35.5%), 5 (5.5%) (Table 2).

3) 가 58 (58%), 21 (21%),

Table 2. Clinical characteristics of patients

Number	90
male : female	5 : 1
Age	58.5 ± 9 yrs
Risk factors	
Smoking	61
Hypertension	42
Hypercholesterolemia	26
Diabetes mellitus	13
Clinical diagnosis	
Stable angina	23
Unstable angina	30
Acute myocardial infarction	32
Old myocardial infarction	5

21 (21%) .
 81 (90%), 8 , 1
 (1.1%) .
 4) $86 \pm 10.5\%$
 , ACC/AHA A 9
 (9%), B1 39 (39%), B2 36 (36%)
 C 16 (16%) (Table 3).
 5)
 $75 (75\%)$,
 가 25 (25%) .
 $15 (60\%)$, PTCA
 가 5 (20%),
 가 5 (20%) .
 6) PTCA
 5.5 ± 2.9 , 5.6
 ± 2.8 .
 7)

Table 3. Coronary angiographic findings

Diameter stenosis(%)	86 ± 10.5
Distribution of diseased vessel	
left anterior descending artery	58(58%)
left circumflex artery	21(21%)
right coronary artery	21(21%)
Morphology of lesion	
type A	9(9%)
type B1	39(39%)
type B2	36(36%)
type C	16(16%)

Table 4. Indications for follow-up coronary angiogram in patients

First follow-up coronary angiogram	< 6 month (N = 36)	6 month (N = 54)
Follow-up duration(months)	2.8 ± 1.6	7.2 ± 1.9
Indications		
Recurrent angina	34	23*
acute myocardial infarction	3(9%)	1(4%)
unstable angina	23(67%)	9(39%)
stable angina	8(24%)	13(57%)
Positive stress test	2	10
Elective		21

*p<0.001

6 1 36 (40%) ,
 6 2 54
 (60%) . 1 2.8
 ± 1.6 , 2 7.2 ± 1.9 . 1
 3 ,
 23 , 8
 가 2 . 2
 1 , 9 , 13
 가 31
 1
 가 , 2
 가 (p<0.0005, Table 4).
 8) PTCA
 $46 (63\%)$,
 PTCA 27 (37%) ,
 2 (9%), 20 (91%) ,
 100 95
 95% (Fig. 1).
 35 , PTCA

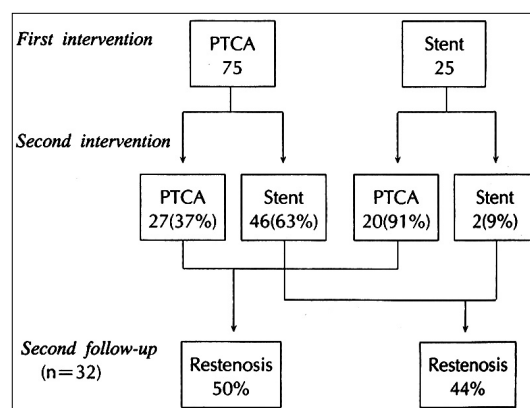


Fig. 1. Treatment modalities for restenotic lesions and second restenosis rate.

Table 5. Coronary intervention for restenosis(n = 100)

PTCA	47
Stent	48
Elective	36(75%)
Suboptimal	7(15%)
Dissection	5(10%)
Failure	5
Difficulty in cross	3(60%)
Thrombosis	2(40%)

Table 6. Results of the second follow-up coronary angiography

Second follow-up	N = 32(34%)
Follow-up duration(months)	5.5 ± 2.9
Second restenosis	
PTCA	7/14(50%)
Stent	8/18(44%)
Intervention for second restenosis(15)	
PTCA	13
Stent	2

가 7 , 가 6
가 3 , 가 2
(Table 5).
9) 32 (33.7%)
44%(8/18), PTCA
50%(7/14)
PTCA가 13 , 2 (Table 6).
고 안
가
, 50%가
2,3,13,14)
,
(chronic recoil),
(fibrocellular neointimal hyperplasia)
17-20)
21-24)
25-29)
21-24),
30)
가
de novo
100(PTCA 75, stent²⁵⁾
stent
95%
가 가
32 5.5
50%(7/14), 44%(8/18)
PTCA PTCA
31-35)
94 97%
95%
1455 de
PTCA
6
1268(94%)
Teirstein³³⁾
PTCA가
47
30% PTCA , PTCA
PTCA
37)
Quingly³⁸⁾
가
, Christophe
31)
6 36
(67%, 23/36)가

. Schomig 44)

Alfonso 39)

가

45)

가 . Bernhard

124

127

10%

PTCA
가

PTCA

2 (9%)

40)

. Beim ⁴¹⁾

PTCA

54%

5.5

(75%),

PTCA

(15%),

(10%)

(50%, 44%)

가

37 ,

90

가 PTCA

30

Colombo 42)

46)

(AHA/ACC) A 9%

B ,

25%

C 91%

12),

, Ellis 43)

16%,

65%

45% PTCA

가

PTCA

가

가

가

2

가

가

가

요 약

연구배경 :

감사의 글

대상 및 방법 :

1996 3 1997 7

90 100

결 과 :

1) 58.5 ± 9.0 , 75, 42 (46.6%), 15 26 (28.9%), 13 (14.4%), 23 (25.7%), 30 (33.3%), 32 (35.5%), 5 (5.5%)

2)

(percutaneous transluminal coronary angioplasty : PTCA) 75 (75%),

25 (25%)

3)

PTCA 46 (63%), 27 (37%), 100 95 95%

4)

32 (33.7%) 5.5 ± 2.9

44%(8/18), PTCA 50%(7/14)

PTCA

결 론 :

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