

관상동맥질환의 위험인자 및 1, 2차 예방

Risk Factors and Primary and Secondary Prevention of Coronary Heart Disease

27·50

Shung Chull Chae, M.D.

Department of Internal Medicine / Division of Cardiology

Kyungpook National University College of Medicine & Hospital

E - mail : scchae@knu.ac.kr

가 ,
가 .

Abstract

Atherosclerosis is a major cause of coronary heart disease. Many clinical characteristics and laboratory parameters are known to be related with atherosclerosis and/or coronary heart disease, either epidemiologically or causally. Although the risk to develop cardiovascular disease (CVD) is on a continuum, the risk factor modification was traditionally categorized into primary or secondary prevention based on the presence of clinical CVD. Meta - trials of the primary and secondary prevention have been reported rendering the previous recommendations obsolete. Several guidelines, including the Adult Treatment Panel III, JNC - VII, and the European and British guidelines, were recently released for dyslipidemia and hypertension. Global assessment of CVD risk with multiple risk factors, rather than risk assessment by an individual risk factor is adopted in all of the current guidelines. Absolute risk levels are used for setting of a target level of a given risk factor and for selection of intervention modalities. Complete cessation of smoking, control of dyslipidemia, hypertension, diabetes, and body weight, moderation of alcohol consumption, and guided use of certain medications have been recommended. The hormone replacement therapy was believed to be cardioprotective and recommended for the primary and secondary prevention of coronary heart disease. However, it is no longer recommended for the purpose of the prevention of coronary heart disease. The concept of "the more, the better" is recommended for exercise. Guidelines are ever so changing!

Keywords : Atherosclerosis; Coronary heart disease; Primary prevention; Secondary prevention; Risk factor

: ; (); ; ;

가
(foam cell)

가 . 가
“ ” 가
(response to injury hypothesis)

가 . 가 (1).

1.

1 (가)					
LDL -	+++	++	+++	+++	++
	+++	+++	+++	++	+++
	+++	++	++	++	-
	+++	+++	+++	+	+++
	()				
	+++	+	++	-	++
	+++	+++	+	+	+++
	()	(, warfarin)	()		(, warfarin)
2 (가) 가)					
HDL -	+++	+	+++	++	+++
	+++	++	++	++	-
	+++	+	+++	++	+
	;	small			
dense LDL	++	++	+++	++	+++
	+++	-	+++	++	+
	+++	-	+++	-	+++
3 (가 , 가))					
Lipoprotein(a)	++	+	+++	+	-
	+	-	+	-	+
	++	-	+	++	++
	+	-	-	+	++
	+++	-	++	++	-
4 (가)					
	+++	-	+++	-	-
	+++	-	+++	-	-
	+++	-	+++	-	-
	가		+++	-	-
	가		-	+++	-
+	;	++	;	+++	;

HDL , “Small dense LDL”

(fibrinogen) 가 , 가

LDL

2. 가

LDL -

LDL - 가

3.

, (plaque) , 가

가

HDL - 가 , 가,

LDL - 가, 가,

HDL -

(reverse cholesterol transport) LDL

4.

2~3 , 3~5

가 (5). 가 . 가

가 HDL , lipo-
protein remnant particle 가, small dense LDL
가, lipoprotein(a) 가, 가, LDL

Lipoprotein(a) apolipoprotein(a) 가 LDL (glycation), 가,

. Apolipoprotein(a) plasminogen 가, PAI - 1 가, , von Wille-

가 15~40 kringle IV brand factor 가, ,

. Lipoprotein(a)

Framingham

Heart Study Lipopro- 5.

tein(a) 가 가 . 2

(6~8). 가 가

(9).

, , 9. , / , , CRP,
HDL 가, , , 가
가, , , 가

6.

7.

8.

가 . .
HDL 가 ,

2. LDL

	LDL (mg/dL)	LDL (mg/dL)	LDL (mg/dL)
가 (10 > 20%)	< 100	≥ 100 (100~129)	≥ 130 (100~129)
2 가 (10 ≤ 20%)	< 130	≥ 130 10 < 10% ≥ 160	≥ 130 10 < 10% ≥ 160
가 1	< 160	≥ 160 (160~189)	≥ 190 (160~189)

가 ” (7).

1)

. 35 statin

3 ~ 5

가

2)

HDL -

lovastatin AFCAPS / TexCAPS

HMG - CoA reductase

LDL -

(primary endpoint)

가

. 1971

(8).

Adult Treatment Panel - III

(stroke)

(9)(2).

(5, 6).

3)

“

(confounding)

140/90 mmHg

- 130/85 mmHg
130/80 mmHg
5~6 mmHg
35~40%, 30 (20~25% 2, 4),
17 5~6 mmHg 6)
38%, 16% 가
4) 가 (18.5~24.9 kg/m²)
- 7)
- (40~60%) 가 30 Women's Health Initiative
1 3~5 (60%) (12).
(resistance training) 1 2 8) British Male Doctor
5) Physicians' Health Study 22,071
325 mg
, 가 44% (13, 14).
6) 가 ,
가 .
HDL - 가 , (15). 10
가 10%

Special Issue

		clopidogrel		
75 mg	warfarin	.	.	.
warfarin	,		1981 Hopkins Williams	
clopidogrel		INR 2~3.0		246가 (21).
warfarin	.			가

7)

(angiotensin - converting enzyme inhibitors)

	가	,		
,	,	,	,	,
, Killip class	가			,
가	.	HOPE	PRO-	
GRESS				가
	가			가
			가	

8) (beta - blockers)

가 , 가 , ④

9)

HERS(The Heart and Estrogen/progestine Replacement Study) ERA(The Estrogen Replacement and Atherosclerosis)

가

가

(18~20).

1. Ross R. The pathogenesis of atherosclerosis : A perspective for the 1990s. *Nature* 1993 ; 362 : 801
2. Surgeon General's Advisory Committee on Smoking and Health. *Smoking and Health : Report of the Advisory Committee to the Surgeon General of the Public Health Service.* Chapter 3 : Criteria for Judgment , PHS publ. no. 1103. Washington : U.S. Government Printing Office, 1964 : 19 - 21
3. Hill AB. The environment and disease : Association or causation? *Proc R Soc Med* 1965 ; 58 : 295
4. Fuster V, Pearson TA. 27th Bethesda Conference : Matching the intensity of risk factor management with the hazard for

- coronary heart disease events. *J Am Coll Cardiol* 1996 ; 27 : 957
5. Komachi Y, Iida M, Shimamoto T, Chikayama Y, Takahashi H. Geographic and occupational comparisons of risk factors in cardiovascular diseases in Japan. *Jpn Circ J* 1971 ; 35 : 189
 6. Pearce ML, Dayton S. Incidence of cancer in men on a diet high in polyunsaturated fat. *Lancet* 1971 ; 1 : 464
 7. Jacobs D, Blackburn H, Higgins M, Reed D, Iso H, Yusuf S, et al. Report of the conference on low blood cholesterol : Mortality associations. *Circulation* 1992 ; 86 : 1046
 8. Downs JR, Clearfield M, Weis S, Whitney E, Shapiro DR, Beere I, et al, for the AFCAPS/ TexCAPS Research Group. Primary prevention of acute coronary events with lovastatin in men and women with average cholesterol levels : Results of AFCAPS/TexCAPS. *JAMA* 1998 ; 279 : 1615
 9. Detection, evaluation, and treatment of high blood cholesterol in adults(Adult Treatment Panel III). NIH Publication No. 01-3670 May 2001
 10. Smith SC, Jr, Blair SN, Bonow RO, Brass LM, Cerqueira MD, Dracup K, et al. AHA/ACC Guidelines for Preventing Heart Attack and Death in Patients With Atherosclerotic Cardiovascular Disease : 2001 Update. A Statement for Healthcare Professionals From the American Heart Association and the American College of Cardiology. *Circulation* 2001 ; 104 : 1577 - 9
 11. Pearson TA, Blair SN, Daniels SR, Eckel RH, Fair JM, Fortmann SP, et al. AHA Guidelines for Primary Prevention of Cardiovascular Disease and Stroke : 2002 Update. Consensus Panel Guide to Comprehensive Risk Reduction for Adult Patients Without Coronary or Other Atherosclerotic Vascular Diseases. *Circulation* 2002 ; 106 : 388 - 91
 12. Manson J, Hsia J, Johnson K, Rossouw J, Assaf A, Lasser N, et al. for the Women's Health Initiative Investigators. Estrogen plus progestin and the risk of coronary heart disease. *N Engl J Med* 2003 ; 349 : 523 - 34
 13. Peto R, Gray R, Collins R, Wheatley K, Hennekens C, Jamrozik K, et al. Randomised trial of prophylactic daily aspirin in British Male doctors. *Br Med J* 1988 ; 296 : 313
 14. Steering Committee of the physician's Health Study Research Group. Final report on the aspirin component of the ongoing Physician's Health Study. *N Engl J Med* 1989 ; 321 : 129
 15. Hayden M, Pignone M, Phillips C, Mulrow C. Aspirin for the primary prevention of cardiovascular events : A summary of the evidence for the U.S. Preventive Services Task Force. *Ann Intern Med* 2002 ; 136 : 161 - 72
 16. Secondary prevention by raising HDL cholesterol and reducing triglycerides in patients with coronary artery disease : the Bezafibrate Infarction Prevention (BIP) study. *Circulation* 2000 ; 102 : 21
 17. Rubins HB, Robins SJ, Collins D, Fye CL, Anderson JW, Elam M, for the Veterans Affairs High - Density Lipoprotein Cholesterol Intervention Trial Study Group. Gemfibrozil for the secondary prevention of coronary heart - disease in men with low levels of high - density lipoprotein cholesterol. *N Engl J Med* 1999 ; 341 : 410
 18. Hulley S, Grady D, Bush T, Furberg C, Herrington D, Riggs B, et al. Randomized trial of estrogen plus progestin for secondary prevention of coronary heart disease in postmenopausal women. *JAMA* 1998 ; 280 : 605 -13
 19. Grady D, Herrington D, Bittner V, Blumenthal R, Davidson M, Hlatky M, et al. Cardiovascular disease outcomes during 6.8 years of hormone therapy. Heart and estrogen/progestin replacement study follow - up (HERS II). *JAMA* 2002 ; 288 : 49 - 57
 20. Herrington DM, Reboussin DM, Brosnihan KB, Sharp PC, Shumaker SA, Snyder TE, et al. Effects of estrogen replacement therapy on the progression of coronary - artery atherosclerosis. *N Engl J Med* 2000 ; 343 : 522 - 9
 21. Hopkins PN, Williams RR. A survey of 246 suggested coronary risk factors. *Atherosclerosis* 1981 ; 40 : 1