

## 70세 이상 고령 환자의 관동맥 스텐트시술의 특징

가

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Characteristics of Coronary Artery Stenting in the Elderly over 70 Years Old :  
Short-Term Outcome and Long-Term Angiographic and Clinical Follow-up

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## ABSTRACT

**Background and Objectives :** The average population in Korea is gradually becoming older. Elderly patients undergoing coronary revascularization are considered to be a high-risk group. There is a paucity of data that relates the results of stenting in treating coronary artery disease in the elderly population. This study compared the short- and long-term outcomes of elderly patients undergoing coronary artery stenting with those of younger patients. **Materials and Method :** The elderly patients > 70 years of age who underwent coronary artery stenting between January 1997 and July 1999 (n = 106) at our centers were compared with patients <70 years of age who also underwent coronary artery stenting during the same time period (n = 597). **Results :** Elderly patients presented with a lower ejection fraction (52.9% vs. 57.4%, p = 0.001), more unstable angina (47% vs. 31%, p = 0.003), and a greater incidence of multivessel disease (67% vs. 51%, p = 0.005) than the younger patients. There were no differences in major in-hospital complications including death (0.9% vs. 0.5%, p = NS), procedural acute Q-wave myocardial infarction (0.9% vs. 0.3%, p = NS), and emergency CABG (0% vs. 0.3%, p = NS) between two groups. Furthermore, the vascular complication rate was similar between the two groups (1.9% vs. 1.0%, p = NS). An angiographic follow-up, obtained in both groups, demonstrated similar restenosis rates (26.5% vs. 24.9%, p = NS). Long-term clinical follow-up at 12 months showed that major adverse cardiac events including death, acute myocardial infarction, and repeat revascularization were significantly higher in elderly patients than in younger patients (18.3% vs. 12.6%, p = 0.04). **Conclusion :** Elderly patients with higher risk factors who underwent coronary artery stenting had similar rates of in-hospital procedural complications and similar rates of angiographic restenosis after 6 months follow-up, compared to younger patients. The overall rates of major adverse cardiac events in the elderly population at 12 months postcoronary artery stenting were significantly higher than those of younger patients. (**Korean Circulation J 2001; 31(10):996-1003**)

**KEY WORDS :** Aged ; Stents ; Follow-up studies.

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## 서 론

## 스텐트시술 방법

3  
500 mg 100~200  
가 가 mg 1 , sheath  
65 가 1990  
5.1% 1995 6.1% 가 , 1995 8000~10,000 IU  
70 160 , 7F 8F  
(revascularization)  
(complex lesion),  
, , 1-8)  
14  
10% 가  
가 가  
3-16)  
17-19)  
(POBA, plain old balloon angioplasty)  
가  
관동맥 조영술상 분석  
0.2  
mg , , 6  
on-line QCA(quantitative coronary an-  
giographic analysis)  
가  
mo -  
dified AHA/ACC classification 20)

## 대상 및 방법

추적검사 및 정의  
6  
1997 1 1999 7 가  
, , 50%  
703  
focal, diffuse, proliferative 21)22)  
70 106 ,  
70 597  
Q ,

aneurysm, (pseud - 가 , 가 .  
 2.0 mg/dL  
 7.5% 3.7%  
 PTCA 52.9 ± 11.9%  
 57.4 ± 13.1%  
 47% 39%  
 통계분석 67% ,  
 PC SPSS 51%  
 (%) , ±  
 Chi - 관동맥 조영술 소견과 스텐트시술에 관련된 특징  
 square two - tailed Stud - Table 2 가 가  
 ent t test , p 0.05  
 B2 C 64% 56%  
 결 과 , ,

#### 대상 환자의 임상적 특징

Table 1 74 ± 4 ,  
 56 ± 8 가 73% 1.26 1.15  
 IABP(intraao -  
 rtic balloon counterpulsation)

**Table 1.** Clinical characteristics of 703 patients

	Age ≥ 70 (n=106)	Age < 70 (n=597)	p
Mean age (years)	74 ± 4	56 ± 8	
Male, n (%)	54 (51)	437 (73)	0.001
Risk factors, n (%)			
Hypercholesterolemia (≥220 mg/dL)	24 (23)	143 (24)	NS
Hypertension	48 (45)	263 (44)	NS
Current smoker	28 (26)	233 (39)	0.006
Diabetes	15 (14)	148 (25)	0.008
Renal insufficiency (creatinine=2.0 mg/dL), n (%)	8 (7.5)	22 (3.7)	0.04
LVEF (%)	52.9 ± 11.9	57.4 ± 13.1	0.001
Prior myocardial infarction, n (%)	16 (15)	72 (12)	NS
Clinical diagnosis, n (%)			
Stable angina	42 (40)	340 (57)	0.004
Unstable angina	50 (47)	185 (31)	0.003
Acute myocardial infarction	14 (13)	72 (12)	NS
Number of diseased vessels, n (%)			
1	35 (33)	293 (49)	0.003
2	34 (32)	185 (31)	NS
3	37 (35)	119 (20)	0.005
Multivessel disease, n (%)	71 (67)	304 (51)	0.005

NS : not significant, LVEF : left ventricular ejection fraction

**Table 2.** Angiographic and procedural characteristics of 819 lesions

	Age 70 (n=134)	Age<70 (n=685)	p
Artery stented, n (%)			
Left main	2 ( 1.5)	10 ( 1.5)	NS
Left anterior descending	74 (55.1)	369 (53.8)	NS
Left circumflex	25 (18.9)	117 (17.1)	NS
Right coronary artery	33 (24.5)	187 (27.3)	NS
Saphenous vein graft	0	2 ( 0.3)	NS
Modified AHA/ACC lesion type, n (%)			
A	12 ( 9)	68 (10)	NS
B1	36 (27)	233 (34)	0.02
B2	67 (50)	295 (43)	0.03
C	19 (14)	89 (13)	NS
B2 or C	86 (64)	384 (56)	0.02
Total occlusion, n (%)	12 ( 9)	89 (13)	NS
Mean reference diameter (mm)	2.90± 0.66	3.09± 1.17	NS
Lesion % stenosis	81.1 ± 17.3	81.3 ± 16.8	NS
Final stent MLD (mm)	2.87± 0.75	3.06± 1.17	NS
Lesion length (mm)	10.9 ± 6.0	11.3 ± 6.1	NS
Maximal inflation pressure (atm)	12.9 ± 6.0	13.3 ± 6.1	NS
Number of stent per patient	1.26± 0.51	1.15± 0.39	0.04
Use of IABP, n (%)	2 ( 1.9)	8 ( 1.3)	NS

AHA/ACC : American heart association/American college of cardiology, MLD : minimal luminal diameter, IABP : intra-aortic balloon counterpulsation, NS : not significant

**Table 3.** In-hospital clinical data

	Age 70 (n=106)	Age<70 (n=597)	p
All major cardiac event	2 (1.8)	7 (1.2)	NS
Death	1 (0.9)	3 (0.5)	NS
Q-wave myocardial infarction	1 (0.9)	2 (0.3)	NS
Emergency CABG	0	2 (0.3)	NS
Non-Q wave myocardial infarction	10 (9.4)	31 (5.2)	0.01
Vascular complication	2 (1.9)	6 (1.0)	NS

CABG : coronary artery bypass graft surgery, NS : not significant

		1.9%	1.0%	
병원내 주요 임상사건의 비교				
Table 3		추적 관동맥 조영술 소견		
0.9%,	0.5%, Q	Table 4	6	
0.9%,	0.3%,	63%,	69%	
0%,	0.3%	,	,	%
	가 , Q	가	.	
	9.4%	26.5%,	24.9%	가
가				

**Table 4.** Angiographic data at follow-Up

	Age 70 (n=131)	Age<70 (n=681)	p
Follow-up (%)	83 (63)	469 (69)	
Follow-up duration (days)	224 ± 113	206 ± 114	
Mean reference diameter (mm)	2.94 ± 0.59	3.09 ± 1.17	NS
Stent MLD (mm)	1.80 ± 1.14	1.88 ± 1.03	NS
Stent % stenosis	38.7 ± 9.0	39.1 ± 11.7	NS
Angiographic restenosis rate (%)	26.5	24.9	NS
Type of restenosis (%)			
Focal	9 (45)	54 (46)	NS
Diffuse	8 (37)	39 (33)	NS
Proliferative	4 (18)	24 (21)	NS

MLD : minimal luminal diameter, NS : not significant

**Table 5.** Clinical data at follow-Up

	Age 70 (n=104)	Age<70 (n=594)	p
Follow-up (%)	97 (93)	558 (94)	
Follow-up duration (days)	357 ± 265	376 ± 270	
MACE (%)	19 (18.3)	75 (12.6)	0.04
Cardiac death	2 ( 1.9)	2 ( 0.5)	NS
Acute myocardial infarction	2 ( 1.9)	3 ( 0.5)	NS
Revascularization	15 (14.4)	70 (11.8)	NS
PCI	14 (13.5)	68 (11.4)	NS
CABG	1 ( 1.0)	2 ( 0.5)	NS

MACE : major adverse cardiac event, PCI : percutaneous coronary intervention, CABG : coronary artery bypass graft surgery, NS : not significant

가 .

POBA

장기 주요 임상사건의 비교

Table 5

1 93%, 가 , 가

94% 가 .<sup>3-16)</sup>

2 , 2 가 ,

PTCA 가 14 ,

가 1 , 2 6~10%, 30 8~14% .<sup>1-4)10)11)</sup>

3 , PTCA 1990 1992 PO-

가 68 , 가 BA 1.4%,

2 , 0.7% .<sup>5)</sup>

가 1 ,

18.3% 12.6% (IVUS),

가 .<sup>17)18)</sup>

고 찰

POBA

가 .

16%<sup>23)</sup> 70  
 Elliot<sup>16)</sup> 가  
 45% ,  
 1%<sup>23)24)</sup> 6  
 1.9%, 1.0% 가 26.5%, 24.9%  
 가 14.4%, 11.8% 가  
 75 6<sup>24)</sup>  
 47%, 28%  
 4)24)25)  
 가 , 가 1.26 Gregori<sup>24)</sup>  
 가 2.5  
 가  
 70  
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 70  
 Q , Q  
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 1998 Gregorio  
<sup>24)</sup> 75 30 2.  
 2%, 2.9%, 3.7%  
 가  
 가  
 가  
 1 , PTCA  
 가  
 12.6% 18.3%,  
 75 가  
 46%<sup>24)</sup> 요 약  
 70 80  
 1 2%, 배경 및 목적 :  
 2%, 가 19%  
 , 80  
 가<sup>25)</sup>

70

중심 단어 :

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방 법 :

1997 1 1999 7

가

703

, 70

106

, 70

597

, 6

, 1

결 과 :

52.9%

57.4%

47%

31%

67%

51%

B2

C

64%

56%

가

1.26

1.15

가

Q

가

26.5%,

24.9%

가

1

18.

3%

12.6%

결 론 :

70

70

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