

관동맥 조영술상 정상 혹은 50% 미만의 협착과 흉통을 가진 환자의 장기 추적 결과

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Long-Term Clinical Outcomes in Patients with Angina and Insignificant Coronary Artery Stenosis

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ABSTRACT

Background : This study was undertaken to evaluate the long-term clinical prognosis, the effects of anti-anginal medicines and the factors of recurrence in patients with angina and insignificant coronary artery stenosis (CAS). **Methods** : The study population was consisted of 372 patients with angina and normal or minimal (less than 50% stenosed) CAS out of 2475 consecutive patients who underwent coronary angiogram over a 3.5 year period. We retrospectively reviewed the medical records of the study population. **Results** : Myocardial infarction was developed in 2 cases (0.5%), recurrence of angina in 59 cases (16%), and there was no death during mean 19-month follow-up period of the 372 patients. Patients with normal coronary artery (n = 266) were younger (mean 54 yrs vs 59 yrs, p<0.001), had a lower incidence of diabetes (5% vs 13%, p<0.01), hypertension (19% vs 29%, p<0.05), recurrent angina (15% vs 18%, not significant), and myocardial infarction (0.4% vs 0.9%, not significant) than patients with minimal lesion (n = 106). Anti-anginal medicine did not show benefits in relieving recurrent angina. Furthermore, in cases of patients with normal coronary artery taking nitrates there was a more frequent recurrence of angina (23% vs 13%, p<0.01) than seen in similar patients not taking nitrates. There were no correlation between recurrent angina and age, sex, ischemic changes on electrocardiogram, smoking, hypertension, diabetes, or hyperlipidemia. **Conclusion** : The long-term clinical outcome in patients with insignificant CAS was good. Although there were no definitive factors associated with the recurrence of chest pain, the administration of nitrates may cause more frequent angina in patients with normal coronary angiography. (**Korean Circulation J 2001;31(4):392-397**)

KEY WORDS : Angina · Prognosis · Nitrates..

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서 론

875
372 (15%)

10% 30%
50%
1)2)

방 법

1)3)4)

5)

가

50%

140/90

mmHg 2

50%

1

140 mg/dl

2

가

200 mmHg

대상 및 방법

cholesterol

triglyceride level

200 mg/dl

대 상

1994 1

1998 6

2475 50%

875

aVR V1-3

T

ST

ST

ST

가

62

29 , 3 , 3

50%

4 ,

2 , 2 ,

5 ,

Tietze

2 , 2

통계 처리

mean ± SD

, p - value가

0.05
independent t - test

가
chi - square test
univariate analysis

결 과

임상 특성 및 심전도 소견 (Table 1)
372

266 50%
106
53.8 ± 10.3 50%
59 ± 9 (p<0.001),
(5% vs 13%, p<0.01, 19%
vs 29%, p<0.05).
36% ,
50% 53%
43%

장기 예후

19
50%
aspirin(91.5% vs 59.4%, p<0.001), nitrates
(81.1% vs 39.8%, p<0.001) calcium channel bl -
ockers(73.6% vs 61.3%, p<0.05)가
, beta blockers(15.1% vs 10.2%,
p=0.178) angiotensin converting enzyme inhi -
bitors(9.4% vs 4.9%, p=0.100)

50% (15.4%
vs 2.8%, p<0.005).

18
50% 22

1

40 (15%), 50%

19 (18%)

(Table 2).

Table 1. Clinical characteristics, electrocardiogram, and treadmill test findings of the study patients (n = 372)

	Angiographic stenosis		p
	Normal (n = 266)	10 - 50% (n = 106)	
Age (yr)	53.8 ± 10.3	59 ± 9	<0.001
Sex (male)	107 (40%)	48 (45%)	0.372
Risk factors			
Smoking	99 (37%)	39 (37%)	0.939
Hypertension	50 (19%)	31 (29%)	0.028
Diabetes Mellitus	13 (5%)	14 (13%)	0.005
Hypercholesterolemia	102 (44%)	41 (41%)	0.691
Symptom duration (months)	26 ± 31	25 ± 33	0.712
Electrocardiogram			0.191
Ischemic changes	115 (43%)	38 (36%)	
Normal	151 (57%)	68 (64%)	
Treadmill test			0.857
Positive	134 (50.4%)	56 (52.8%)	
Negative	49 (18.4%)	20 (18.9%)	
Not done	83 (31.2%)	30 (28.3%)	

흉통의 재발에 미치는 인자 (Table 3 and 4)

50%
aspirin nitrate
calcium channel blockers, beta blockers, angio -
tensin converting enzyme inhibitors

Table 2. Long-term follow-up results of the study patients (n = 372)

	Angiographic stenosis		p
	Normal (n = 266)	10 - 50% (n = 106)	
FU duration (months)	18 ± 21	22 ± 19	0.138
Chest pain			0.491
Recurred	40 (15%)	19 (18%)	
Not recurred	226 (85%)	87 (82%)	
Myocardial infarction	1 (0.4%)	1 (0.9%)	0.499
Death	0 (0%)	0 (0%)	

FU : follow up

가 50% aspirin (23% vs 10%, p=0.005).
 aspirin, beta - blockers, angiotensin - converting enzyme inhibitors, calcium - channel blockers
 Nitrates

Table 3. Recurrence of chest pain according to the type of the medication in study patients (n = 372)

	Angiographic stenosis							
	Normal (n = 266)				10 - 50% (n = 106)			
	n	Chest pain		p	n	Chest pain		p
Recurr		No recurr	Recurr			No recurr		
Aspirin, use	158	22 (14%)	136 (86%)	0.539	97	17 (17%)	80 (83%)	0.725
no use	108	18 (17%)	90 (83%)		9	2 (22%)	7 (78%)	
Beta-blocker, use	27	5 (19%)	22 (81%)	0.593	16	1 (6%)	15 (94%)	0.186
no use	239	35 (15%)	204 (85%)		90	18 (20%)	72 (80%)	
Nitrate, use	106	24 (23%)	82 (77%)	0.005	86	17 (20%)	69 (80%)	0.305
no use	160	16 (10%)	144 (90%)		20	2 (10%)	18 (90%)	
ACE inhibitor, use	13	2 (15%)	11 (85%)	0.971	10	0 (0%)	10 (100%)	0.120
no use	253	38 (15%)	215 (85%)		96	19 (20%)	77 (80%)	
Ca-channel blocker, use	163	25 (15%)	138 (85%)	0.863	78	16 (20%)	62 (80%)	0.246
no use	103	15 (15%)	88 (85%)		28	3 (11%)	25 (89%)	
Medication, done	225	37 (16%)	188 (84%)	0.133	103	19 (18%)	84 (82%)	0.412
none	41	3 (7.3%)	38 (93%)		3	0 (0%)	3 (100%)	

ACE : angiotensin converting enzyme, Ca : calcium

Table 4. Recurrence of chest pain according to the clinical characteristics, electrocardiogram, and treadmill test findings in study patients (n = 372)

	Angiographic stenosis						Total	
	Normal		10 - 50% stenosis					
	N	Chest pain	N	Chest pain	N	Chest pain	N	Chest pain
Sex	male	107	19 (18%)	48	10 (21%)	155	29 (19%)	
	female	159	21 (13%)	58	9 (16%)	217	30 (14%)	
Smoking	(+)	99	16 (16%)	39	9 (23%)	138	25 (18%)	
	(-)	167	24 (14%)	67	10 (15%)	234	34 (15%)	
Hypertension	(+)	50	8 (16%)	31	8 (26%)	81	16 (20%)	
	(-)	216	32 (15%)	75	11 (15%)	291	43 (15%)	
Diabetes	(+)	13	2 (15%)	14	5 (36%)	27	7 (26%)	
	(-)	253	38 (15%)	92	14 (15%)	345	52 (15%)	
Hyperlipidemia	(+)	102	18 (18%)	41	9 (22%)	143	27 (19%)	
	(-)	131	20 (15%)	58	10 (17%)	189	30 (16%)	
Electrocardiogram								
	Ischemic changes	115	19 (17%)	38	8 (21%)	153	27 (18%)	
	Normal	151	21 (14%)	68	11 (16%)	219	32 (15%)	
Treadmill test								
	Positive	134	16 (12%)	56	11 (20%)	190	27 (14%)	
	Negative	49	10 (20%)	20	3 (15%)	69	13 (19%)	
	Not done	83	14 (17%)	30	5 (17%)	113	19 (17%)	

가 41

50%

가

50%

10) Lichtlen 13) 27%

38%

13)

50%

19

고 찰

0.4% 0.9%

19

50%

가

50%

가

15%

1)3)4)6)7)12)13)

가

가 55%

가 60%

가

가 79%

가

59%

81%

15%

18%

가

가

62%가

7)

가

20%

가

8)

가

9-11) Foussas 12)

가

14)

nitrates

23%

10%

nitrates

($p=0.005$). Nitrates

가

(coronary flow reserve) 가

nitrate

15) , nitrates

steal

15)

nitrates

50%

가 가

결 론

50%

50

15% 18%

nitrates

nitrates

중심 단어 : Nitrates.

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