

일일입원 관상동맥 조영술의 유용성 및 안전성

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= Abstract =

The Efficacy and Safety of Outpatient Coronary Angiography

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Background : Coronary angiography have become important and integral components in the investigation of patients with cardiovascular disease. Technical improvement combined with an increased need of coronary angiography, and efforts to decrease the length of inpatient hospital stay have prompted the development of outpatient coronary angiography. In this study, we compared the procedure-related complications and costs of inpatient and outpatient coronary angiography when performed at the same institution. In addition, we attempted the coronary angiography as outpatient setting in patients with unstable angina, old age, and anticoagulation therapy, who have been regarded as contraindication for outpatient procedure.

Methods : Diagnostic coronary angiography was performed in 199 cases as inpatient setting, and 225 cases as outpatient setting at Korea University Guro Hospital From January through July 1996. There was no significant difference in sex, age, risk factor, blood pressure, cholesterol level, and ejection fraction. We did not give the heparin during the procedure and, use the Judkins' method in all patients. After the procedure, pressure dressing was done with compressor device for 15 minutes, then sandbag was applied on the puncture site. In outpatient, they took bed rest for 6 hours in one-day care room.

Results :

1) In the inpatient group, there were 6 cases(3.0%) of catheterization-related complication, and there were 7 cases(3.1%) of complication in the outpatient group. There was no major complication in both groups, such as death, myocardial infarction, stroke, and perforation of heart and great vessels. In the inpatient group, 2 cases of arrhythmia, 3 cases of hematoma at puncture site, and 1 case of femoral artery pseudoaneurysm occurred. In the outpatient group, 2 cases of arrhythmia, 1 case of hematoma at puncture site, 2 cases of skin rash, 1 case of acute febrile reaction, and 1 case of femoral artery dissecting aneurysm developed. There was no significant difference in the rate of complications

between two groups ($p=0.947$).

2) In the outpatient group, there were 28 cases of unstable angina, 6 cases of old age more than 75 years, and 5 cases of anticoagulant has been taken. No catheterization-related complication occurred in those groups.

3) The costs and duration of hospital stay in the inpatient group were ₩480,230 \pm 86,800 and 50.3 \pm 12.3 hours and those in the outpatient group were ₩276,870 \pm 32,050 and 8.3 \pm 1.2 hours. There was significant difference between two groups in the costs and duration of hospital stay ($p<0.01$, $p<0.01$).

Conclusion : Outpatient coronary angiography could be done safely with low complication rate, and could reduce the costs and hospital stay.

For high risk group such as unstable angina, old age, and anticoagulation therapy, there was no complication in this study, but more experiences and available data should be accumulated to be accepted as a general guideline.

KEY WORDS : Outpatient coronary angiography · Complication · Safety · Economics.

서 론

대상 및 방법

1. 대 상

1996 1 1996 7

424

stent

2. 방 법

Judkins
6 French
194 6 French
31 5 French
15 compressor device(Compressor)
2
6 가 가 가

Braunwald
8-9) 75
warfarin
48

3. 통 계
test , p 0.05
chi-square test t-

결 과

1. 임상적 특징
424 199
252
가 (Table 1).

New York Heart Association(NYHA) functional
class II 9
3 NYHA functional class II , 5 NYHA
functional class III, 1 NYHA class IV

2. 관상동맥 조영술의 결과

75%
3
1.2 ± 1.1
0.8 ± 0.9
(p = 0.07),
Table 2
(Table 2).
가 75%
가
8
23 75%

Table 1. 환자군의 임상적 특징

	199	225
(, mean ± SD)	59.3 ± 10.8	55.8 ± 10.8
(:)	117 : 82	130 : 95
	64(32.3%)	60(26.7%)
	32(16.1%)	29(12.9%)
	38(19.1%)	43(19.1%)
(mmHg)	133/78	128/78
(mg/dL)	190.3 ± 46.7	203.9 ± 43.6
unstable angina	54(27.1%)	32(14.2%)
cardiogenic shock	1(0.5%)	0(0%)
stable angina	45(22.6%)	123(54.7%)
atypical chest pain	6(3.0%)	34(15.1%)
acute or recent MI	68(34.2%)	4(1.7%)
myocardial disease	1(0.5%)	3(1.3%)
follow-up PTCA	8(4.0%)	10(4.4%)
follow-up C ABG	2(1.0%)	3(1.3%)
congestive heart failure	9(4.5%)	9(4.0%)
others	5(2.5%)	

Table 2. 관상동맥 조영술시 관찰된 이환된 관상동맥 수

*	66(33.1%)	111(49.3%)
1	69(34.7%)	62(27.6%)
2	30(15.1%)	32(14.2%)

*75%

Table 3. 이환된 관상동맥이 없는 경우의 관상동맥 조영상

	(n=66)		(n=111)
Normal coronary artery	8	Normal coronary artery	23
Tortuous coronary artery	21	Tortuous coronary artery	31
Stenosis less than 75%	16	Stenosis less than 75%	26
Delayed washout of contrast	11	Delayed washout of contrast	15
Spasm study(+)	5	Spasm study(+)	7
Good flow after PTCA	2	Good flow after PTCA	6
Aortic stenosis	2	Aortic stenosis	2
Myocardial bridge	1	ASD	1
		Hypertrophic cardiomyopathy	3

Table 4. 관상동맥 조영술과 관련하여 발생한 합병증

Arrhythmia	2	2
Hematoma	3	1
Femoral artery dissection	0	1
Femoral artery pseudoaneurysm	1	0
Skin rash	0	2
Fever	0	1
Total	6(3.0%)	7(3.1%)

,
(Table 3).

3. 합병증

,
6 (3.0%)
7 (3.1%)

(p=0.947)(Table 4).

2, 1
30
, 1
15
. 3 24
,
. 1 (femoral artery pseudoaneurysm)가
2 1

Table 5. 고위험군 환자에서의 합병증의 발생

	0/54	0/34
75	0/15	0/ 6
	0/17	0/ 5

Table 6. 비용 및 병원입원기간

(₩)	480,230 ± 86,800	276,870 ± 32,050
(hour)	50.3 ± 12.3	8.3 ± 1.2

, 1
lidocaine . 1
48
,
4 . 1
3
,
stent . 2
, 1
,
.

4. 고위험군 환자에서의 합병증

28 , 75
6 ,
5 가 ,
, 가
(Table 5).

5. 비용 및 입원기간

7
198
,
가 , 가
,
가 ,
5
(Table 6).

($p < 0.01$).

고 안

0.04% 13), 가

11.2% 50% , 11.9% 가

가 가 17),

75

가 가

가 가 , Braunwald

10 - 12), 2 3

75

가 19), warfarin vitamin - K 48

warfarin hypercoa - vitamin - K gulable state가

0.1 0.2% , (left main coronary artery) 50% , 가 , 3 - vessel disease, NYHA class III IV 가 , 30% , 가 3,13) , 가 7,14 - 18) 50% , 20%

6
 , 5 French
 3 가
 가
 20-21),
 가
 22).
 ,
 ,
 가
 가
 ,
 가

요약 및 결론

6
 ,
 1)
 3.0%, 3.1%
 가
 2)
 ,
 가
 3)
 가

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