Δυσλιπιδαιμία και λοιποί Παράγοντες Κινδύνου στην Τρίτη ηλικία

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Υπεύθυνος Λιπιδαιμικού ιατρείου

Ορισμός του ηλικιωμένου

- Young elderly < 70
- Elderly 70-80
- Old elderly > 80

Στη Γηριατρική: 65-75, 75-85, >85

Στην καρδιολογία

- < 80 ετών
- > 80 ετών

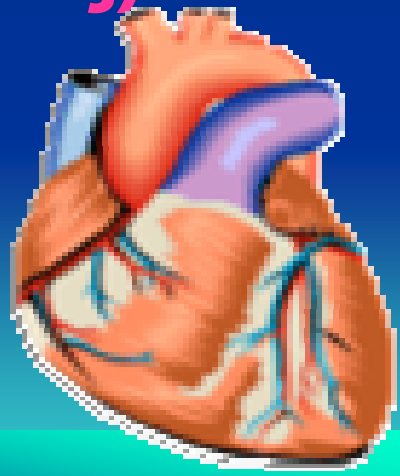
Προσδόκιμο επιβίωσης-Τρίτη ηλικία

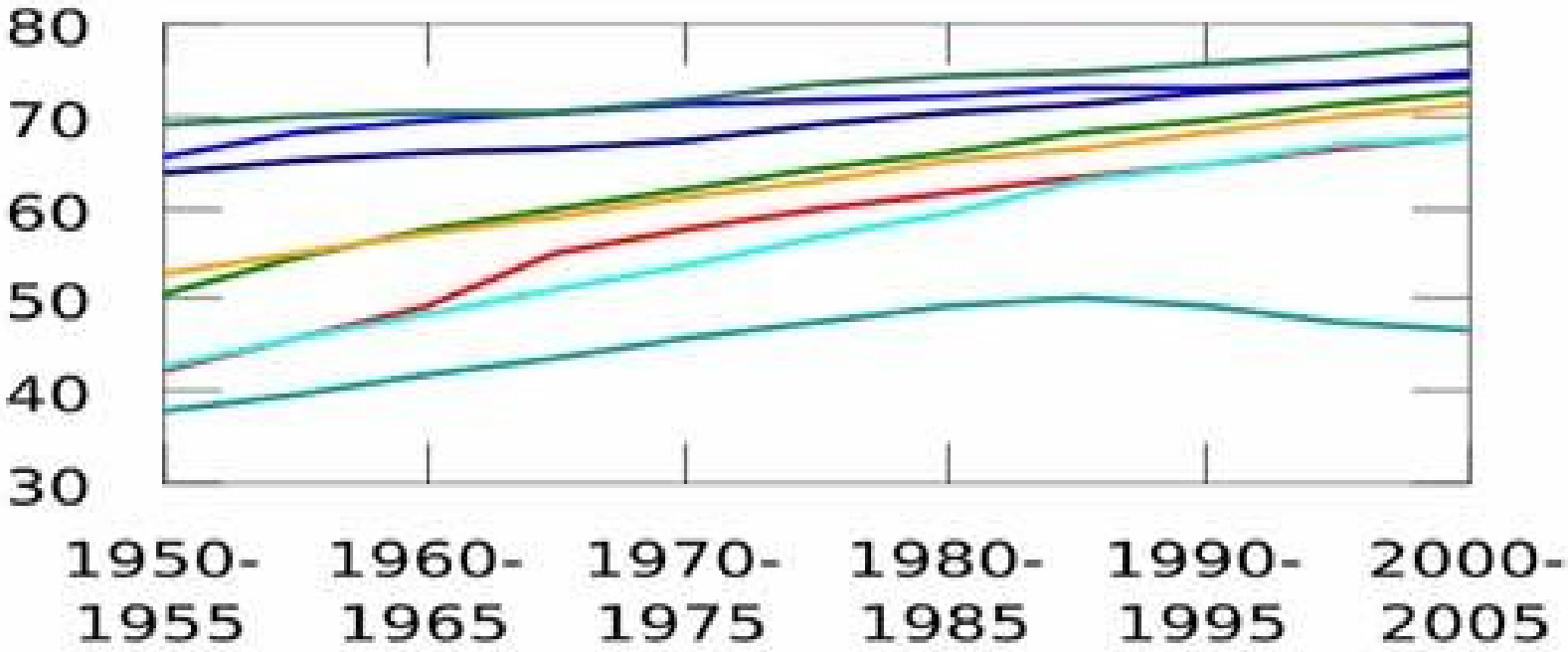
ΗΠΑ: Προσδόκιμο επιβίωσης 77.3 έτη (από 48 το 1900)

Τρίτη ηλικία : 20% (Graying America:1 in 5)

- **ΕΥΡΩΠΑΙΚΗ ΕΝΩΣΗ**
  - **2000** **74.4 (ανδρες)** **81(γυναίκες)**
  - **2050** **79.7** **85.1**

Το 80% των καρδιαγγειακών θανάτων συμβαίνει στους υπερήλικες





- ΕΥΡΩΠΗ
- ΗΠΑ
- ΑΣΙΑ

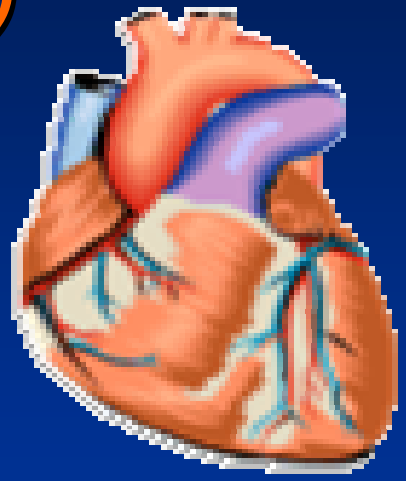
ΠΑΓΚΟΣΜΙΑ

[ΑΝΔΡΕΣ – 73.6]

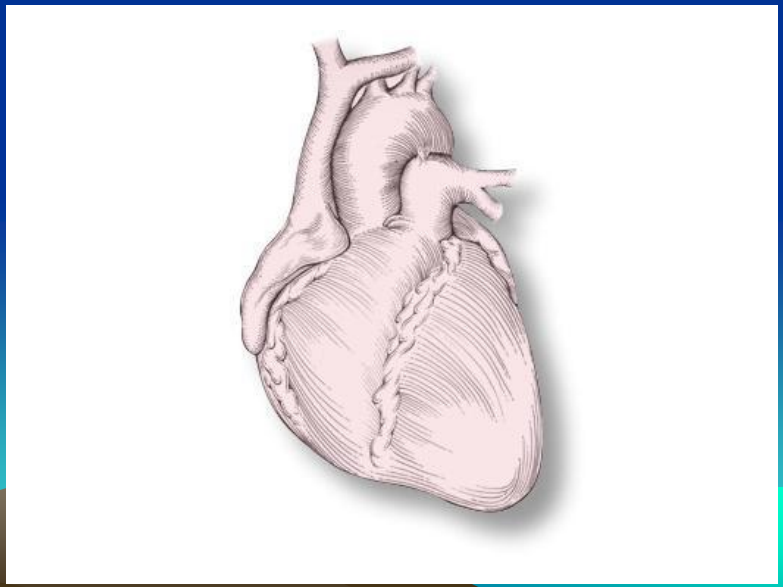
[ΓΥΝΑΙΚΕΣ 79.4]

ΝΟΣΗΡΟΤΗΤΑ ΣΤΗΝ ΤΡΙΤΗ ΗΛΙΚΙΑ

(>50% των καρδιαγγειακων συμβαμάτων και> των 80% των θανάτων)



- **ΚΑΡΔΙΑΓΓΕΙΑΚΑ ΝΟΣΗΜΑΤΑ**
- **ΚΑΡΚΙΝΟΣ**
- **ΛΟΙΜΩΞΕΙΣ**
- **ΚΙΝΗΤΙΚΑ ΠΡΟΒΛΗΜΑΤΑ ΕΓΚΕΦΑΛΙΚΗ ΔΥΣΛΕΙΤΟΥΡΓΙΑ-ΑΝΟΙΑ**



Παράγοντες κινδύνου στην Τρίτη Ηλικία

- Ηλικία
- Συστολική ΑΥ
- Καθιστική ζωή- έλλειψη άσκησης
- Διαβήτης
- ΔΥΣΛΙΠΙΔΑΙΜΙΑ
- Κάπνισμα

Είναι παράδοξο και επικίνδυνο ότι στους ηλικιωμένους δεν ελέγχονται επιθετικά οι ΠΚ ούτε καν στη δευτερογενή πρόληψη.

Δυσλιπιδαιμία στην Τρίτη Ηλικία

TC και LDL-C αυξάνουν μέχρι τα 65

Μετά μειώνονται σταδιακά

Μελέτη NHANES III

TC :	55-64 ετών 221 ,	>75 ετών 205
LDL-C	142	132

Αντικρουόμενες απόψεις για τη σχέση Δυσλιπιδαιμίας και Καρδιαγγειακού κινδυνου στην Τρίτη ηλικία

Framingham, CHS: ασθενής συσχέτιση

Άλλες μελέτες: καμμία συσχέτιση

Άλλες μελέτες: ανάστροφη σχέση

*Συνολικά πάντως φαίνεται ότι ↑LDL-C και ↓HDL έχουν προγνωστική αξία μέχρι τα 80

*Τα τεκμηριωμένα οφέλη από τη θεραπεία δείχνουν ότι η δυσλιπιδαιμία συμβάλλει στην εξέλιξη της αθηροσκλήρωσης στην Τρίτη ηλικία.

Υπερχοληστερολαιμία στην Τρίτη ηλικία

- Η σχέση με ΣΝ μειώνεται με την ηλικία.
- Συνδέεται άμεσα με ΑΕΕ (θρομβωτικά)

-Η χρήση στατινών είναι αποτελεσματική σε υψηλού κινδύνου ηλικιωμένους (όλοι οι ηλικιωμένοι είναι υψηλού κινδύνου).

SHEP: ΣΧΕΣΗ LDL χοληστερόλης και στεφανιαίας νόσου

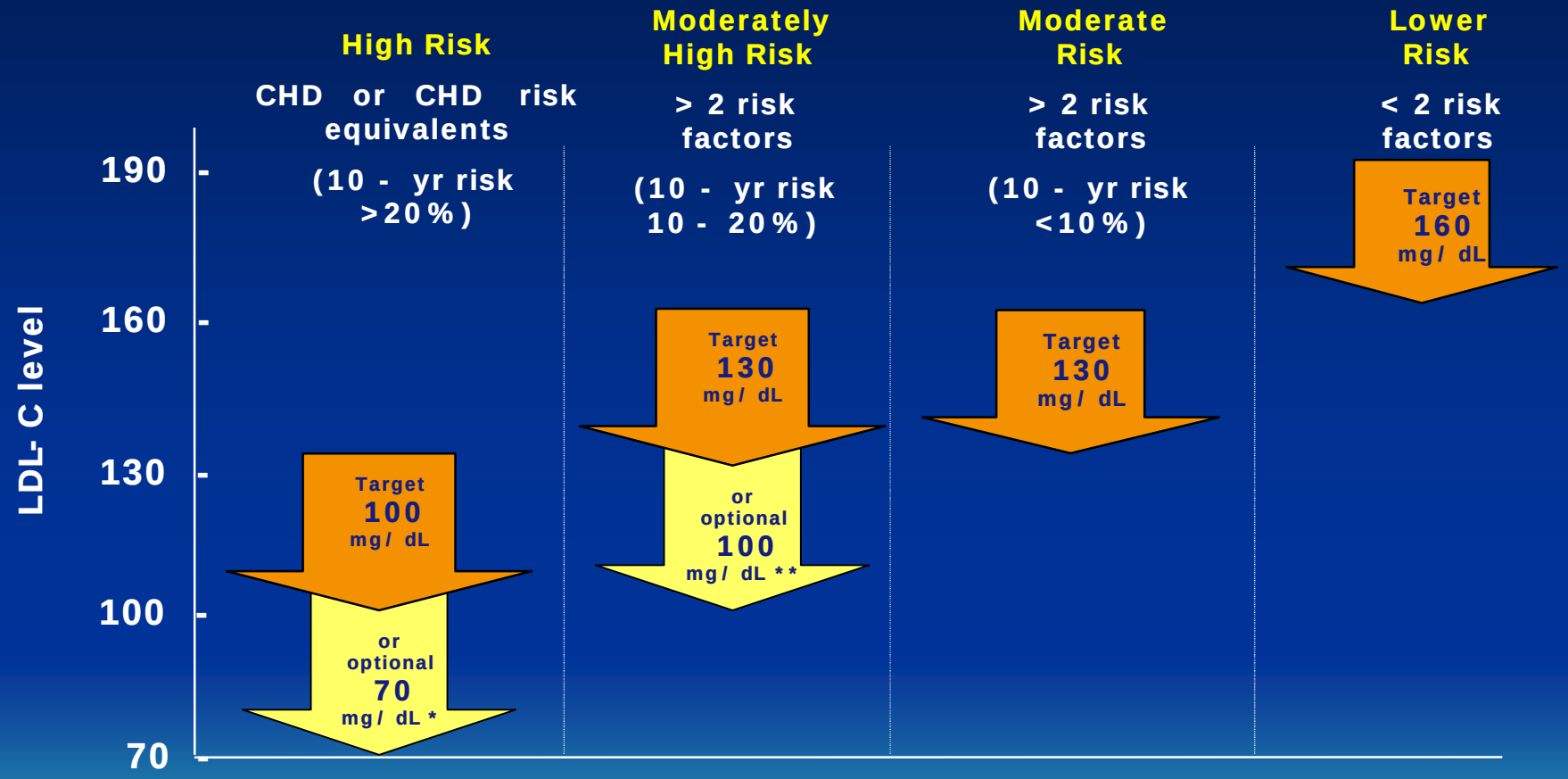
In a subgroup analysis of the Systolic Hypertension in the Elderly Program (SHEP), Frost et al. reported on the relationship between serum lipids and CHD in an elderly population with a mean age of 72 years. Multivariate analysis revealed that levels of total, non-HDL and LDL cholesterol were significantly related to CHD incidence during more than four years of follow-up. Specifically, a 40 mg/dL increase in total or LDL cholesterol was associated with a 30–35% increase in CHD events in this population (16).

Οδηγίες ATP III σε ηλικιωμένους

- Μη φαρμακευτική σε άτομα χωρίς έκδηλη αθηροσκληρωτική βλάβη.
- Φαρμακοθεραπεία σε υψηλού κινδύνου (πολλαπλοί ΠΚ, υποκλινική νόσος,ΣΝ.)
- Σε ΣΝ στόχος LDL:100 mg/dl

NCEP ATP III: Στόχοι LDL-C

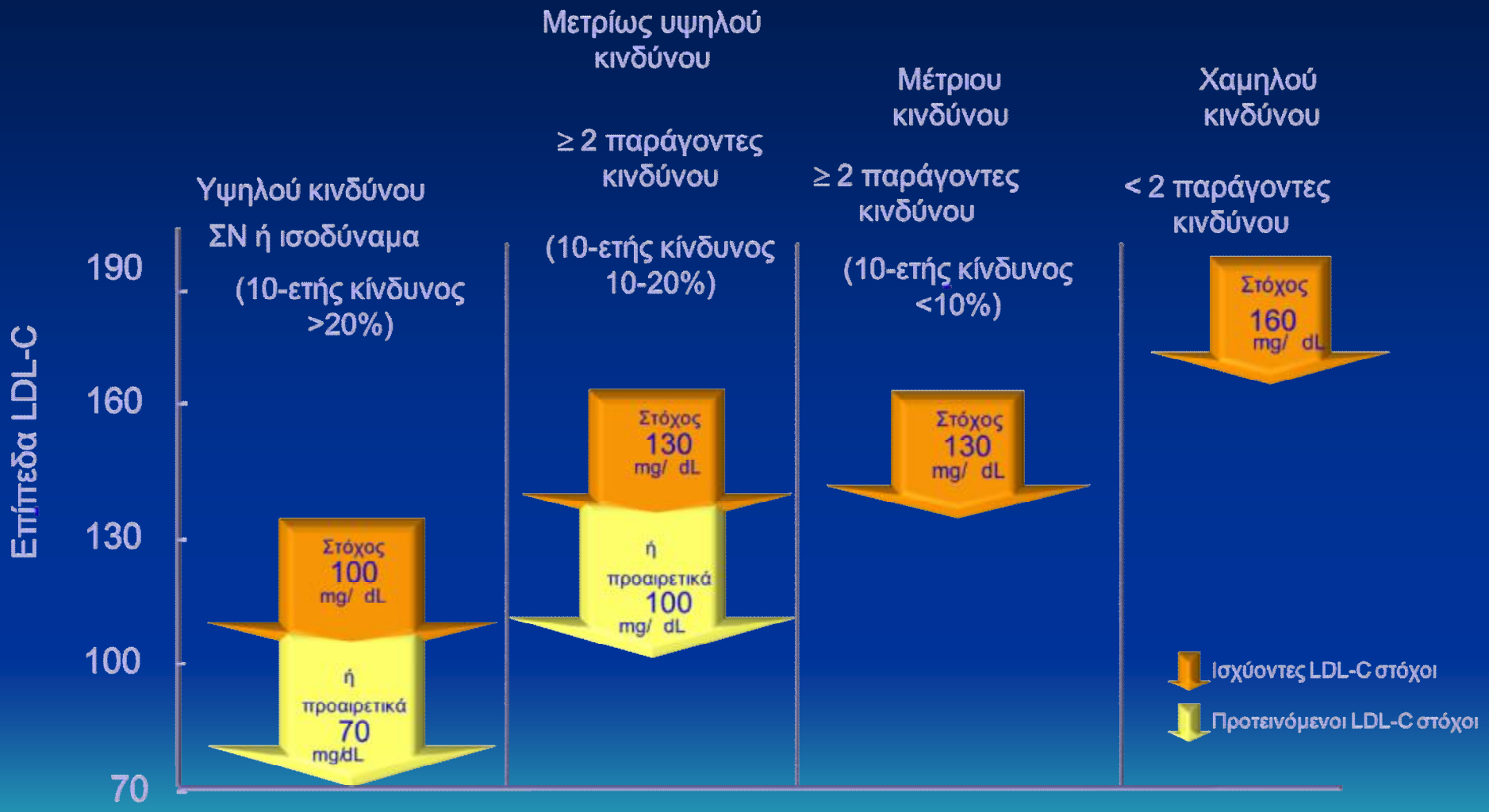
(2008 πρόταση τροποποίησης)



*Therapeutic option in very high - risk patients and in patients with high TG, non HDL- C<100 mg/dL;
** Therapeutic option; 70 mg/dL =1.8 mmol/L; 100 mg/dL = 2.6 mmol/L; 130 mg/dL = 3.4 mmol/L;
160 mg/dL = 4.1 mmol/L

Grundy SM *et al. Circulation* 2004; 110 :227 - 239

2004-updated NCEP ATP III: Στόχοι LDL-C



Grundy SM et al. Circulation 2004;110:227–239.

JUPITER – study design

No history of CAD
men ≥50 yrs
women ≥60 yrs
LDL-C <130 mg/dL
CRP ≥2.0 mg/L

Placebo run-in

Rosuvastatin 20 mg (n=8901)

Placebo (n=8901)

Lead-in/ eligibility

Randomisation

Lipids
CRP
Tolerability

Lipids
CRP
Tolerability

Lipids
CRP
Tolerability
HbA_{1C}

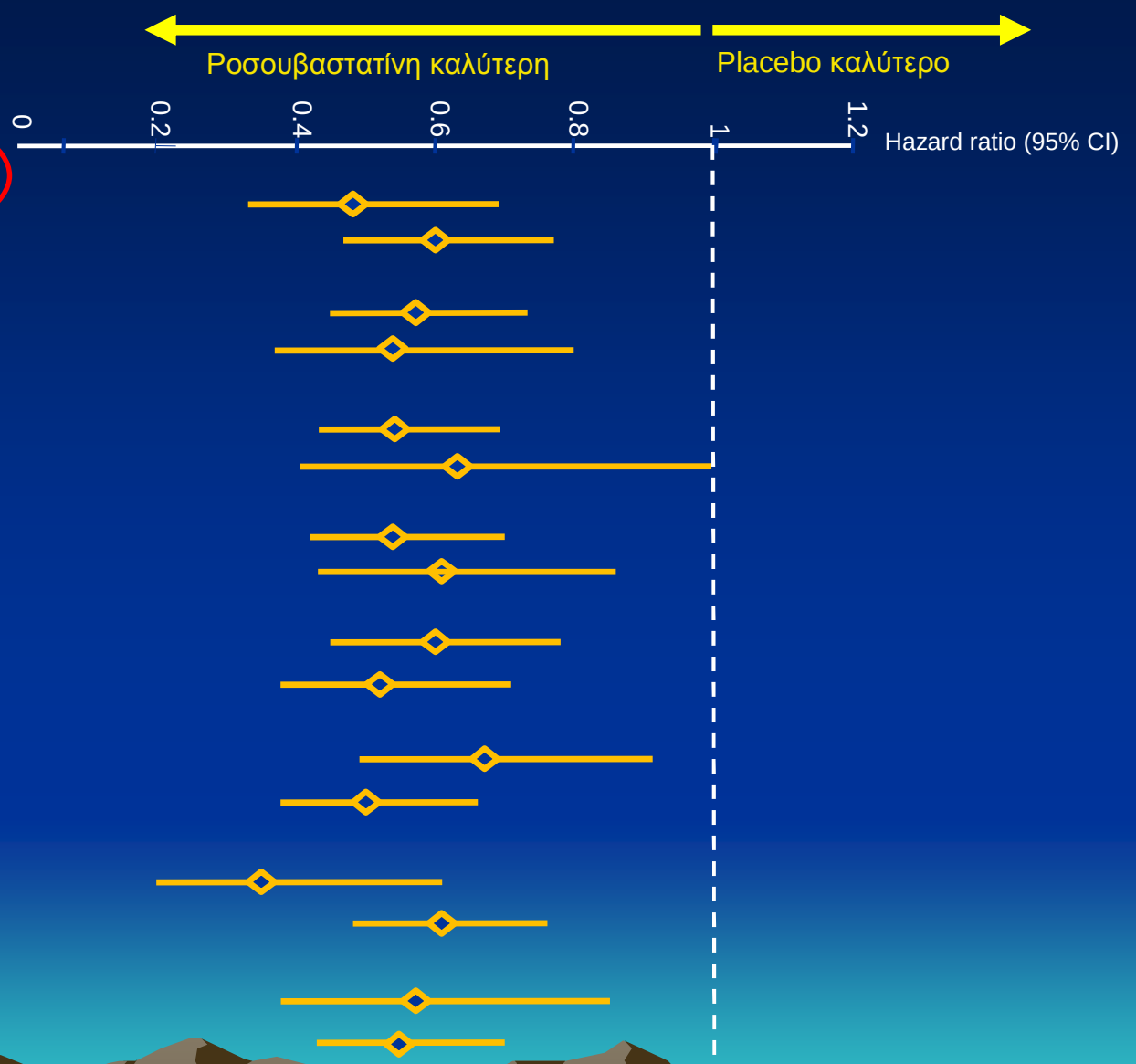
Median follow-up 1.9 years

CAD=coronary artery disease; LDL-C=low-density lipoprotein cholesterol; CRP=C-reactive protein; HbA_{1c}=glycated haemoglobin

Ridker P *et al. N Eng J Med* 2008;359: 2195-2207

JUPITER – Ανάλυση υποομάδων

	N	Τιμή p*
Ηλικία		0.32
≤ 65 έτη	8,541	
>65 έτη	9,261	
Φύλο		0.80
Άνδρες	11,001	
Γυναίκες	6,801	
Φυλή		0.57
Λευκή	12,683	
Μη-λευκοί	5,117	
Υπέρταση		0.53
Ναι	10,208	
Όχι	7,586	
Περιοχή		0.51
ΗΠΑ ή Καναδάς	6,041	
Άλλη	11,761	
Μεταβολικό σύνδρομο		0.14
Ναι	7,375	
Όχι	10,296	
Οικογενειακό ιστορικό ΣΝ		0.07
Ναι	2,045	
Όχι	15,684	
Βαθμ. κινδ. Framingham		0.99
≤10%	8,882	
>10%	8,895	



Ridker P *et al. N Eng J Med* 2008;**359**: 2195-2207

Στατίνες και ΑΕΕ στην Τρίτη ηλικία

Πρωτογενής πρόληψη

Μείωση ΑΕΕ από 19-50%

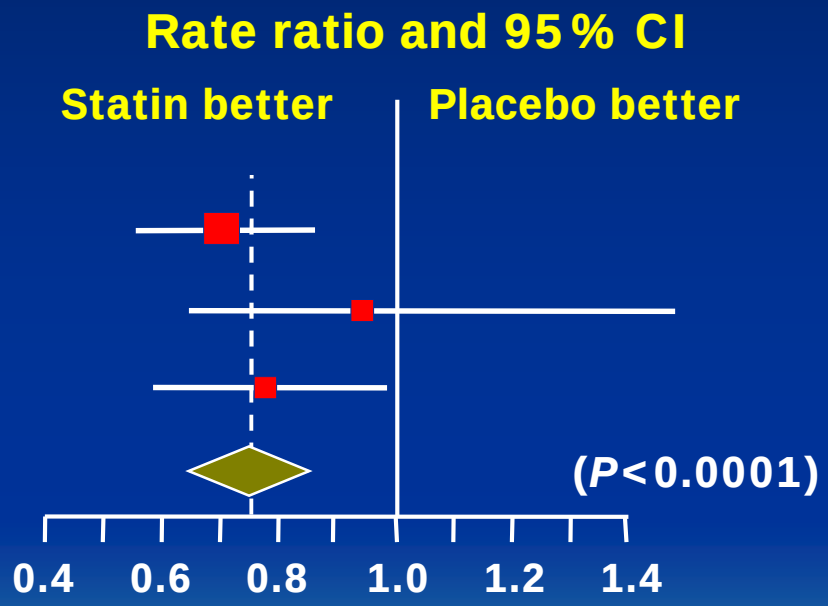
Μελέτες:CARE 32%,LIPID 19%,MIRACLE 50%,HPS 27%,PROSPER 25%, WOSCOPS, ALLHAT, ASCOT-LLA, CARDS.

Δευτερογενής πρόληψη (μετά από ΑΕΕ)

Μελετη SPARCL :16% μείωση νέου ΑΕΕ.

HPS:
Effect of Statins on Stroke Type

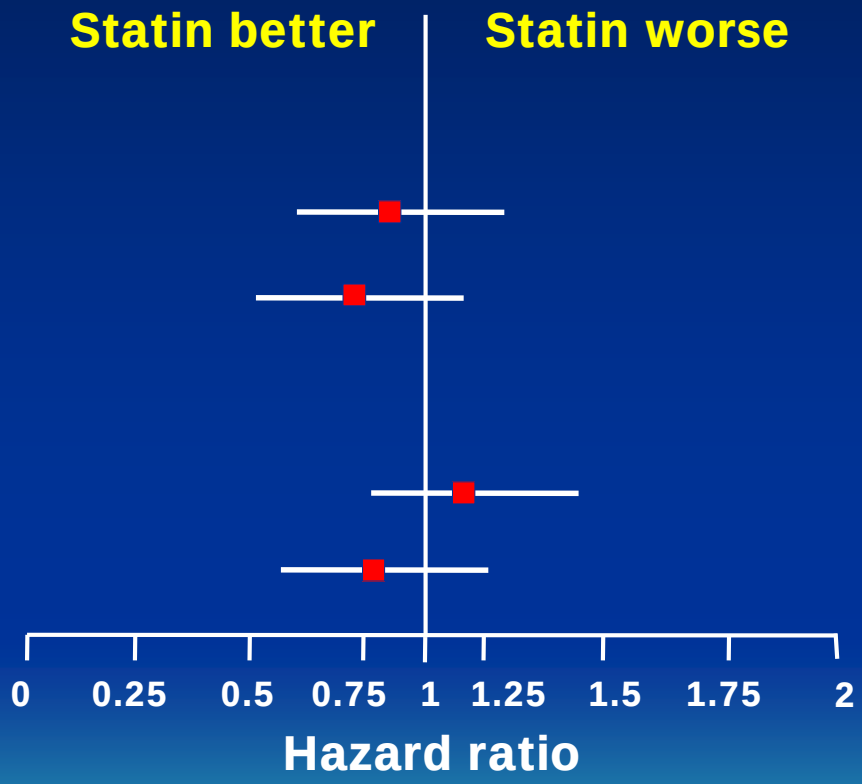
Type	Statin (n=10,269)	Placebo (n=10,267)
Ischemic	290	409
Hemorrhagic	51	53
Unknown	103	134
Any stroke	444	585



HPS Collaborative Group. *Lancet*. 2002;360:7-22.

PROSPER: Stroke Outcomes According to Sex

	Statin	Placebo
Men	(n=1,396)	(n=1,408)
Fatal and nonfatal stroke	65	70
TIA	38	53
Women	(n=1,495)	(n=1,505)
Fatal and nonfatal stroke	70	61
TIA	39	49



Mean age:
pravastatin = 75.4 y
placebo = 75.3 y

Shepherd J et al. *Lancet*. 2002;360:1623-1630.

ASCOT-LLA: Stroke End Point

• End point	Reduction in events
• Stroke overall	¯27%
–– £70 years old	¯24%*
–– >70 years old	¯31%*

*Post-hoc analysis

ASCOT-LLA = Anglo-Scandinavian Cardiac Outcomes Trial—Lipid-Lowering Arm

Sever PS et al. *Lancet*. 2003;361:1149-1158.

Statins in Secondary Prevention of Stroke: SPARCL Study

- 205 centres worldwide
- Mean age 63 years
- Stroke or TIA documented 6 previous months
- 62% with HT and 17% DM-2
- No previous CVD
- Antiplatelet therapy 94%
- LDL-C levels ≥100 mg/dl and ≤190 mg/dl

Double blind period

4,731 patients

- Atorvastatin 80 mg/day
- Placebo

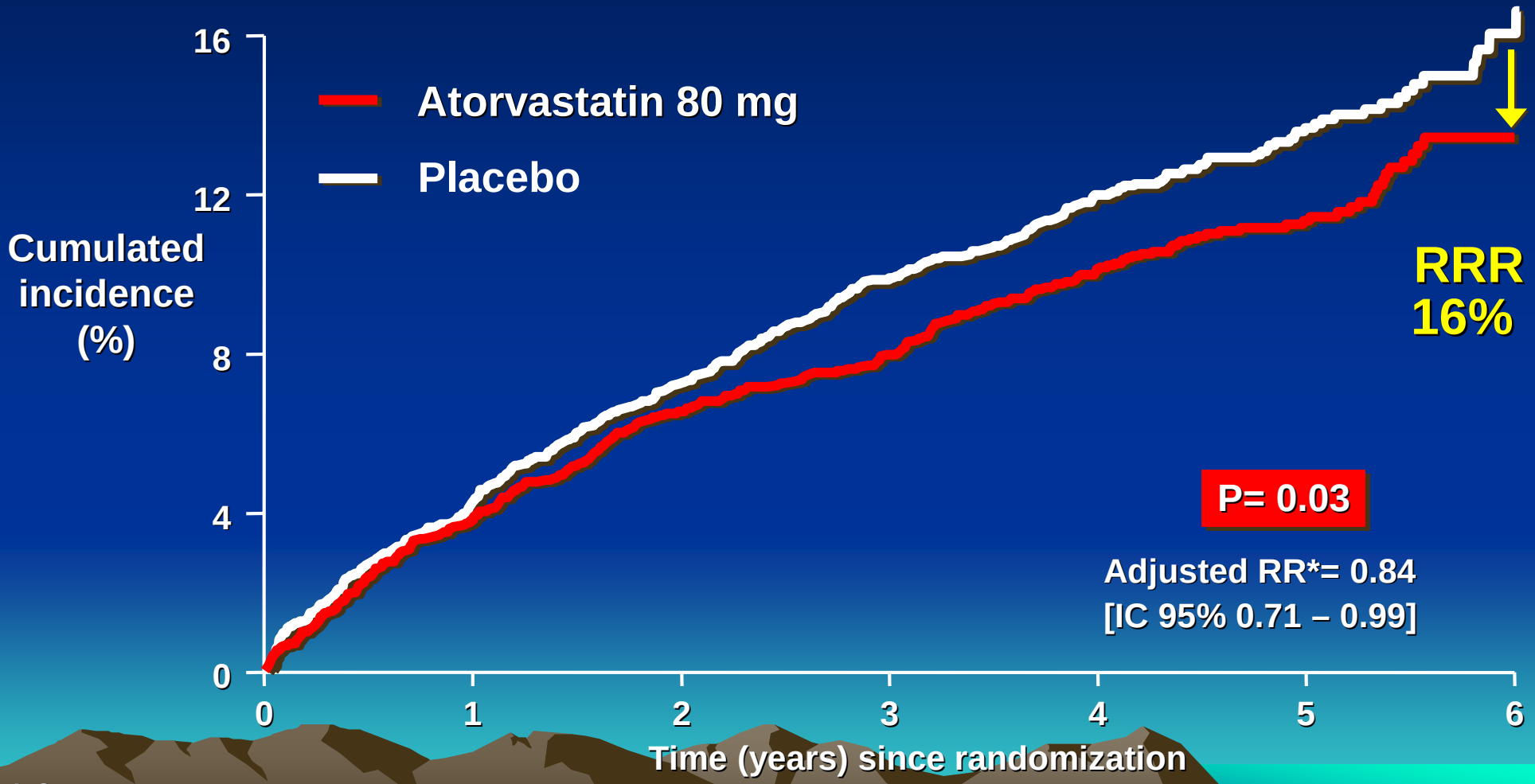
Primary end-point
Time to first fatal and non-fatal stroke

Hospital Clínico. IDIBAPS
Universidad Barcelona

The SPARCL Investigators. N Engl J Med. 2006; 355: 549-559

Statins in Secondary Prevention of Stroke: SPARCL Study

Fatal and non-fatal stroke



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Hospital Clínico. IDIBAPS
Universidad Barcelona

The SPARCL Investigators. N Engl J Med. 2006; 355: 549-559

Στατίνες και ΣΝ στην Τρίτη ηλικία

HPS: 20.000 ; 40-80 ετών με ΣΝ ή περιφερική αγγειοπάθεια

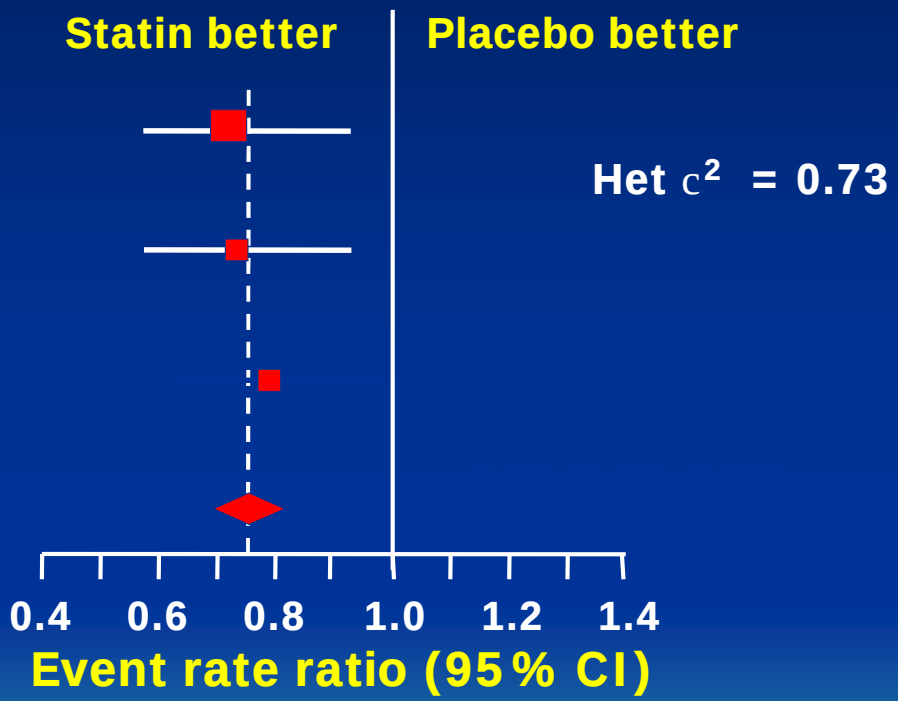
Στους 5.806 >70 ετών μείωση 18% του κινδύνου (όπως και στα νεότερα άτομα) με σιμβαστατίνη.

PROSPER: 5.804 ασθενείς 70-82 ετών

19% μείωση κινδύνου θνητότητας από ΣΝ.

HPS: Effects of Statins on First Major Vascular Event in Elderly

Age (y)	Statin Events/n (%)	Placebo Events/n (%)
<65	831/4,903 (16.9)	1,091/4,936 (22.1)
≥65–<70	512/2,447 (20.9)	665/2,444 (27.2)
≥70	690/2,919 (23.6)	829/2,887 (28.7)
All patients	2,033/10,269 (19.8)	2,585/10,267 (25.2)



Among the 1,263 individuals aged 75–80 years at entry (80–85 by end of study), the reduction in first event rate was substantial and definite: 142 events (23.1%) in the simvastatin group vs 209 events (32.3%) in the placebo group, *P*=0.0002.

HPS=Heart Protection Study

HPS Collaborative Group. *Lancet*. 2002;360:7-22.

Effect of Simvastatin on Major Vascular Events: Heart Protection Study

Age (yrs)	Placebo	Simvastatin	Events/1000 Pts
< 65	22.1%	16.9%	51
65-69	27.2%	20.9%	63
≥ 70	28.7%	23.6%	51

Heart Protection Study Collaborative Group. *Lancet*. 2002;360:7-22

Impact of HMG-CoA Reductase Inhibitors on Major Coronary Events

	Placebo	Active	Relative Risk	Events Prevented
4S (Scandinavian Simvastatin Survival Study)				
< 65	26.4%	18.1%	0.66	83
≥ 65	33.4%	23.6%	0.66	98
CARE (Cholesterol and Recurrent Events)				
< 65	25.6%	21.1%	0.81	45
≥ 65	28.1%	19.7%	0.68	84
LIPID (Long-Term Intervention with Pravastatin in Ischemic Disease)				
< 65	13.4%	10.4%	0.75	30
≥ 65	19.7%	15.5%	0.78	42

[1] Lewis SJ, et al. *Annals of Internal Medicine.* 1998;129:681-689
[2] Hunt D, et al. *Annals of Internal Medicine.* 2001;134:931-940
[3] Miettinen TA, et al. *Circulation.* 1997;96:4211-4218

Meta-Analysis: Overall Risk Reduction for Major Coronary Events by Age

	No. of Events					
	PL	Statin	PRR, % (95% CI)	ARR/1,000 (95% CI)	NNT (95% CI)	*P* Value
[3] ≥65 y	740	539	32 (23 to 39)	44 (30 to 58)		<0.001
4S	168	122	38 (19 to 53)	98 (43 to154)	23	<0.001
CARE	111	69	42 (20 to 57)	65 (27 to 103)	(17–33)	<0.001
LIPID	349	270	25 (11 to 37)	42 (17 to 67)		0.001
AFCAPS	112	78	32 (8 to 49)	21 (5 to 38)		0.01
<65 y	1,302	951	31 (24 to 36)	32 (24 to 40)		<0.001
4S	454	309	38 (27 to 47)	83 (55 to 110)		<0.001
CARE	163	143	14 (-9 to 32)	14 (-8 to 37)	31	0.21
LIPID	366	287	25 (12 to 37)	31 (13 to 48)	(25–41)	<0.001
WOSCOPS	248	174	31 (16 to 44)	23 (11 to 34)		<0.001
AFCAPS	71	38	47 (22 to 63)	19 (8 to 31)		0.001

PRR=proportional risk reduction; ARR=absolute risk reduction;
NNT= number needed to treat

LaRosa JC et al. *JAMA*. 1999;282:2340-2346.

ΣΤΑΤΙΝΕΣ ΣΤΗ ΔΕΥΤΕΡΟΓΕΝΗ ΠΡΟΛΗΨΗ

Statins for Secondary Prevention in Elderly Patients

A Hierarchical Bayesian Meta-Analysis

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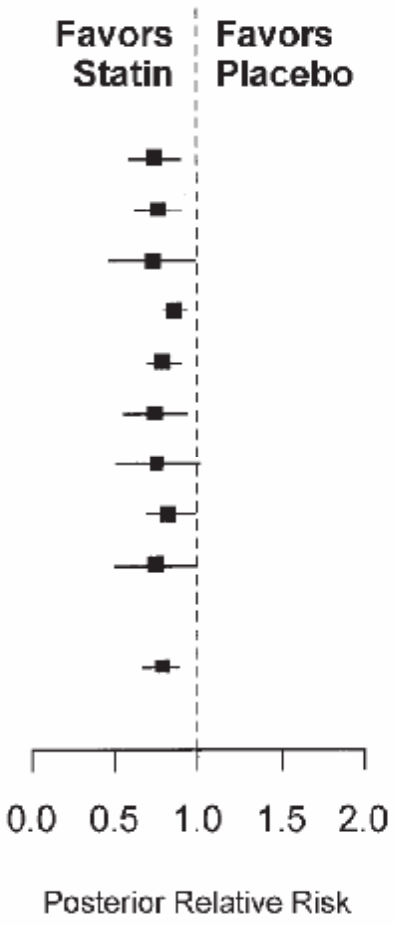
Κλινικα χαρακτηριστικα

	Published Elderly Subgroups				Unpublished Elderly Subgroups				
	4S	CARE	LIPID	HPS	PLAC I	REGRESS	FLARE	LIPS	PROSPER
Year	1997	1998	2001	2002	1995	1995	1999	2002	2002
Mean follow-up, yrs	5.4*	5.0*	6.1	5.0	2.3	2.0	0.8	3.9*	3.2
No. of elderly	1,021	1,283	3,514	10,697	94	138	366	623	1,833
Age range, yrs	65–70	65–75	65–75	65–80	65–75	65–70	65–80	65–80	70–82
Mean age, yrs (SD)	66.8 (1.4)	69.0 (66,73)*	68.8 (2.7)	n/a	68.3 (2.6)	67.6 (1.5)	70.4 (3.7)	70.1 (3.9)	75.6 (3.4)
Inclusion criteria	MI >6 months or stable angina	MI 3–20 months	MI or unstable angina 3–36 months	Vascular disease or diabetes	Angiographic CAD or recent MI	Angiographic CAD	CAD requiring PCI	CAD requiring PCI	MI >6 months or stable angina
Study drug									
Drug	Simvastatin	Pravastatin	Pravastatin	Simvastatin	Pravastatin	Pravastatin	Fluvastatin	Fluvastatin	Pravastatin
Dose, mg/day	20-40	40	40	40	40	40	80	80	40
Nonstudy drugs									
Aspirin, %	35	82	79	63†	65	49	68	96	63
Beta-blockers, %	54	37	45	26†	18	74	57	54	33
Baseline characteristics									
Women, %	24	18	20	25†	39	0	23	22	42
Diabetes, %	5	19	10	29†	0	0	9	15	9
Smoking, %	18	12	6	14†	17	n/a	16	15	16
Hypertension, %	29	48	45	41†	57	27	38	43	46
Prior MI, %	83	100	60	41†	38	49	26	42	42
Mean baseline lipid levels, mmol/l§									
Total cholesterol	6.7	5.4	5.6	5.9†	6.0	5.8	5.5	5.1	5.7
LDL-C	4.9	3.6	3.9	3.4†	4.2	4.1	3.8	3.4	3.8
HDL-C	1.2	1.0	0.9	1.1†	1.1	0.9	1.1	1.0	1.2
Triglycerides	1.5	1.7	1.5	2.1†	1.9	1.6	1.5	1.6	1.6
Mean change in lipid levels, %									
Total cholesterol	−26	−20	−19	−20†	−19	−19	−23	−17	n/a
LDL-C	−36	−29	−28	−29†	−28	−27	−32	−24	−32‡
HDL-C	+7	+4	+7	+3†	+8	+9	+4	−1	+5‡
Triglycerides	−14	−12	−11	−14†	−10	−13	−5	−2	−12‡
Study quality									
Follow-up, %	100	>99	>99	>99	78	>99	95	99	89‡
Intention-to-treat	Yes	Yes	Yes	Yes	Yes	n/a	Yes	Yes	Yes
Double-blind	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

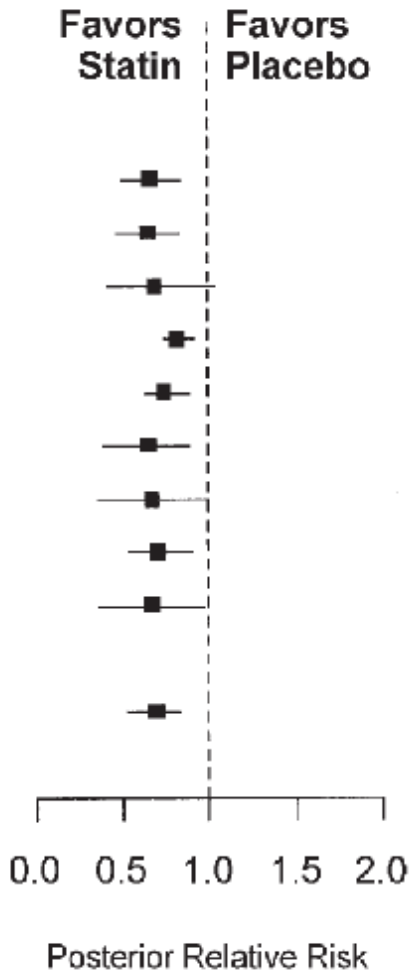
ΟΛΙΚΗ ΘΝΗΤΟΤΗΤΑ

Study	No. Events/ Total No. of Patients: Statin	Placebo	Posterior Median Relative Risk (95% Credible Interval)
4S	67 / 518	96 / 503	0.75 (0.59 , 0.89)
CARE	77 / 640	108 / 643	0.76 (0.61 , 0.90)
FLARE	2 / 179	6 / 187	0.74 (0.47 , 0.97)
HPS	963 / 5366	1089 / 5331	0.87 (0.80 , 0.93)
LIPID	287 / 1741	365 / 1773	0.80 (0.71 , 0.90)
LIPS	23 / 324	32 / 299	0.75 (0.55 , 0.94)
PLAC I	1 / 42	2 / 52	0.76 (0.51 , 1.00)
PROSPER	110 / 934	128 / 899	0.82 (0.69 , 0.98)
REGRESS	1 / 75	1 / 63	0.75 (0.49 , 0.99)
Pooled (5 year)	**1531 / 9819**	**1827 / 9750**	**0.78 (0.65 , 0.89)**



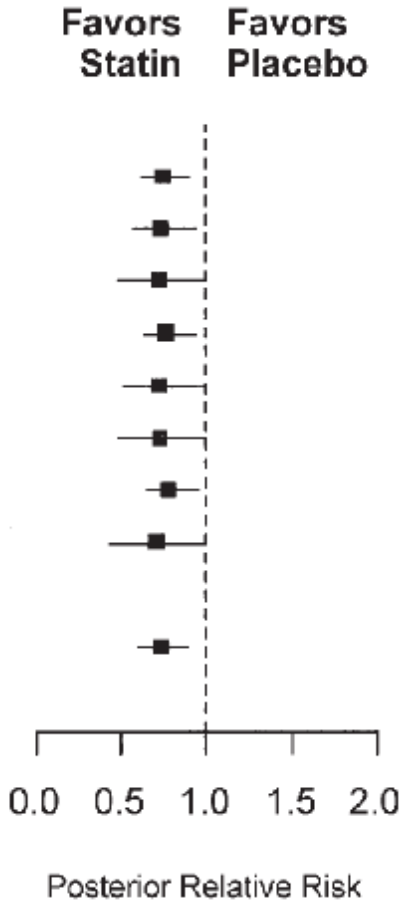
ΘΝΗΤΟΤΗΤΑ ΑΠΟ ΣΤΕΦΑΝΙΑΙΑ ΝΟΣΟ

Study	No. Events/ Total No. of Patients: Statin	Placebo	Posterior Median Relative Risk (95% Credible Interval)
4S	44 / 518	73 / 503	0.67 (0.49 , 0.84)
CARE	37 / 640	66 / 643	0.65 (0.46 , 0.83)
FLARE	2 / 179	3 / 187	0.69 (0.41 , 1.04)
HPS	558 / 5366	664 / 5331	0.82 (0.74 , 0.91)
LIPID	160 / 1741	211 / 1773	0.74 (0.63 , 0.88)
LIPS	8 / 324	15 / 299	0.66 (0.39 , 0.89)
PLAC I	0 / 42	1 / 52	0.67 (0.36 , 0.99)
PROSPER	48 / 934	69 / 899	0.70 (0.53 , 0.90)
REGRESS	0 / 75	0 / 63	0.67 (0.35 , 0.96)
Pooled (5 year)	**857 / 9819**	**1102 / 9750**	**0.70 (0.53 , 0.83)**



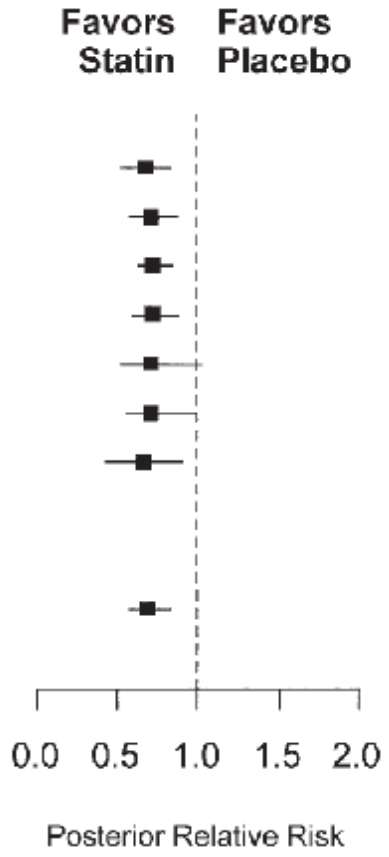
ΜΗ ΘΑΝΑΤΗΦΟΡΟ ΕΜΦΡΑΓΜΑ ΜΥΟΚΑΡΔΙΟΥ

Study	No. Events/ Total No. of Patients: Statin	Placebo	Posterior Median Relative Risk (95% Credible Interval)
4S	89 / 518	122 / 503	0.75 (0.62 , 0.89)
CARE	41 / 640	57 / 643	0.73 (0.57 , 0.93)
FLARE	5 / 179	9 / 187	0.72 (0.49 , 0.98)
LIPID	110 / 1741	138 / 1773	0.77 (0.64 , 0.93)
LIPS	12 / 324	16 / 299	0.72 (0.51 , 0.97)
PLAC I	2 / 42	6 / 52	0.73 (0.48 , 0.99)
PROSPER	98 / 934	116 / 899	0.78 (0.64 , 0.95)
REGRESS	0 / 75	1 / 63	0.71 (0.43 , 0.97)
Pooled (5 year)	**357 / 4453**	**465 / 4419**	**0.74 (0.60 , 0.89)**



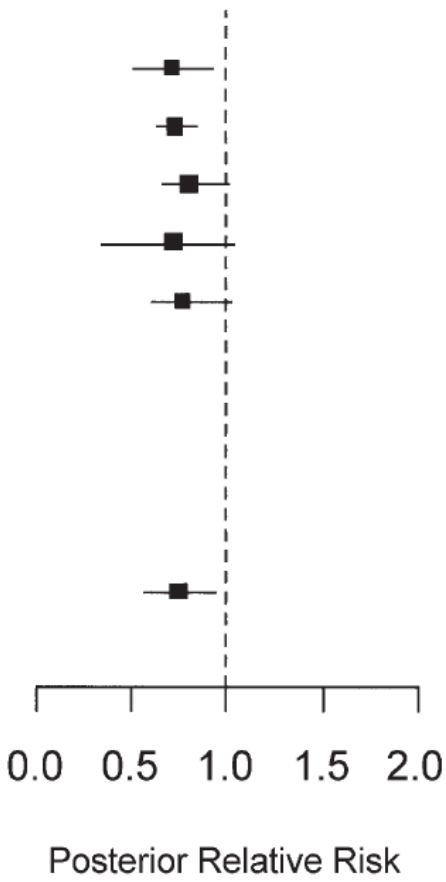
ΕΠΑΝΑΙΜΑΤΩΣΗ

Study	No. Events/ Total No. of Patients: Statin	Placebo	Posterior Median Relative Risk (95% Credible Interval)
4S	51 / 518	80 / 503	0.68 (0.53 , 0.83)
CARE	73 / 640	104 / 643	0.71 (0.58 , 0.86)
LIPID	205 / 1741	284 / 1773	0.73 (0.63 , 0.84)
LIPS	57 / 324	76 / 299	0.73 (0.59 , 0.88)
PLAC I	5 / 42	7 / 52	0.71 (0.52 , 1.02)
PROSPER	29 / 934	31 / 899	0.71 (0.55 , 0.99)
REGRESS	1 / 75	5 / 63	0.66 (0.42 , 0.90)
Pooled (5 year)	**422 / 4274**	**586 / 4232**	**0.70 (0.53 , 0.83)**



ΕΓΚΕΦΑΛΙΚΟ ΕΠΕΙΣΟΔΙΟ

Study	No. Events/ Total No. of Patients: Statin	Placebo	Posterior Median Relative Risk (95% Credible Interval)
CARE	29 / 640	47 / 643	0.72 (0.51 , 0.92)
HPS	280 / 5366	390 / 5331	0.73 (0.64 , 0.84)
LIPID	104 / 1741	119 / 1773	0.80 (0.66 , 1.01)
PLAC I	0 / 42	2 / 52	0.72 (0.35 , 1.04)
PROSPER	45 / 934	53 / 899	0.77 (0.60 , 1.02)
Pooled (5 year)	**458 / 8723**	**611 / 8698**	**0.75 (0.56 , 0.94)**



Arterial Changes with Aging

- ↑ Calcification, collagen, and collagen cross-linking
- ↓ Elastin
- ↑ Intimal-media thickness
- ↑ Vessel stiffness
- ↓ Distensibility of large and medium arteries

Net effect: ↑LV pulsatile load (afterload)

[1] Lakatta EG, et al. *Circulation*. 2003; 107: 139–46
[2] Lakatta EG, et al. *Circulation*. 2003; 107: 346–54

Reasons for Increasing Prevalence of CAD at Older Age

- Increasing prevalence and duration of traditional CAD risk factors
- Improved survival of middle-aged patients with CAD
- Age-associated changes in the heart, vasculature, and hemostatic system that predispose to the development and progression of atherosclerosis

Lakatta EG, et al. *Circulation*. 2003; 107: 139–146

Principal Effects of Aging on Cardiovascular Structure and Function

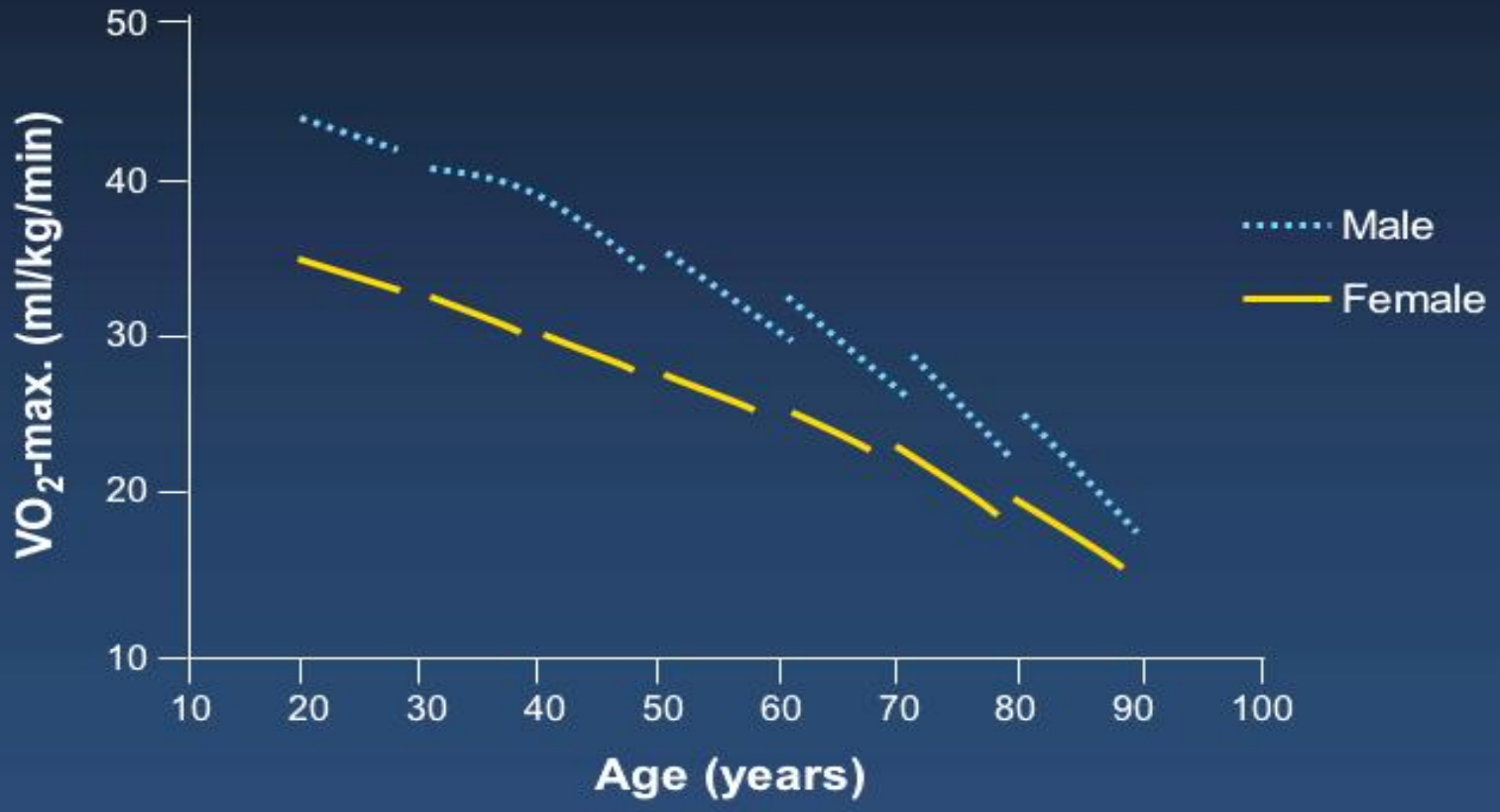
- Increased vascular stiffness
- Increased myocardial stiffness
- Decreased β-adrenergic responsiveness
- Decreased baroreceptor responsiveness
- Impaired sinus node function
- Impaired endothelial function

Net effect: marked reduction in CV reserve

[1] Rich MW. *J Gerontol A Biol Sci Med Sci.* 2001;56:M88-96
[2] Lakatta EG and Levy D. *Circulation.* 2003; 107:139-146, 346-354

Age and VO_2-max in Healthy Subjects

Baltimore Longitudinal Study on Aging



Adapted from Fleg JL, et al. *Circulation*. 2000;102: II-602

Endothelial Function

- Marked decline in endothelium-mediated vasodilation from age 40 to 70[1]
- No change in vasodilator response to nitroglycerin
- Age-related effects on endothelial function
  - Exacerbated by hypertension, dyslipidemia, coronary disease, and heart failure[2]
  - Attenuated by regular aerobic exercise[2]

[1] Celermajer DS, et al. *J Am Coll Cardiol*. 1994; 24:471-476
[2] Rywik TM, et al. *J Appl Physiol*. 1999;87:2136-2142

Aging and the Hemostatic System

- Increase in coagulation factors: V, VIII, IX, XIIIa, vWF, and fibrinogen
- Increase in platelet activity
- Rise in IL-6: increases fibrinogen, PAI-1, CRP, and platelet aggregability
- Increase number of adipocytes: increases PAI-1, IL-6, TNF-α, angiotensinogen, complement
- Increase in endogenous inhibitors of angiogenesis: PAI-1, platelet factor 4, α2-antiplasmin, others

Wilkerson WR, et al. *Semin Thrombosis Hemostasis* 2002; 28: 555–68

Clinical Features of CAD in the Elderly: Symptoms

- Chest pain less frequent, silent ischemia more common
- Exertional dyspnea or fatigue more frequent
- Other 'atypical' symptoms more common
  - Gastrointestinal symptoms
  - Confusion, dizziness, other CNS symptoms
- Sudden cardiac death more common as initial manifestation

Tresch DD, et al. *Clin Geriatr Med*. 1996; 12: 89–100

Coronary Angiographic Findings

- Higher prevalence of multi-vessel and left main disease
- More diffuse disease involving most vessels
- Higher prevalence of LV systolic dysfunction
- Higher LV diastolic pressure

[1] Kowalchuk. *Am J Cardiol*. 1990; 66: 1319-23
[2] Williams MA, et al. *Circulation*. 2002;105:1735-1743
[3] Rich, et al. *J of Gerontology*. 2001;56A:M88-M96

Management of CAD in the Elderly: Drug Therapy Considerations

- Decreased volume of distribution
- Decreased renal and hepatic clearance
- Altered drug pharmacodynamics
- Increased comorbidity
- Increased risk of drug interactions
- Paucity of data from clinical trials

Podrazik PM, et al. *Cardiol Clin*. 1999;17:17–34

Management of CAD in the Elderly: Drug Therapy

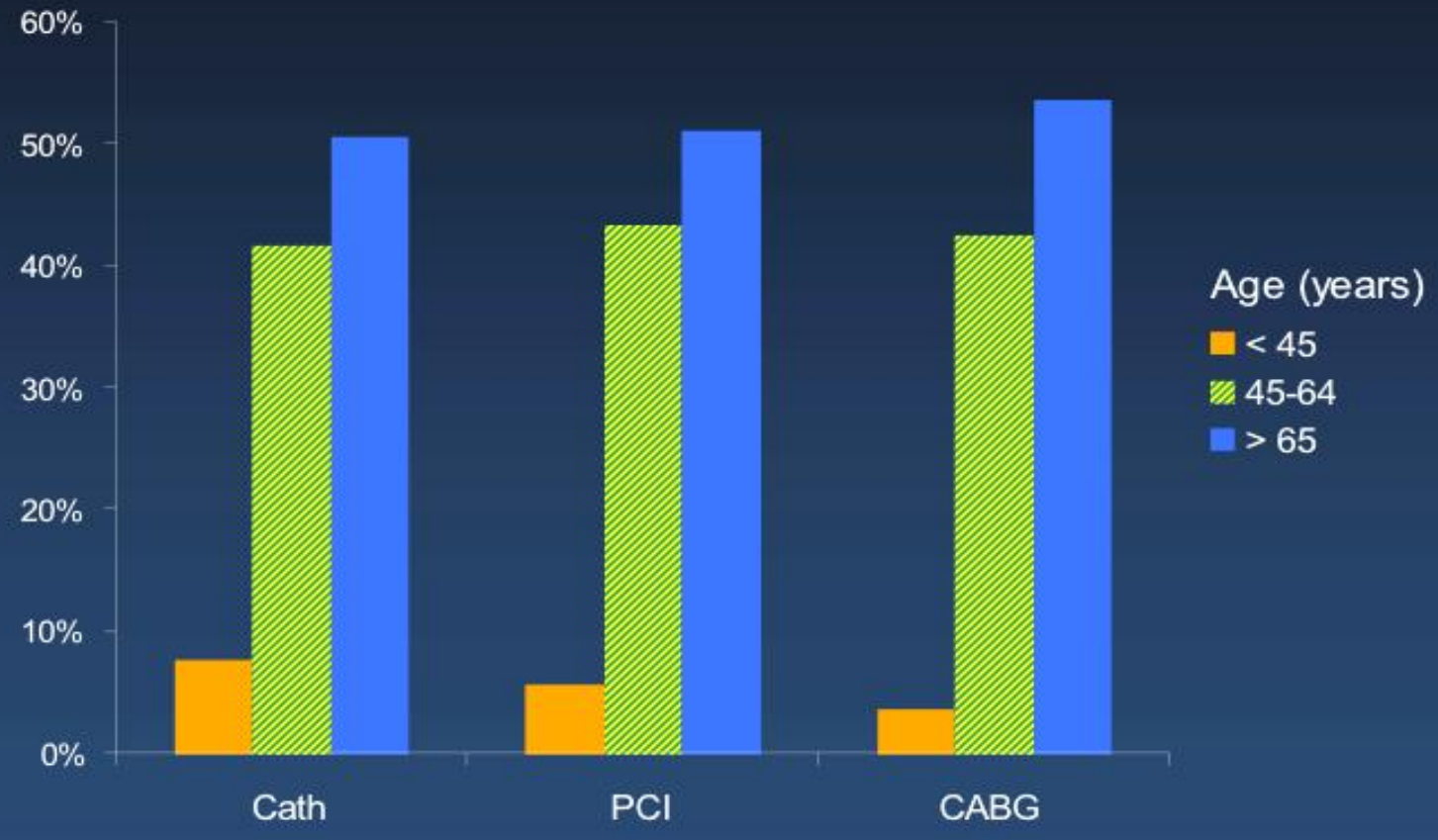
- Aspirin or other anti-thrombotic agent
- Beta-adrenergic antagonists
- ACE inhibitors
- Statins or other lipid-lowering agents
- Nitrates
- Calcium channel blockers

[1] Gibbons RJ, et al. *J Am Coll Cardiol*. 2003; 41: 159-68
[2] Williams MA, et al. *Circulation*. 2002; 105: 1735-43

Στατίνη και άλλα νοσήματα στην τρίτη ηλικία

Μείωση ανευρύσματος
Στένωσης νεφρικής
περιφερικής αρτηριοπάθειας
στένωσης αορτής
Γνωστικής δυσλειτουργίας-άνοιας

Management of CAD in the Elderly: Cardiovascular Procedures by Age (2001)



Adapted from 2001 National Hospital Discharge Survey: 2001 Annual Summary, June 2004, Series 13, No. 156

Νεότεροι ΠΚ στην τρίτη ηλικία

Υπάρχουν δεδομένα για τη σημασία

ομοκυστεΐνης,

CRP,

D-dimers,

κατάθλιψης.

Δείκτες υποκλινικής βλάβης

Βλάβη καρωτίδων, κνημοβραχιόνιος δείκτης, LVH, Calcium score , έχουν προγνωστική σημασία αλλά η αξία της χρειάζεται περαιτέρω τεκμηρίωση.

Outcomes of Using High- or Low-Dose Atorvastatin in Patients 65 Years of Age or Older with Stable Coronary Heart Disease

Nanette K. Wenger, MD; Sandra J. Lewis, MD; David M. Herrington, MD; Vera Bittner, MD; and Francine K. Welty, MD, PhD, for the Treating to New Targets Study Steering Committee and Investigators

Background: Increased life expectancy is associated with an increase in the burden of chronic cardiovascular disease.

Objective: To assess the efficacy and safety of high-dose atorvastatin in patients 65 years of age or older.

Design: A prespecified secondary analysis of the Treating to New Targets study, a randomized, double-blind clinical trial.

Setting: 256 sites in 14 countries participating in the Treating to New Targets study.

Participants: 10 001 patients (3809 patients ≥65 years of age) with coronary heart disease (CHD) and low-density lipoprotein cholesterol levels less than 3.4 mmol/L (<130 mg/dL).

Intervention: Patients were randomly assigned to receive atorvastatin, 10 or 80 mg/d.

Measurements: The primary end point was the occurrence of a first major cardiovascular event (death from CHD, nonfatal non–procedure-related myocardial infarction, resuscitated cardiac arrest, or fatal or nonfatal stroke).

Results: In patients 65 years of age or older, absolute risk was reduced by 2.3% and relative risk by 19% for major cardiovascular events in favor of the high-dose atorvastatin group (hazard ratio, 0.81 [95% CI, 0.67 to 0.98]; $P = 0.032$). Among the components of the composite outcome, the mortality rates from CHD, nonfatal non–procedure-related myocardial infarction, and fatal or nonfatal stroke (ischemic, embolic, hemorrhagic, or unknown origin) were all lower in older patients who received high-dose atorvastatin, although the difference was not statistically significant for each individual component. The improved clinical outcome in patients 65 years of age or older was not associated with persistent elevations in creatine kinase levels.

Limitation: Because the study was a secondary analysis, the findings should be interpreted within the context of the main study results.

Conclusions: The analysis suggests that additional clinical benefit can be achieved by treating older patients with CHD more aggressively to reduce low-density lipoprotein cholesterol levels to less than 2.6 mmol/L (<100 mg/dL). The findings support the use of intensive low-density lipoprotein cholesterol-lowering therapy in high-risk older persons with established cardiovascular disease.

Ann Intern Med. 2007;147:1-9. www.annals.org

For author affiliations, see end of text.

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Objective: To assess the efficacy and safety of high-dose atorvastatin in patients 65 years of age or older.
Design: A prespecified secondary analysis of the Treating to New Targets study, a randomized, double-blind clinical trial.
Setting: 256 sites in 14 countries participating in the Treating to New Targets study.
Participants: 10 001 patients (3809 patients _65 years of age) with coronary heart disease (CHD) and low-density lipoprotein cholesterol levels less than 3.4 mmol/L (_130 mg/dL).
Intervention: Patients were randomly assigned to receive atorvastatin, 10 or 80 mg/d.
Measurements: The primary end point was the occurrence of a first major cardiovascular event (death from CHD, nonfatal non–procedure-related myocardial infarction, resuscitated cardiac arrest, or fatal or nonfatal stroke).

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Results: In patients 65 years of age or older, absolute risk was reduced by 2.3% and relative risk by 19% for major cardiovascular events in favor of the high-dose atorvastatin group (hazard ratio, 0.81 [95% CI, 0.67 to 0.98]; *P* _ 0.032). Among the components of the composite outcome, the mortality rates from CHD, nonfatal non–procedure-related myocardial infarction, and fatal or nonfatal stroke (ischemic, embolic, hemorrhagic, or unknown origin) were all of age or older was not associated with persistent elevations in creatine kinase levels.

Limitation: Because the study was a secondary analysis, the findings should be interpreted within the context of the main study results.

Conclusions: The analysis suggests that additional clinical benefit can be achieved by treating older patients with CHD more aggressively to reduce low-density lipoprotein cholesterol levels to less than 2.6 mmol/L (_100 mg/dL). The findings support the use of intensive low-density lipoprotein cholesterol-lowering therapy in high-risk older persons with established cardiovascular disease.

Ann Intern Med. **2007;147:1-9. www.annals.org**

TNT

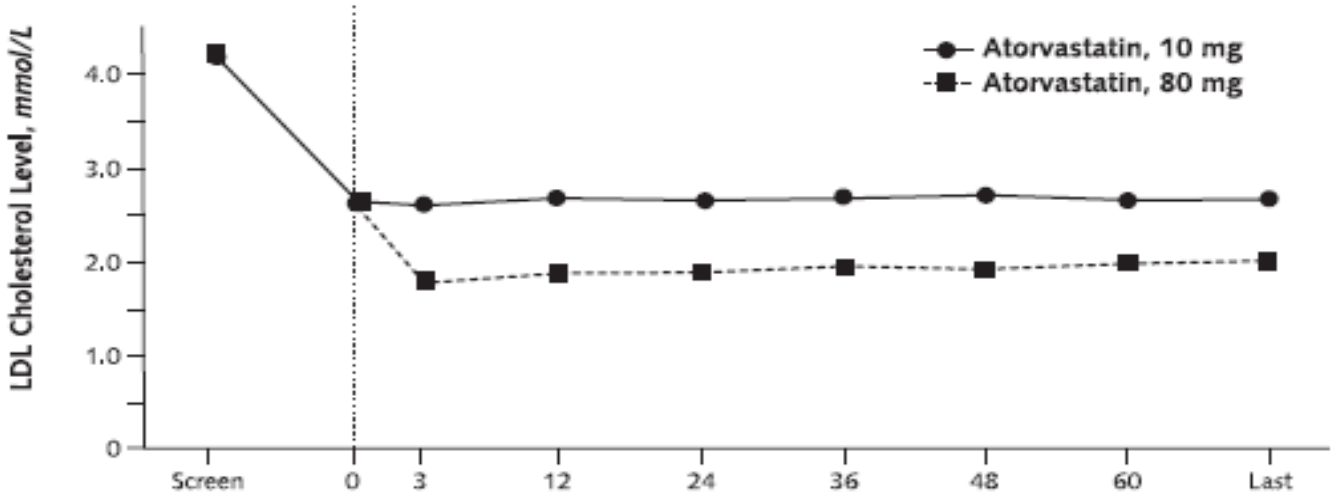
Characteristic	Age 65 to <70 y		Age ≥70 y		Age ≥65 y	
	Atorvastatin, 10 mg (*n* = 1000)	Atorvastatin, 80 mg (*n* = 1033)	Atorvastatin, 10 mg (*n* = 872)	Atorvastatin, 80 mg (*n* = 904)	Atorvastatin, 10 mg (*n* = 1872)	Atorvastatin, 80 mg (*n* = 1937)
Mean age (SD), *y*	67.5 (1.4)	67.4 (1.5)	72.3 (1.7)	72.7 (1.7)	69.9 (3.0)	69.9 (3.0)
Men, %	75.8	78.9	71.9	72.0	74.0	75.7
White, %	94.2	94.9	95.8	95.4	94.9	95.1
Mean body mass index (SD), kg/m^2	28.2 (4.7)	28.0 (4.2)	27.9 (4.3)	27.5 (3.9)	28.1 (4.5)	27.8 (4.1)
Mean creatinine clearance (SD), *mL/s per 1.73* m^2†	1.0 (0.2)	1.0 (0.2)	1.0 (0.2)	1.0 (0.2)	1.0 (0.2)	1.0 (0.2)
Cardiovascular risk factors, %						
Current smoker	8.3	6.7	4.5	3.8	6.5	5.3
Hypertension	58.4	56.6	62.6	64.0	60.4	60.1
Diabetes mellitus	19.8	17.1	16.4	19.2	18.2	18.1
Cardiovascular history, %						
Angina	83.0	83.8	82.5	80.4	82.7	82.2
Myocardial infarction	54.5	57.5	51.0	53.8	52.9	55.8
Coronary angioplasty	51.0	48.9	48.9	47.9	50.0	48.4
Coronary bypass	54.2	53.3	58.1	55.2	56.0	54.2
Cerebrovascular accident	8.1	5.4	7.6	7.0	7.9	6.1
Peripheral artery disease	14.6	15.4	17.7	18.3	16.0	16.7
Congestive heart failure	9.9	8.9	13.0	11.2	11.3	10.0
Mean lipid level (SD)						
LDL cholesterol						
mmol/L	2.5 (0.4)	2.5 (0.4)	2.5 (0.4)	2.4 (0.4)	2.5 (0.4)	2.5 (0.4)
mg/dL	96.3 (17.4)	97.1 (16.9)	95.4 (16.4)	94.2 (16.8)	95.9 (17.0)	95.8 (16.9)
Total cholesterol						
mmol/L	4.5 (0.6)	4.5 (0.6)	4.5 (0.6)	4.5 (0.6)	4.5 (0.6)	4.5 (0.6)
mg/dL	173.3 (24.1)	174.5 (23.2)	172.9 (23.1)	172.4 (23.4)	173.1 (23.6)	173.5 (23.4)
Triglycerides						
mmol/L	1.6 (0.7)	1.6 (0.7)	1.6 (0.7)	1.6 (0.7)	1.6 (0.7)	1.6 (0.7)
mg/dL	143.9 (66.3)	142.5 (64.1)	140.4 (64.1)	141.2 (61.2)	142.2 (65.3)	141.9 (62.7)
HDL cholesterol						
mmol/L	1.3 (0.3)	1.3 (0.3)	1.3 (0.3)	1.3 (0.3)	1.3 (0.3)	1.3 (0.3)
mg/dL	48.4 (10.9)	48.9 (11.4)	49.4 (11.9)	50.0 (12.2)	48.9 (11.4)	49.4 (11.8)
Concomitant therapy, %						
Aspirin or antiplatelet agents	85.3	85.4	84.6	86.1	85.0	85.7
ACE inhibitors or angiotensin-receptor II blockers	35.8	33.2	34.3	35.6	35.1	34.3
β-Blockers	51.5	49.9	51.1	50.9	51.3	50.3

Table 1. **Baseline Characteristics of Patients***

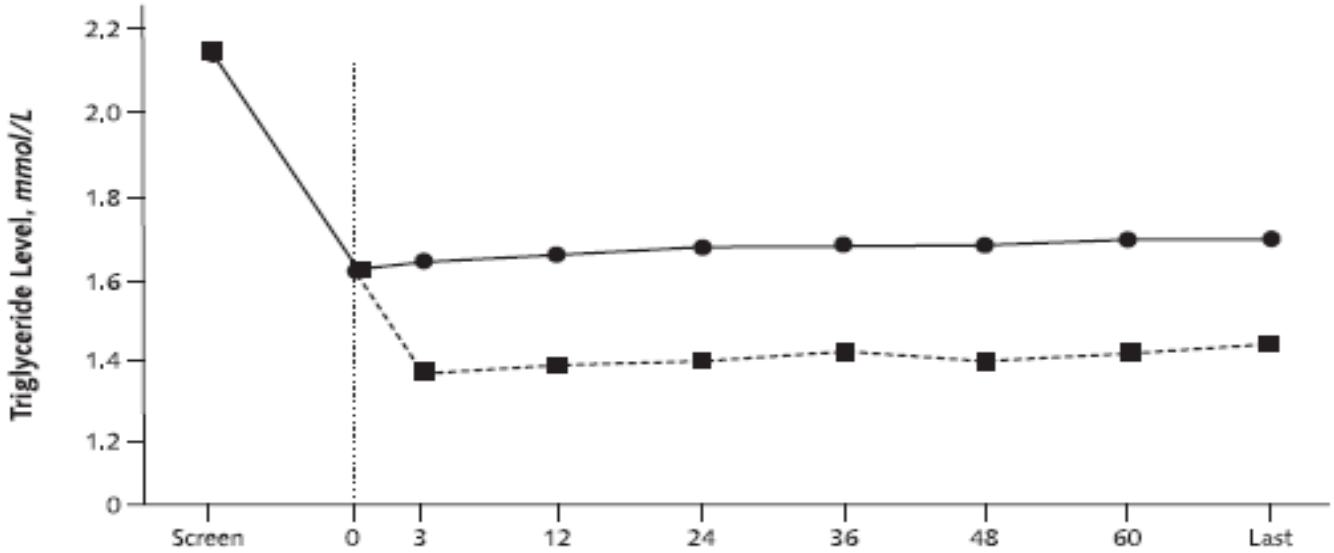
Characteristic	Age 65 to <70 y		Age ≥70 y		Age ≥65 y	
	Atorvastatin, 10 mg (*n* = 1000)	Atorvastatin, 80 mg (*n* = 1033)	Atorvastatin, 10 mg (*n* = 872)	Atorvastatin, 80 mg (*n* = 904)	Atorvastatin, 10 mg (*n* = 1872)	Atorvastatin, 80 mg (*n* = 1937)
Mean age (SD), *y*	67.5 (1.4)	67.4 (1.5)	72.3 (1.7)	72.7 (1.7)	69.9 (3.0)	69.9 (3.0)
Men, %	75.8	78.9	71.9	72.0	74.0	75.7
White, %	94.2	94.9	95.8	95.4	94.9	95.1
Mean body mass index (SD), kg/m^2	28.2 (4.7)	28.0 (4.2)	27.9 (4.3)	27.5 (3.9)	28.1 (4.5)	27.8 (4.1)
Mean creatinine clearance (SD), *mL/s per 1.73* m^2†	1.0 (0.2)	1.0 (0.2)	1.0 (0.2)	1.0 (0.2)	1.0 (0.2)	1.0 (0.2)
Cardiovascular risk factors, %						
Current smoker	8.3	6.7	4.5	3.8	6.5	5.3
Hypertension	58.4	56.6	62.6	64.0	60.4	60.1
Diabetes mellitus	19.8	17.1	16.4	19.2	18.2	18.1
Cardiovascular history, %						
Angina	83.0	83.8	82.5	80.4	82.7	82.2
Myocardial infarction	54.5	57.5	51.0	53.8	52.9	55.8
Coronary angioplasty	51.0	48.9	48.9	47.9	50.0	48.4
Coronary bypass	54.2	53.3	58.1	55.2	56.0	54.2
Cerebrovascular accident	8.1	5.4	7.6	7.0	7.9	6.1
Peripheral artery disease	14.6	15.4	17.7	18.3	16.0	16.7
Congestive heart failure	9.9	8.9	13.0	11.2	11.3	10.0
Mean lipid level (SD)						
LDL cholesterol						
mmol/L	2.5 (0.4)	2.5 (0.4)	2.5 (0.4)	2.4 (0.4)	2.5 (0.4)	2.5 (0.4)
mg/dL	96.3 (17.4)	97.1 (16.9)	95.4 (16.4)	94.2 (16.8)	95.9 (17.0)	95.8 (16.9)
Total cholesterol						
mmol/L	4.5 (0.6)	4.5 (0.6)	4.5 (0.6)	4.5 (0.6)	4.5 (0.6)	4.5 (0.6)
mg/dL	173.3 (24.1)	174.5 (23.2)	172.9 (23.1)	172.4 (23.4)	173.1 (23.6)	173.5 (23.4)
Triglycerides						
mmol/L	1.6 (0.7)	1.6 (0.7)	1.6 (0.7)	1.6 (0.7)	1.6 (0.7)	1.6 (0.7)
mg/dL	143.9 (66.3)	142.5 (64.1)	140.4 (64.1)	141.2 (61.2)	142.2 (65.3)	141.9 (62.7)
HDL cholesterol						
mmol/L	1.3 (0.3)	1.3 (0.3)	1.3 (0.3)	1.3 (0.3)	1.3 (0.3)	1.3 (0.3)
mg/dL	48.4 (10.9)	48.9 (11.4)	49.4 (11.9)	50.0 (12.2)	48.9 (11.4)	49.4 (11.8)
Concomitant therapy, %						
Aspirin or antiplatelet agents	85.3	85.4	84.6	86.1	85.0	85.7
ACE inhibitors or angiotensin-receptor II blockers	35.8	33.2	34.3	35.6	35.1	34.3
β-Blockers	51.5	49.9	51.1	50.9	51.3	50.3

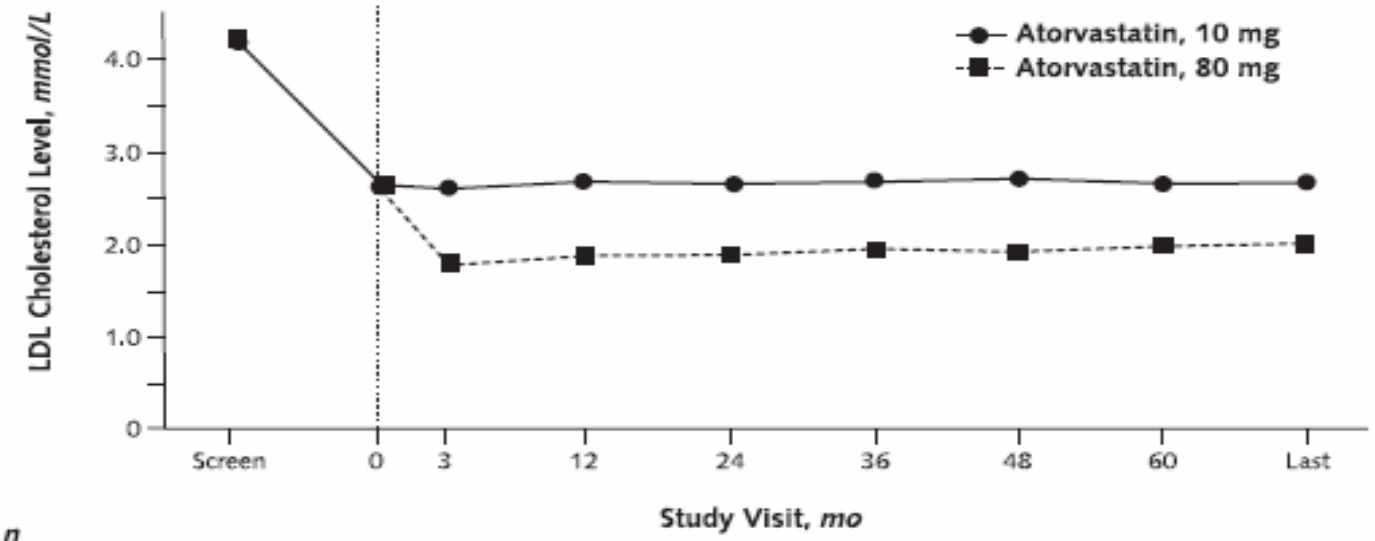
* ACE = angiotensin-converting enzyme; HDL = high-density lipoprotein; LDL = low-density lipoprotein.
† Calculated from the serum creatinine value by using the Modification of Diet in Renal Disease equation (13).

Figure 1. Mean low-density lipoprotein (*LDL*) cholesterol levels (*top*) and mean triglyceride levels (*bottom*) among patients 65 years of age or older.

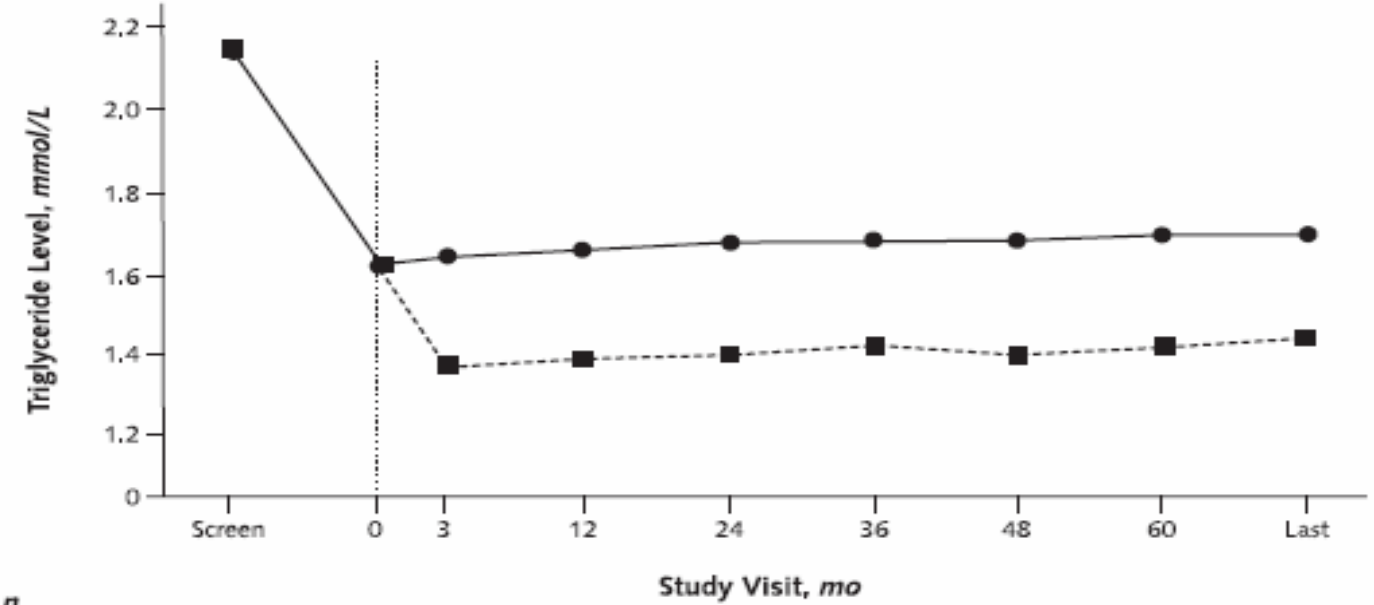


Patients, *n*									
Atorvastatin, 10 mg	1869	1871	1832	1773	1725	1648	1562	1334	1848
Atorvastatin, 80 mg	1936	1937	1885	1836	1770	1677	1604	1345	1910





Patients, *n*								
Atorvastatin, 10 mg	1869	1871	1832	1773	1725	1648	1562	1334	1848
Atorvastatin, 80 mg	1936	1937	1885	1836	1770	1677	1604	1345	1910



Patients, *n*								
Atorvastatin, 10 mg	1869	1871	1832	1774	1727	1648	1562	1335	1848
Atorvastatin, 80 mg	1936	1937	1885	1836	1771	1678	1604	1345	1910

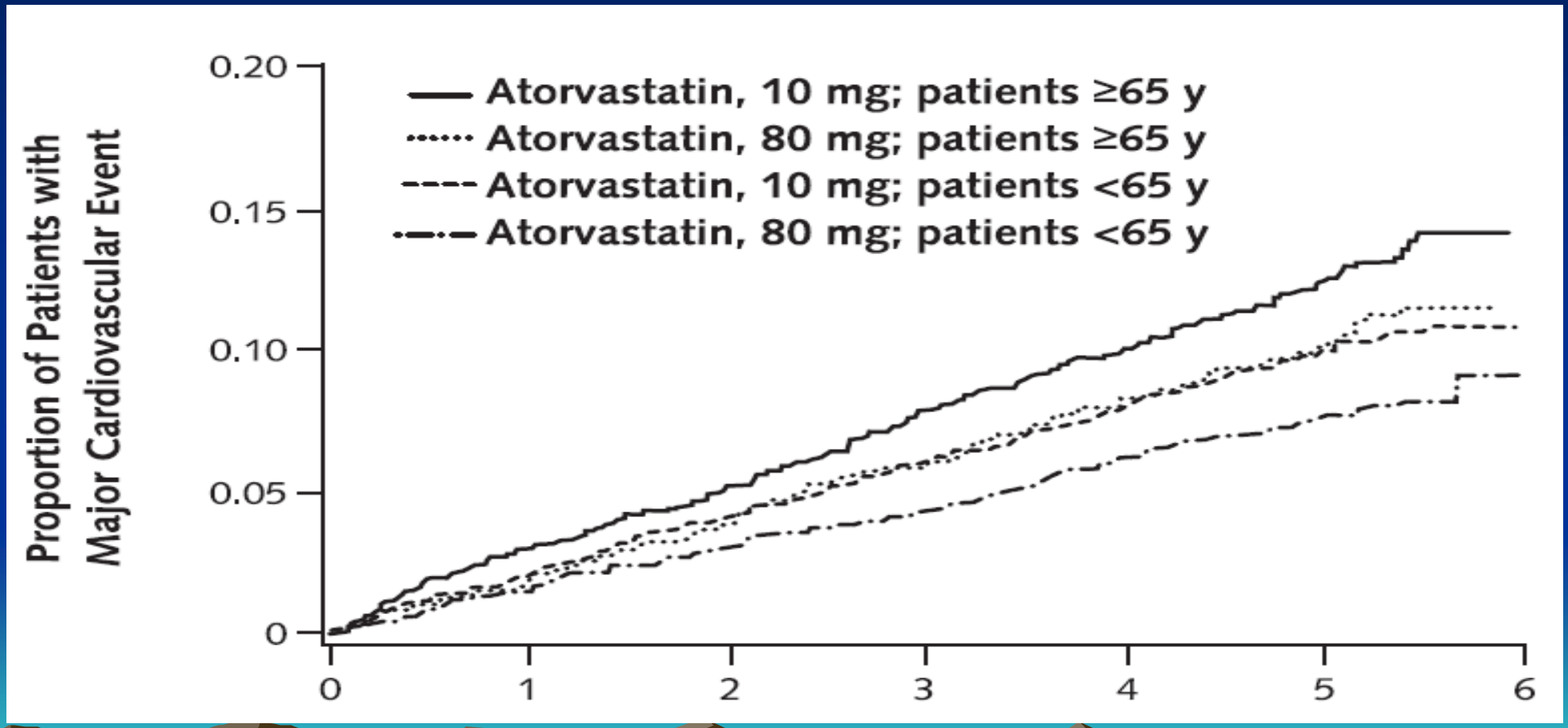
TNT:ΣΥΜΒΑΜΑΤΑ

Component	Atorvastatin, 10 mg (*n* = 1872), *n* (%)	Atorvastatin, 80 mg (*n* = 1937), *n* (%)	Hazard Ratio (95% CI)	*P* Value
Major cardiovascular event	235 (12.6)	199 (10.3)	0.81 (0.67–0.98)	0.032
Death due to CHD	62 (3.3)	58 (3.0)	0.91 (0.63–1.29)	0.59
Nonfatal non–procedure-related MI	114 (6.1)	93 (4.8)	0.79 (0.60–1.03)	0.084
Resuscitated cardiac arrest	9 (0.5)	11 (0.6)	1.19 (0.49–2.87)	0.70
Fatal or nonfatal stroke	82 (4.4)	67 (3.5)	0.79 (0.57–1.09)	0.158

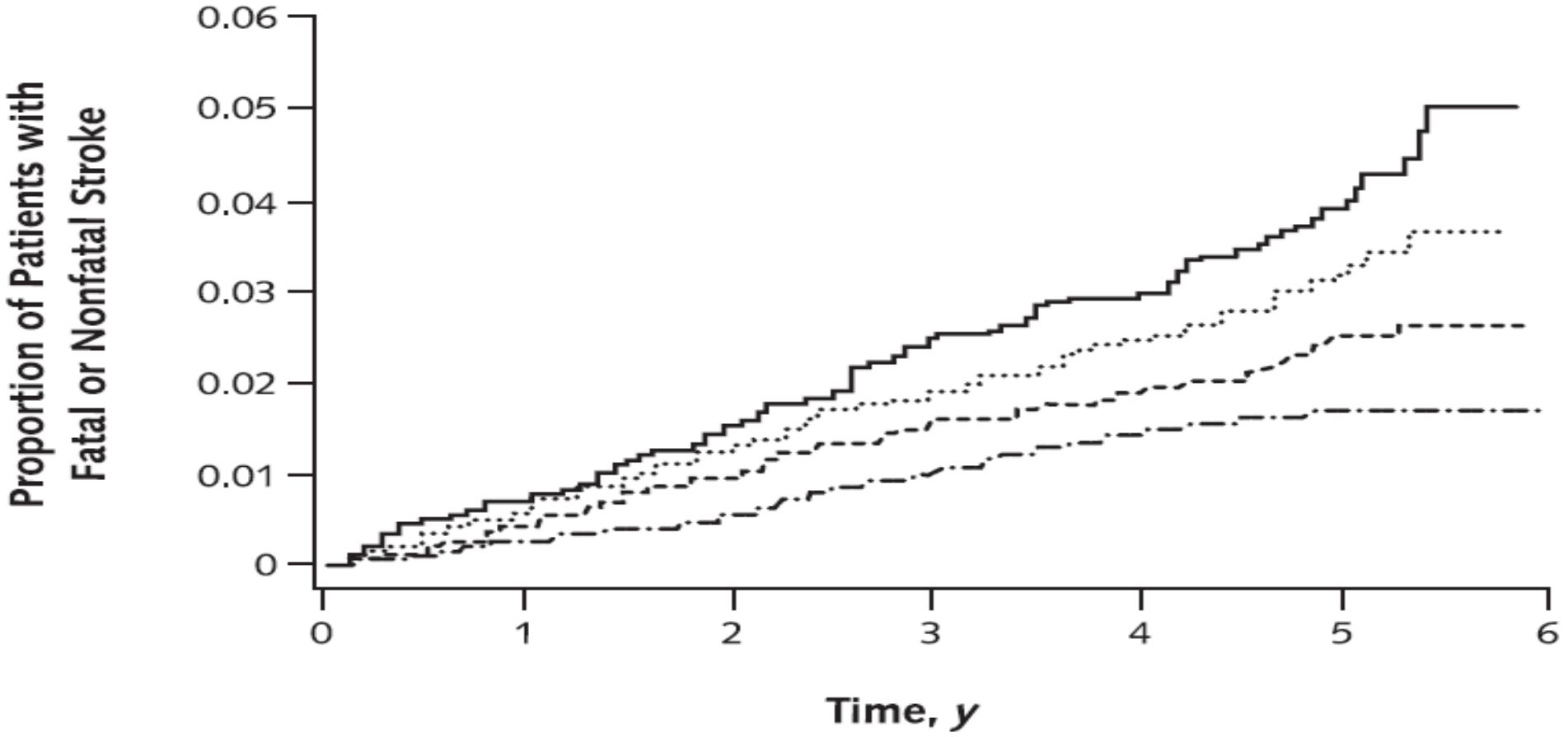
Table 2. Estimated Hazard Ratios for Individual Components of the Primary Outcome among Patients 65 Years of Age or Older*

Component	Atorvastatin, 10 mg (*n* = 1872), *n* (%)	Atorvastatin, 80 mg (*n* = 1937), *n* (%)	Hazard Ratio (95% CI)	*P* Value
Major cardiovascular event	235 (12.6)	199 (10.3)	0.81 (0.67–0.98)	0.032
Death due to CHD	62 (3.3)	58 (3.0)	0.91 (0.63–1.29)	0.59
Nonfatal non–procedure-related MI	114 (6.1)	93 (4.8)	0.79 (0.60–1.03)	0.084
Resuscitated cardiac arrest	9 (0.5)	11 (0.6)	1.19 (0.49–2.87)	0.70
Fatal or nonfatal stroke	82 (4.4)	67 (3.5)	0.79 (0.57–1.09)	0.158

TNT: ΜΕΙΖΟΝΑ ΚΑΡΔΙΑΓΓΕΙΑΚΑ ΣΥΜΒΑΜΑΤΑ

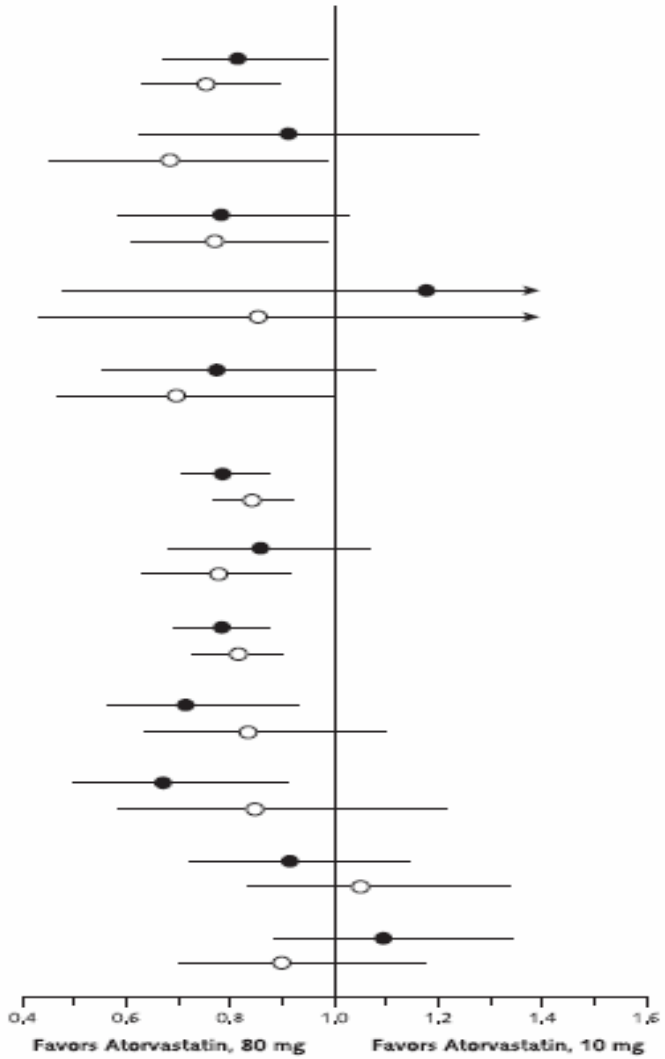


TNT: A.E.E.


Proportion of Patients with Fatal or Nonfatal Stroke
0.06
0.05
0.04
0.03
0.02
0.01
0
0
1
2
3
4
5
6
Time, y

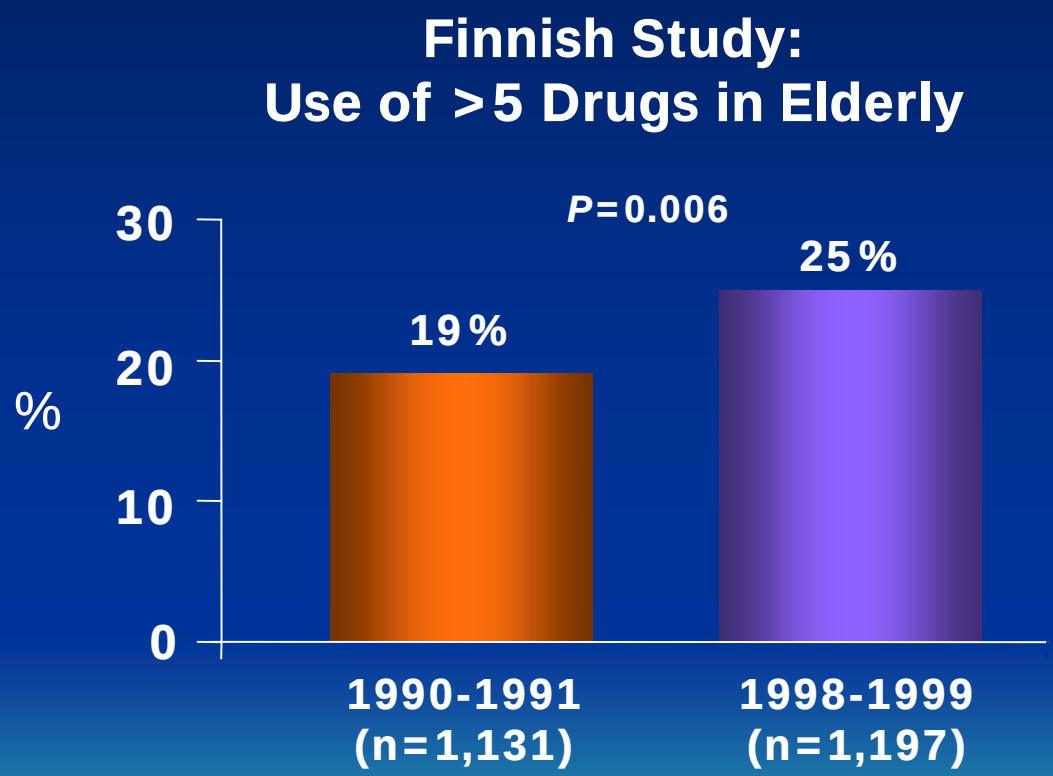
TNT: ΑΝΑΛΥΣΗ ΣΕ ΥΠΟΟΜΑΔΕΣ

Variable	Event Rate, %		Hazard Ratio (95% CI)	*P* Value*
	Atorvastatin, 10 mg	Atorvastatin, 80 mg		
Primary outcome				
Major CV event				0.58
Age ≥65 y	12.6	10.3		
Age <65 y	10.0	7.7		
Death due to CHD				0,27
Age ≥65 y	3.3	3.0		
Age <65 y	2.1	1.4		
Nonfatal non-PR MI				0.98
Age ≥65 y	6,1	4,8		
Age <65 y	6.2	4.9		
Resuscitated CA				0.55
Age ≥65 y	0,5	0,6		
Age <65 y	0,5	0,5		
Fatal or nonfatal stroke				0.60
Age ≥65 y	4.4	3.5		
Age <65 y	2.3	1.6		
Secondary outcomes				
Any CV event				0.67
Age ≥65 y	38.7	31.3		
Age <65 y	30,4	26.1		
Major coronary event				0,78
Age ≥65 y	8.8	7.4		
Age <65 y	8.1	6.3		
Any coronary event				0.81
Age ≥65 y	28,3	22,4		
Age <65 y	25.4	21.1		
Cerebrovascular event				0.81
Age ≥65 y	7.3	5,3		
Age <65 y	3,7	3,1		
Hospitalized for CHF				0.62
Age ≥65 y	5.4	3.6		
Age <65 y	2.0	1.7		
PAD				0,39
Age ≥65 y	7.9	7.1		
Age <65 y	4.3	4.5		
All-cause mortality				0.19
Age ≥65 y	8,5	9,1		
Age <65 y	3.9	3.5		



Polypharmacy and Aging

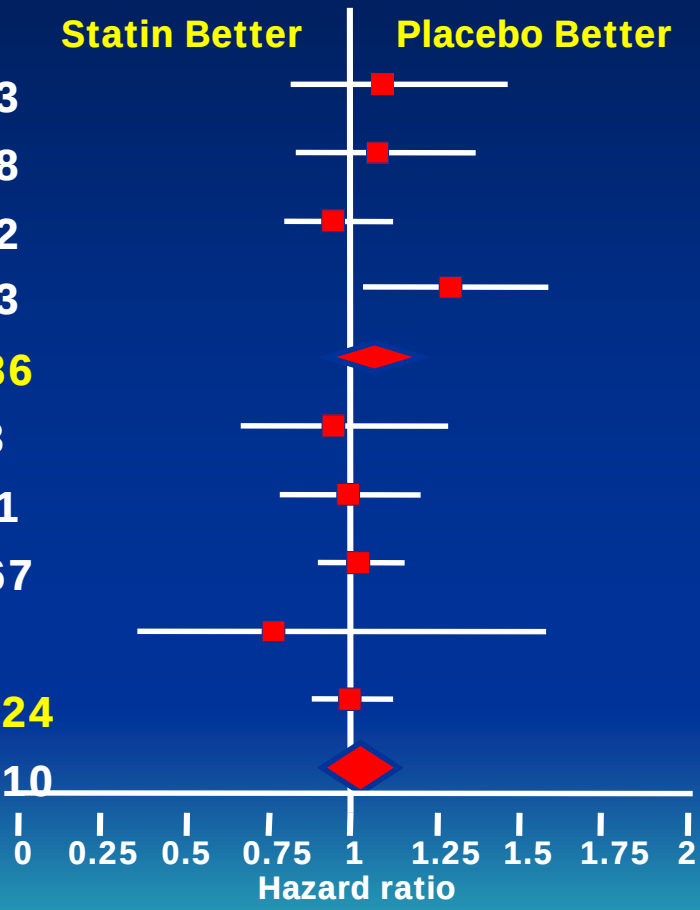
- 66% of elderly ≥65 years in US take prescription and OTC drugs
- People >65 years = 33% of all prescriptions
- Annual drug use by average elderly person:
  - 4-5 prescription drugs
  - 2 OTC drugs



The Merck Manual. 17th ed. 2004:chap 304.
Patel RB. *J Infus Nurs*. 2003;26:166-169.
Linjakumpu T et al. *J Clin Epidemiol*. 2002;55:809-817.

Meta-Analysis: Cancer Incidence From Major Statin Trials

Study (age)	Statin	Placebo
WOSCOPS (45–64)	116/3,302	106/3,293
CARE (21–75)*	172/2,081	161/2,078
LIPID (55–67)	379/4,512	399/4,502
PROSPER (70–82)*	245/2,891	199/2,913
All pravastatin studies	912/12,786	865/12,786
4S (35–70)	90/2,221	96/2,223
[illegible]	252/3,304	259/3,301
	814/10,269	803/10,267
	14/844	18/833
Other statin studies	1,170/16,638	1,176/16,624
All statin studies	2,082/29,424	2,041/29,410

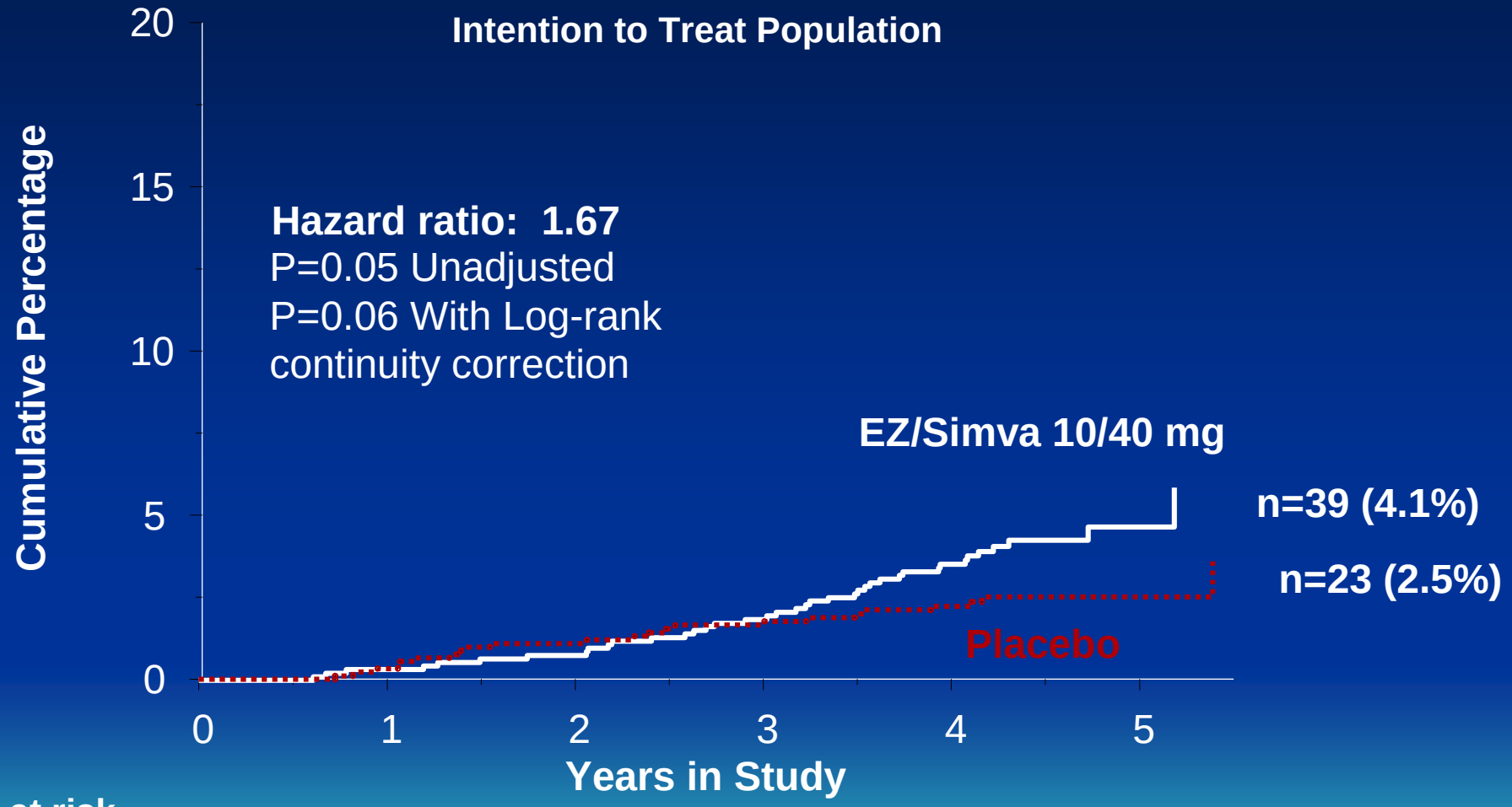


*There was a significant difference in cancer incidence in these trials

Shepherd J et al. *Lancet.* 2002;360:1623-1630.

Fatal Cancer

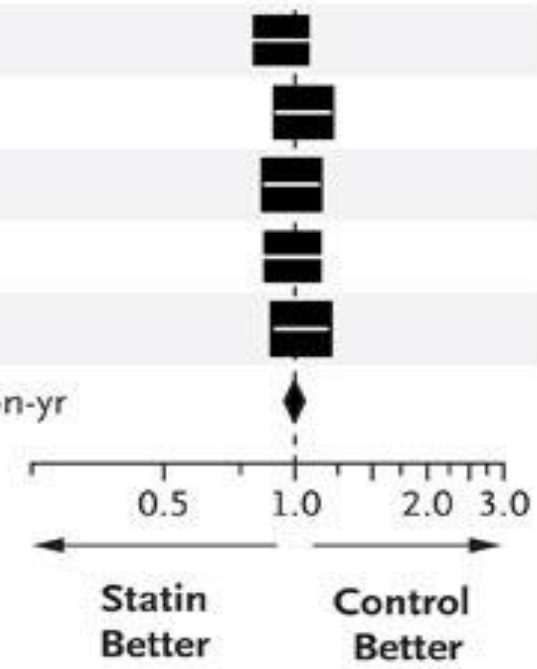
Intention to Treat Population



No. at risk					
EZ/Simva 10/40 mg	930	912	884	855	89
Placebo	916	890	865	835	94

Relative Risk of Onset of Cancer from the Cholesterol Treatment Trialists' (CTT) Meta-Analysis of Statin Trials, According to Year of Onset

Year of Onset	No. with Cancer Onset in Trials: Statin (N=45,054)	No. with Cancer Onset in Trials: Control (N=45,002)
0–1	488	535
>1–2	616	588
>2–3	582	588
>3–4	511	503
>4	613	590
All	2810/199,063 person-yr (1.4% per yr)	2804/197,680 person-yr (1.4% per yr)



Peto R et al. N Engl J Med 2008;359:1357-1366

The NEW ENGLAND JOURNAL of MEDICINE

Special Article

Analyses of Cancer Data from Three Ezetimibe Trials

Richard Peto, F.R.S., Jonathan Emberson, Ph.D., Martin Landray, Ph.D., Colin Baigent, B.M., B.Ch., Rory Collins, M.B., B.S., Robert Clare, M.S., and Robert Califf, M.D.

The NEW ENGLAND JOURNAL of MEDICINE

N Engl J Med
Volume 359(13):1357-1366
September 25, 2008

Background: **In the recently reported SEAS trial, the combination of ezetimibe/simvastatin (E/S) was associated with a significantly increased risk of cancer compared to placebo, causing widespread public concern.**

Objective: **We examined the rates of cancer adverse event reports filed with the US Food and Drug Administration (FDA) of patients on ezetimibe or E/S, & compared these to reports with other potent cholesterol lowering drugs.**

Methods: **We tabulated all adverse event reports listing "cancer" or "malignancy" filed with the FDA (7/2004-3/2008) of patients taking ezetimibe or E/S, and compared those to reports of patients taking simvastatin, atorvastatin or rosuvastatin. We calculated rates for such reports per million prescriptions. A secondary analysis examined cancer reports as a proportion of all reported adverse events for each medication.**

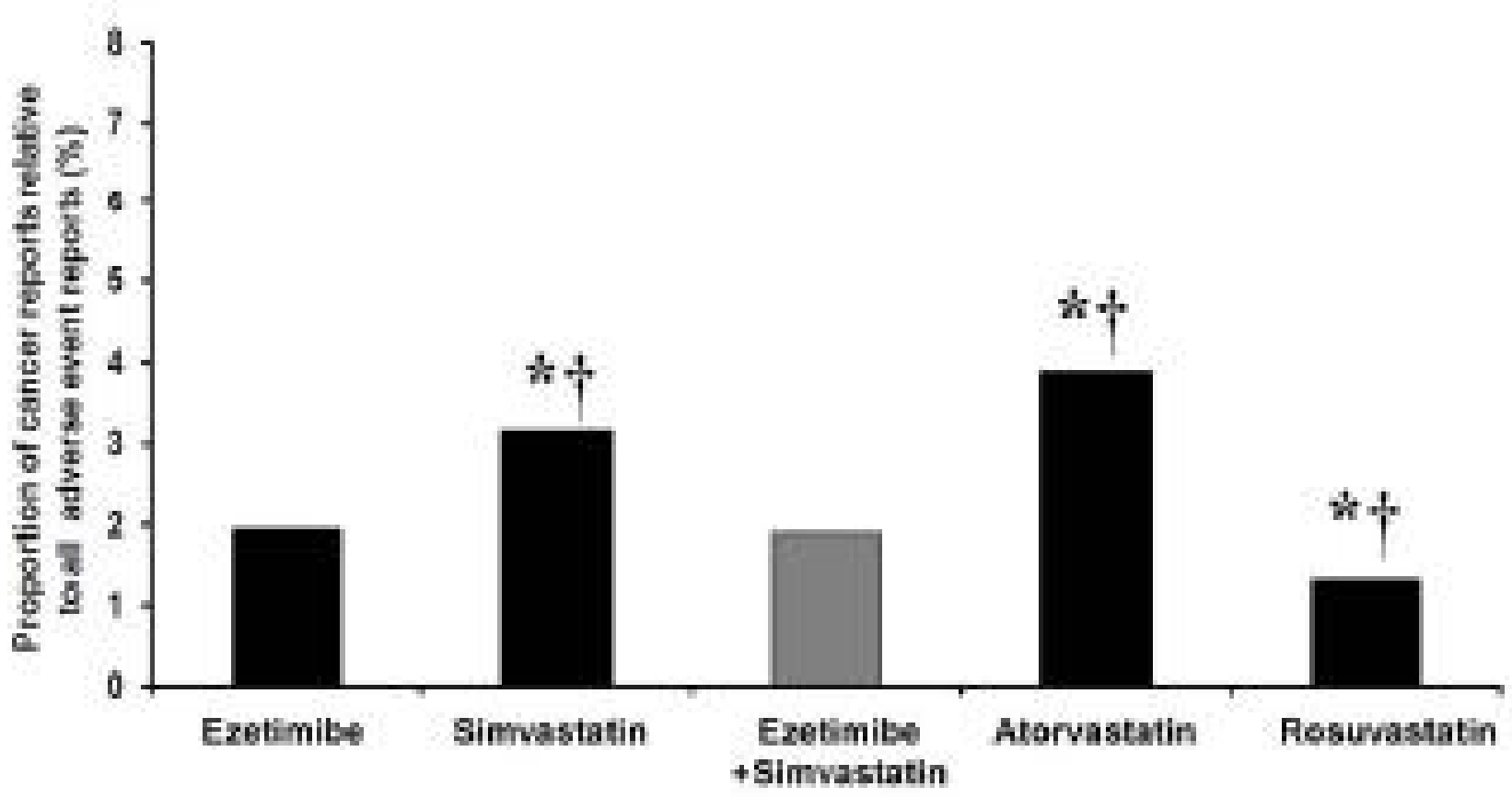
Results: **Prescriptions for all drugs totaled 559 million (approximately 52 and 55 million prescriptions of ezetimibe and E/S, respectively), and cancer adverse event reports totaled 2,334. There were 2.9 and 1.3 cancer-associated adverse event reports per million ezetimibe or E/S prescriptions, respectively, compared to a range of 3.1 to 5.1 per million prescriptions for the other drugs. Findings were similar when only reports listing the drug as "suspect" were considered. The proportions of reports listing cancer relative to all adverse event reports were 2.0 and 1.9% for ezetimibe and E/S, respectively, compared to a range of 1.3 to 3.9% for the other drugs.**

Table 1: Characteristics of cancer associated adverse event reports.

	Ezetimibe	Simvastatin	Ezetimibe/Simvastatin	Atorvastatin	Rosuvastatin
Total prescriptions (millions)	52.1	139.2	55.1	266.5	45.7
Total cancer adverse event reports	151	705	73	1264	141
Age	65 ± 11	67 ± 10	64 ± 11	66 ± 11	66 ± 11
Gender (% male)	43	54	49	52	54
Fatal outcome (%)	6	21	10	20	11
Cancer site (%)					
Breast	15	11	5	15	10
Lung	14	17	18	15	10
GI	20	22	16	16	23
Renal	9	7	15	8	11
Skin	11	11	11	8	7
Blood	16	21	21	19	28
Other	15	11	14	19	11

GI = gastrointestinal, also includes hepatobiliary neoplasms.

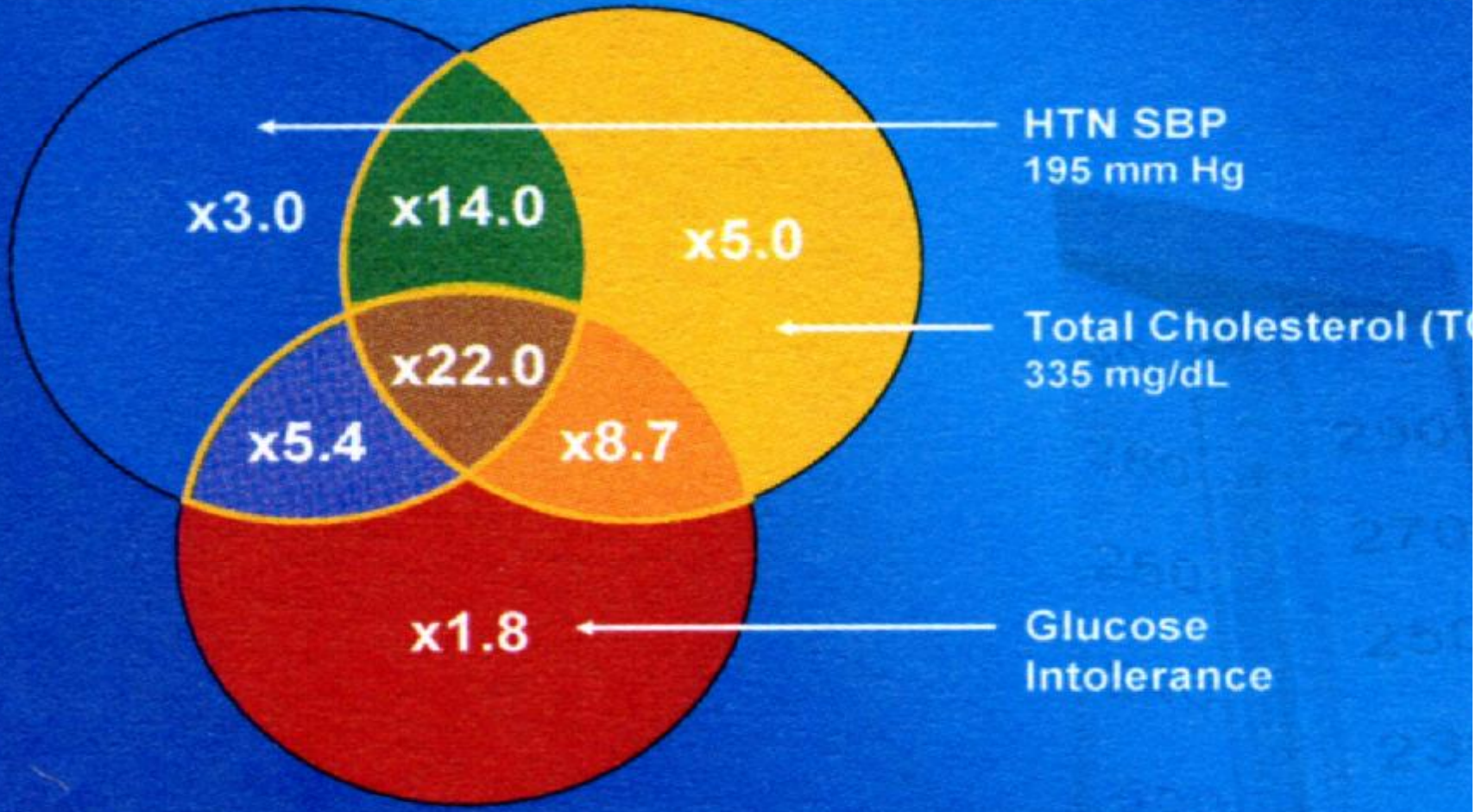
% αναφοράς καρκίνου στο σύνολο των Α.Ε.



Summary and Conclusions

- The prevalence of CAD increases with age in both men and women
- Older patients with CAD tend to have more severe disease than younger patients, and are more likely to present with atypical symptoms
- The benefits of aspirin, beta-blockers, ACE inhibitors, and statins appear to be similar in older and younger patients with chronic CAD

When Risk Factors Cluster, the Probability of Developing CVD Increases Dramatically



Note: Baseline risk for a nonsmoking male aged 40 years with a TC of 185 mg/dL, SBP 120 mm Hg, and no glucose intolerance. The probability of developing CVD is 15/1000 (1.5%) in 8 years.
Kannel WB In: *Hypertension: Physiopathology and Treatment*. 1997; Kannel WB. *Am J Hypertens*. 2000;13:3S-10S.

Μείωση Καρδιαγγειακού Κινδύνου στην Υπέρταση

1. Υγιεινός τρόπος ζωής
2. Συμμόρφωση
3. Πρώιμη εναρξη αγωγής (Time is ..Life, The earlier..the better)

Αντιϋπερτασική αγωγή

1. Επίτευξη στόχου ΑΠ (the Lower..the Better)
2. Επιλογή φαρμάκων/εξατομίκευση
3. Στόχος ο συνολικός καρδιαγγειακός κίνδυνος

Antonakoudis H,L Poulimenos,G Antonakoudis.CV risk reduction in hypertension. HIPPOKRATIA,2007

Υπέρταση και Υπερλιπιδαιμία

- 65 % των υπερτασικών έχουν και υπερλιπιδαιμία
- 10 +10 = 45

(10% BP plus 10% Lipids reduction leads to 45% CV risk reduction)

There is an independent and causal relationship (not simply association) between baseline lipids and hypertension

Halperin RO et al. *Hypertension* 2006; 47:45-50

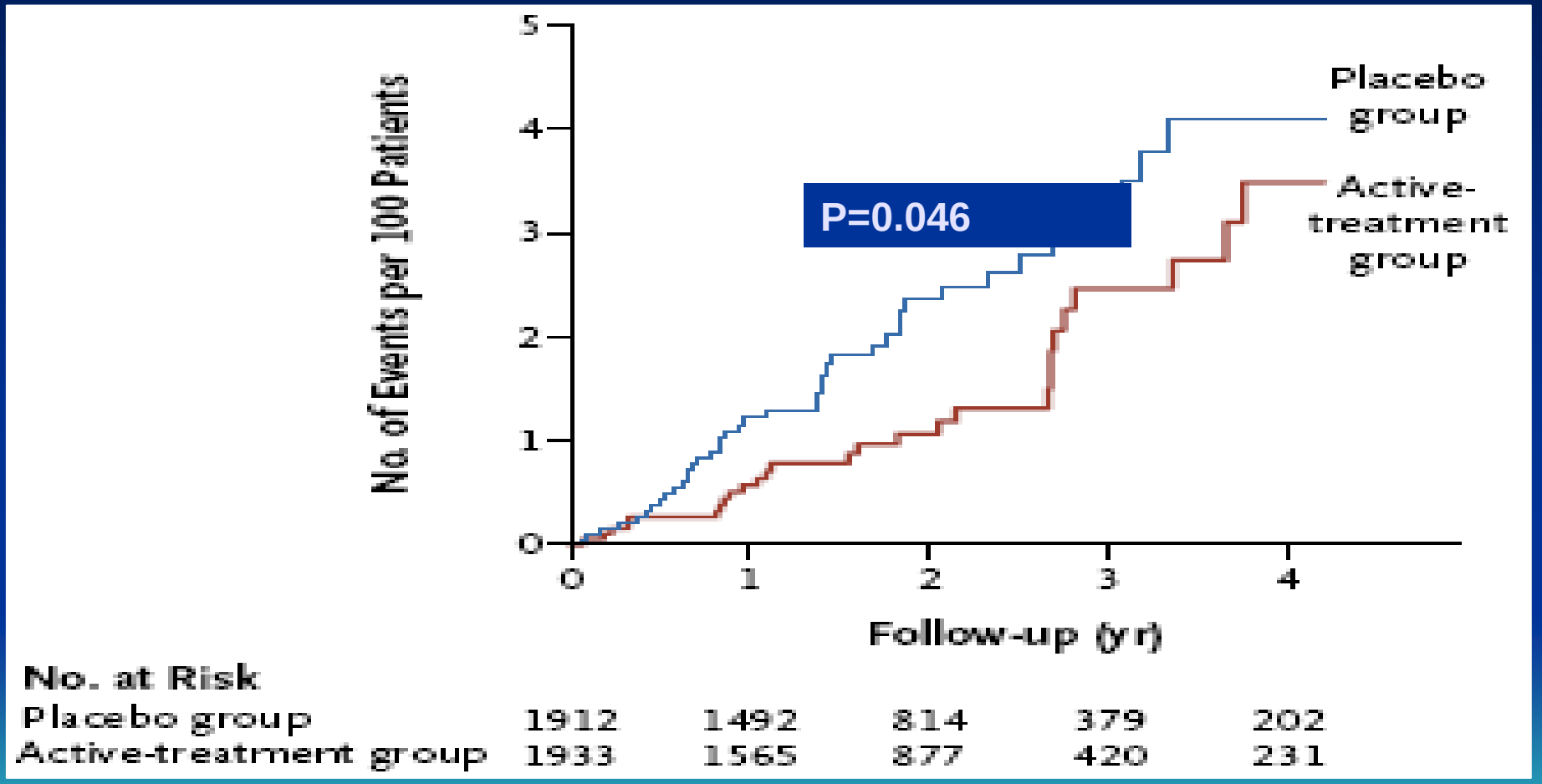
P Sever, 2006 - MacMahon, 2005

Υπέρταση στους ηλικιωμένους

- **Ο σημαντικότερος παράγων κινδύνου**
- >2/3 έχουν υπέρταση.
- Το χαμηλότερο ποσοστό σωστής ρύθμισης.
- Οι οδηγίες είναι ίδιες με νεότερα άτομα.
- Χρειάζεται προσοχή για πιθανές παρενέργειες

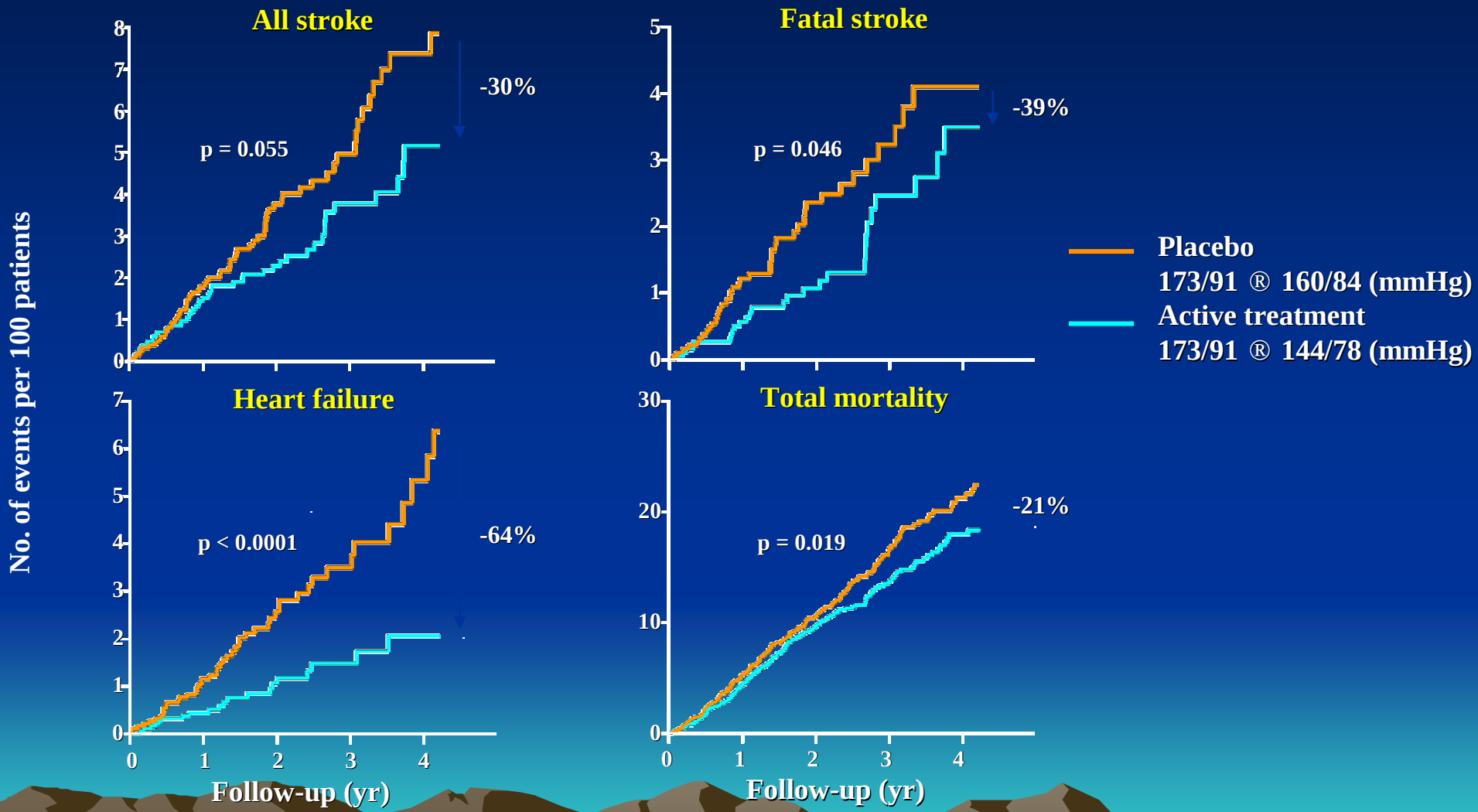
JNC VII Report 2003

Fatal Stroke (39% reduction)



No. at Risk					
Placebo group	1912	1492	814	379	202
Active-treatment group	1933	1565	877	420	231

Incidence of Morbidity / Mortality in HYVET



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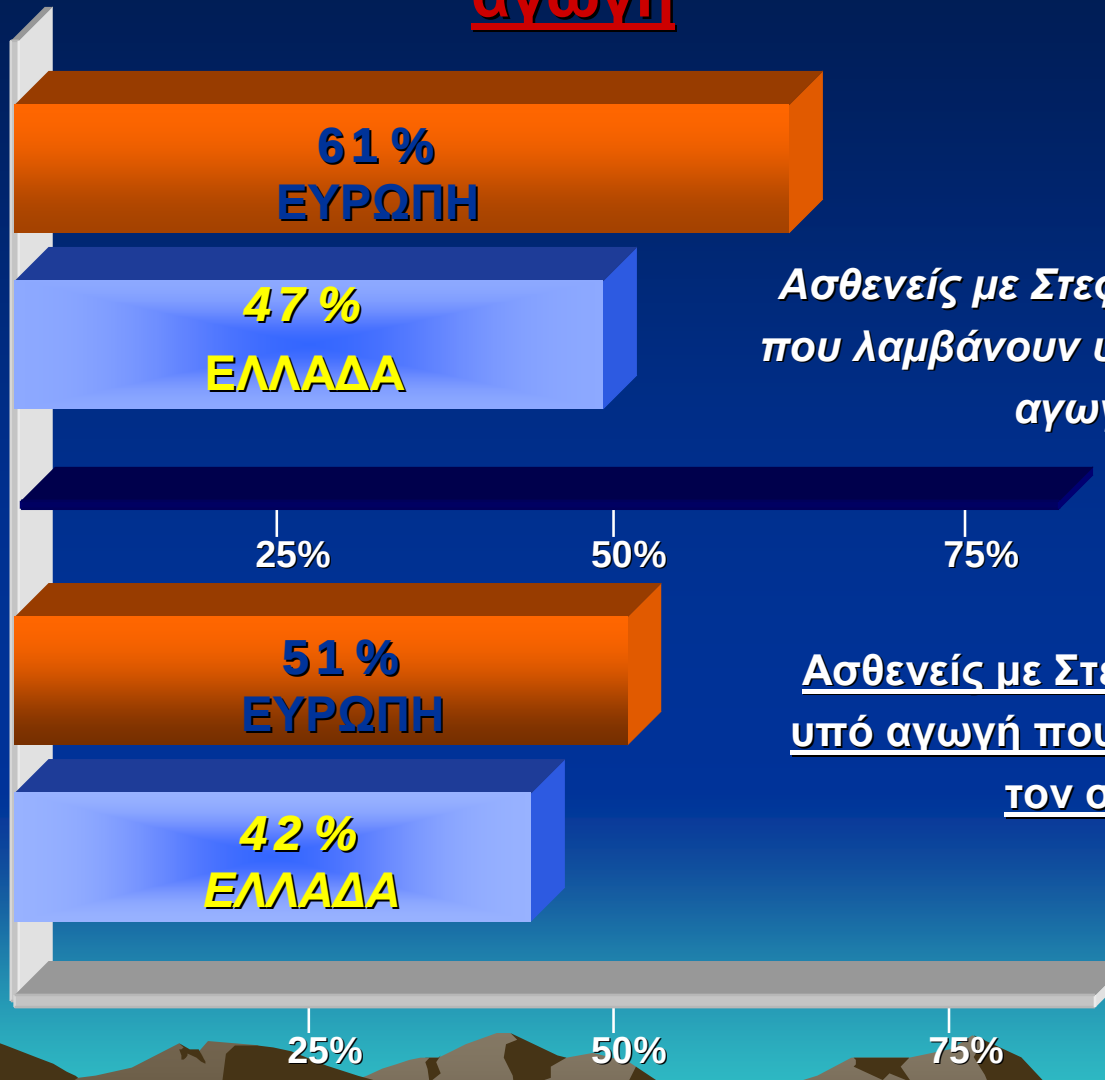
- Οι οδηγίες είναι ίδιες με νεότερα άτομα.
- Χρειάζεται προσοχή για πιθανές παρενέργειες

JNC VII Report 2003

EUROASPIRE II

Υπάρχουν περιθώρια βελτίωσης στην υπολιπιδαιμική αγωγή



Ασθενείς με Στεφανιαία Νόσο που λαμβάνουν υπολιπιδαιμική αγωγή

Ασθενείς με Στεφανιαία Νόσο υπό αγωγή που επιτυγχάνουν τον στόχο

European Heart journal (2001) 22, 554-572

Case Study: Elderly Female

Lab results

- TC: 257 mg/dL
- LDL-C: 170 mg/dL
- HDL-C: 55 mg/dL
- Non–HDL-C: 202 mg/dL
- TG: 160 mg/dL
- FBG: 120 mg/dL
- Creatinine: 1.5 mg/dL
- Thyroid function: normal
- EKG: left ventricular hypertrophy (LVH)

ATP III Framingham Risk Scoring: Assessing CHD Risk in Women

Step 1: Age

Years	Points
20-34	-7
35-39	-3
40-44	0
45-49	3
50-54	6
55-59	8
60-64	10
65-69	12
70-74	14
75-79	16

Step 2: Total Cholesterol

TC (mg/dL)	Points at Age 20-39	Points at Age 40-49	Points at Age 50-59	Points at Age 60-69	Points at Age 70-79
<160	0	0	0	0	0
160-199	4	3	2	1	1
200-239	8	6	4	2	1
240-279	11	8	5	3	2
³280	13	10	7	4	2

Step 3: HDL Cholesterol

HDL-C (mg/dL)	Points
³60	-1
50-59	0
40-49	1
<40	2

Step 4: Systolic Blood Pressure

Systolic BP (mm Hg)	Points if Untreated	Points if Treated
<120	0	0
120-129	1	3
130-139	2	4
140-159	3	5
³160	4	6

Step 5: Smoking Status

	Points at Age 20-39	Points at Age 40-49	Points at Age 50-59	Points at Age 60-69	Points at Age 70-79
Nonsmoker	0	0	0	0	0
Smoker	9	7	4	2	1

Step 6: Adding Up the Points

Age	16
Total cholesterol	2
HDL cholesterol	0
Systolic blood pressure	5
Smoking status	0
Point total	23

Step 7: CHD Risk

Point Total	10-Year Risk	Point Total	10-Year Risk
<9	<1%	17	5%
9	1%	18	6%
10	1%	19	8%
11	1%	20	11%
12	1%	21	14%
13	2%	22	17%
14	2%	23	22%
15	3%	24	27%
16	4%	³25	³30%

Note: Risk estimates were derived from the experience of the Framingham Heart Study, a predominantly Caucasian population in Massachusetts, USA

ATP III. *JAMA*. 2001;285:2486-2497.

ATP III Considerations for Older Adults

- High LDL-C and low HDL-C levels carry predictive value for CHD
- Noninvasive testing warrants consideration
- First-line therapy: TLC
  - For higher risk, consider LDL-C–lowering drug
- Secondary-prevention trials show significant risk reduction in older adults treated with statins

ATP III. *JAMA*. 2001;285:2486-2497.