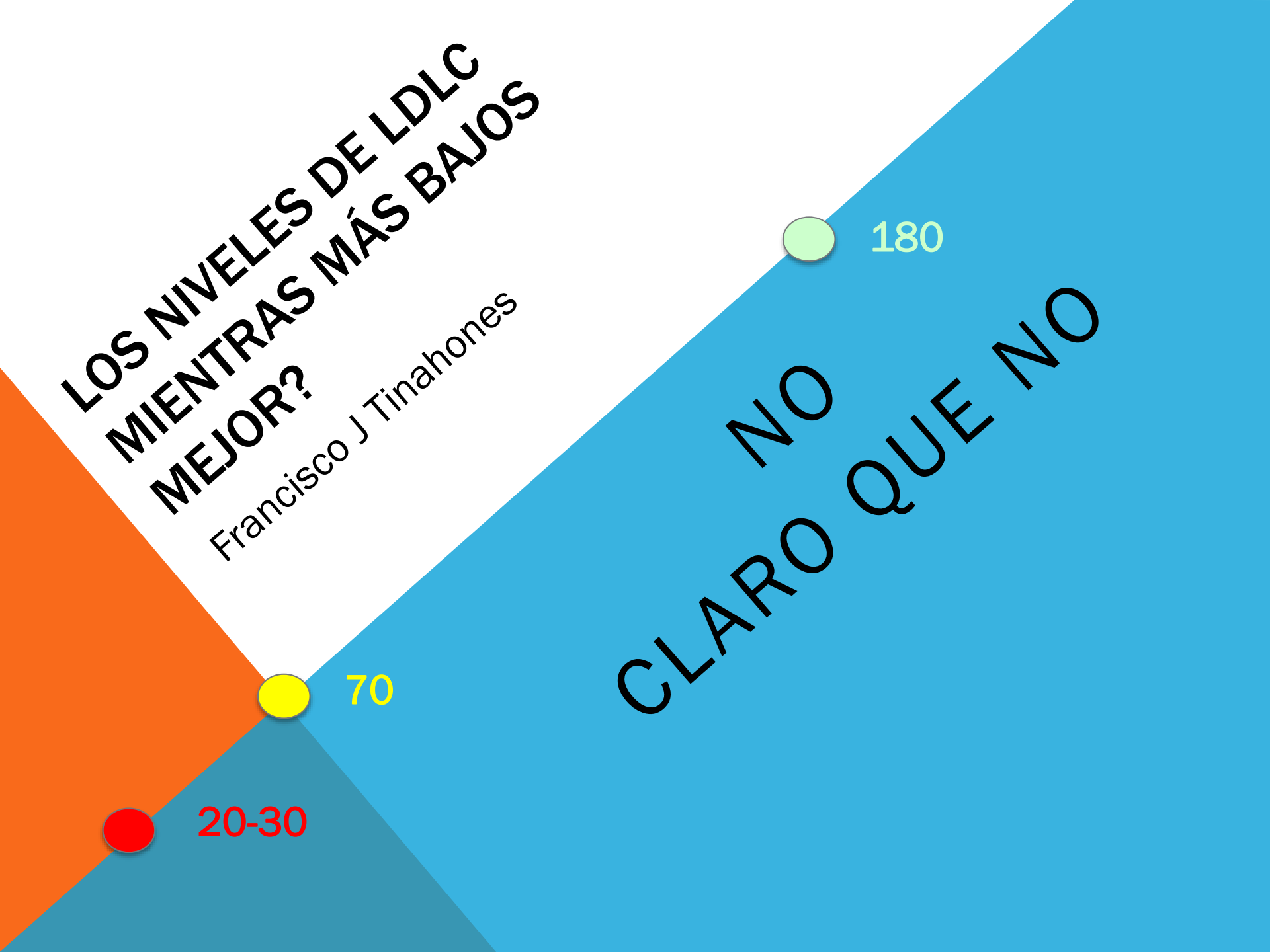
LOS NIVELES DE LDLC MIENTRAS MÁS BAJOS MEJOR?

Francisco J Tinahones



¿ CREEIS QUE EL COLESTEROL QUE VEHICULA LA LDL EN EL PLASMA TIENE ALGUNA FUNCIÓN PARA LA FISIOLOGÍA DE LAS CÉLULAS?

A) SI

B) NO

C) SOLO PARA LAS ADRENALES

D) YO QUE SE

¿ OS SENTÍS COMODOS CON UN PACIENTES EN TRATAMIENTO HIPOLIPEMIANTE QUE TIENE LA LDL ENTRE 10-20 MG/DL?

A) SI

B) NO

C) SOLO SI ESTAN CON ESTATINAS

C) NO SABE, NO CONTESTA

¿ QUE EFECTO SECUNDARIO CREES QUE PUEDE ESTAR ASOCIADO A NIVELES MUY MUY BAJOS DE COLESTEROL?

A) DEPRESION

B) CANCER

C) ALTERACIONES NEUROCOGNITIVAS

D) NINGUNA

¿EXISTE ALGUN MAMIFERO EN LA NATURALEZA QUE TENGA 20 MG/DL DE LDL COLESTEROL?

A) ELEFANTE

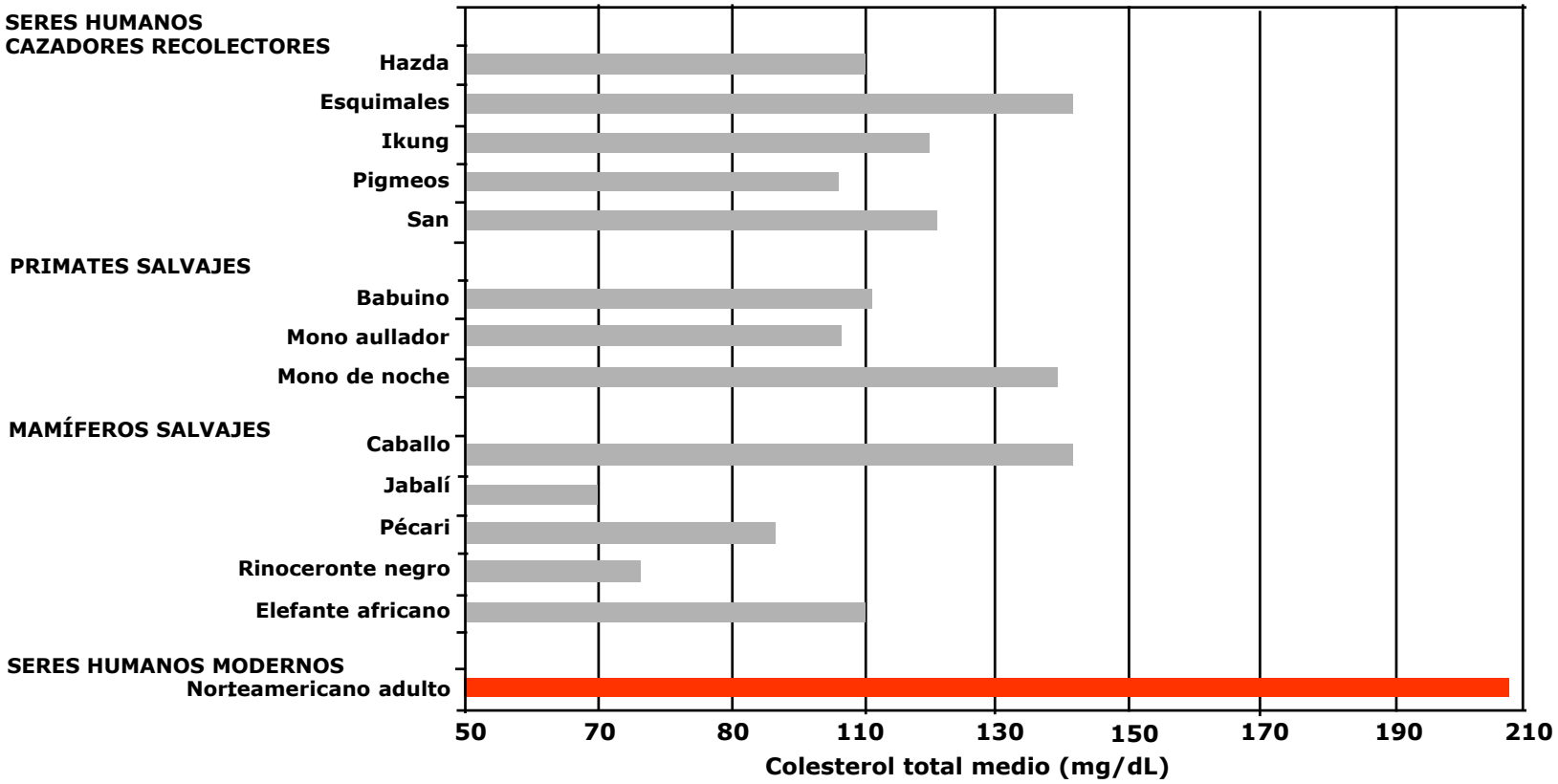
B) RINOCERONTE

C) TORTUGA

D) NINGUNO DE ESTOS

FACIL DEFENSA

Concentraciones de Colesterol Total en diversas especies



Las cifras de C-Total en cazadores-recolectores, primates salvajes y mamíferos salvajes, oscilan generalmente entre 110 y 140 mg/dL, que corresponde a concentraciones de c-LDL de aproximadamente 60 a 70 mg/dL

Tomado de O'Keefe JH, et al. Optimal low-density lipoprotein is 50 to 70 mg/dL. Lower is better and physiologically normal. *Journal of the American College of Cardiology* 2004;43(11):2142-6.

Animales mas longevos

- Tortuga verde: 100-250 años

TABLA II

VALORES BIOQUÍMICOS EN PLASMA SANGUÍNEO DE LA TORTUGA VERDE (*Chelonia mydas*), SUBADULTOS Y ADULTOS / BIOCHEMICAL VALUES IN BLOOD PLASMA FROM SUBADULTS AND ADULTS GREEN TURTLES (*Chelonia mydas*)

Variables	Subadultos (n = 16)			Adultos (n = 12)		
	Media ± DS		Min.-Máx.	Media ± DS		Min.-Máx.
Proteínas totales (g/dL)	4,45	0,64	3,41-6,01	4,38	0,77	3,47-5,83
Albúmina (g/dL)	1,52	0,20	1,19-1,81	1,49	0,28	1,11-2,02
Fosfatasa alcalina (U/L)	115,69	32,62	55,31- 59,57	118,26	35,88	72,34-189,36
Urea (mg/dL)	24,92	13,73	10,97-71,95	29,92	21,05	12,80-93,29
Creatinina (mg/dL)	0,15*	0,11	0,03-0,28	0,21*	0,19	0,07-0,42
Ácido Úrico (mg/dL)	3,43	1,47	0,72-6,00	3,47	1,34	1,27-6,45
Calcio (mg/dL)	7,98	2,86	4,24-14,82	8,40	2,23	5,16-13,81
Fósforo (mg/dL)	4,93	1,12	3,03-7,12	5,23	1,41	2,57-7,27
Colesterol (mg/dL)	155,00*	50,77	68,38-292,90	225,91*	86,87	123,87-393,54
Triglicéridos (mg/dL)	29,32	27,51	8,48-99,30	34,49	29,82	10,90-118,78
Glucosa (mg/dL)	133,64	29,77	76,16-183,76	122,64	33,52	71,49-181,15
Hierro (µg/dL)	45,04				23,69	5,96-56,20
Sodio (meq/L)	196,46				14,18	165,20-218,34
Potasio (meq/L)	4,68	0,79	3,50-6,51	4,88	0,64	4,20-6,28
Magnesio (mg/dL)	5,50	1,34	3,51-8,02	4,70	1,34	2,81-7,27
Zinc (mg/L)	1,89	0,73	0,43-2,98	1,90	0,97	0,86-4,58

COLESTEROL 225 MG/DL

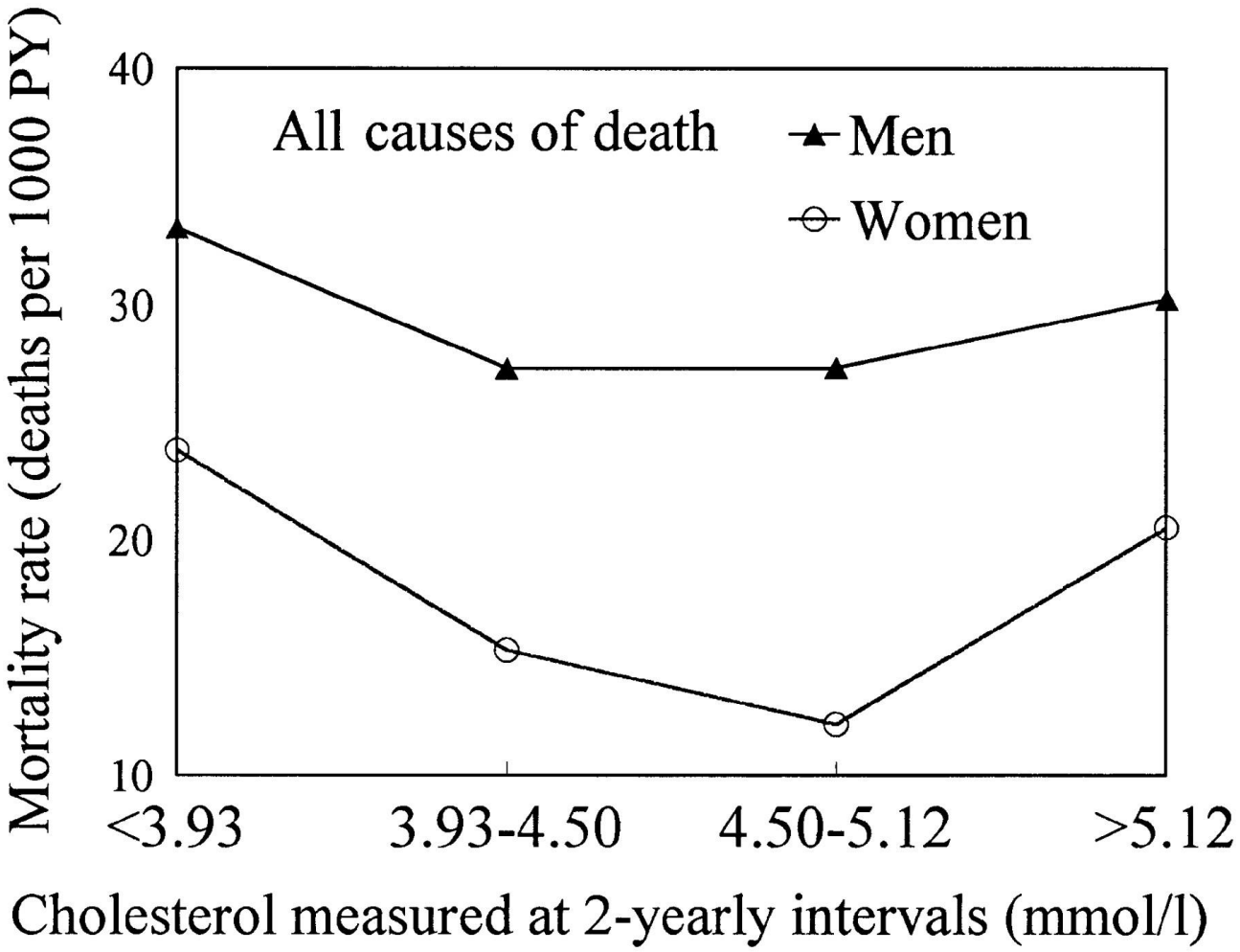
* Indica diferencias significativas según la prueba de Mann-Whitney.

Valores bioquimicos en sangre de la tortuga verde (Chelonia mydas) presentes en la Alta Guajira, Venezuela
Author(s): Alfredo J. Montilla F., Jim L. Hernandez R., Alfonso R. Bravo H., Vicente J. Vera M., and Johan F. Mesa M. .
Source: Revista Científica de la Facultad de Ciencias Veterinarias. Valores bioquimicos en sangre de la tortuga verde (Chelonia mydas) presentes en la Alta Guajira, Venezuela

ARGUMENTOS

- **PACIENTES CON NIVELES MUY BAJOS DE COLESTEROL**
- COLESTEROL Y ALTERACIONES PSICOLOGICAS
- COLESTEROL Y CANCER

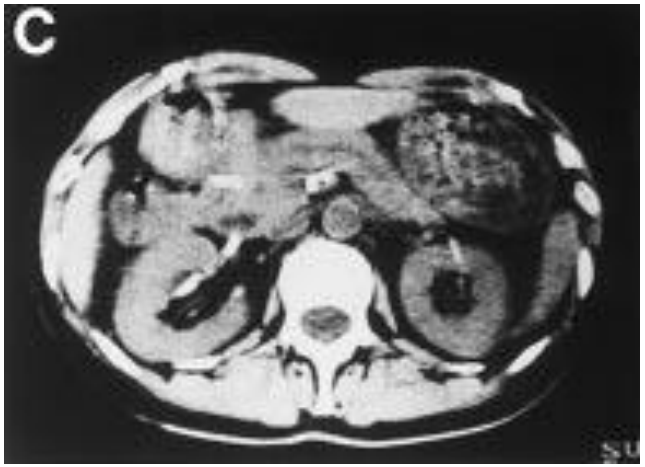
Age-standardized all-cause mortality rates by sex and cholesterol quartile measured at 2-year intervals.

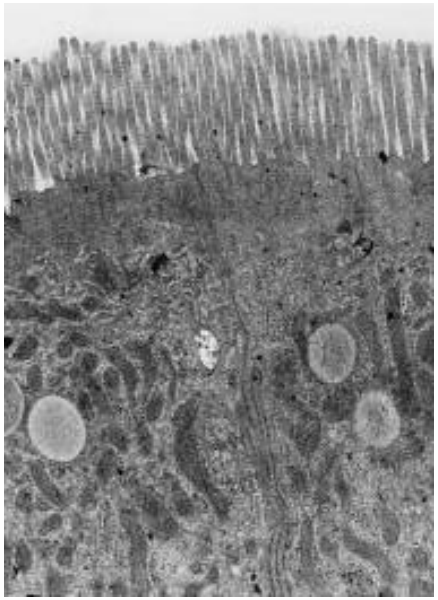


Anne Fagot-Campagna et al. Circulation. 1997;96:1408-1415

American Heart Association.

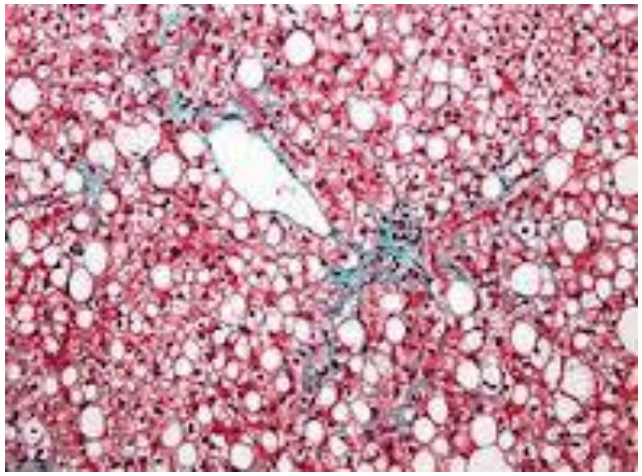
Deficit de APOB

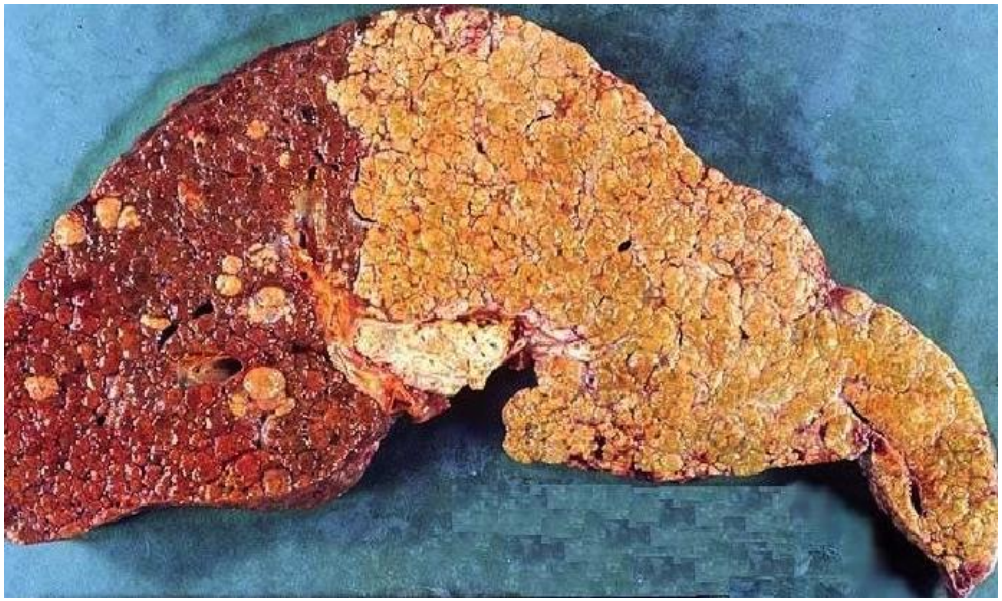




- Calcificación aterial
- Distensión abdominal y esteatorrea.
- Diabetes mellitus Tipo 2 con nefropatia

Arterioscler Thromb Vasc Biol. 1998;18:1330-1334.)





- **Deficit de APOB**
  - Hígado Graso
  - Cirrosis
  - Hepatocarcinoma

Arterioscler Thromb Vasc Biol. 2013;33:2021-2025

Homozygous familial hypobetalipoproteinemia: Two novel mutations in the splicing sites of apolipoprotein B gene and review of the literature

Atherosclerosis 239 (2015) 209–217

- Abdominal distension and steatorrhoea
- Truncal hypotonia
- Retinal degeneration,
- Cerebellar dysfunction
- Hepatic steatosis and elevated serum transaminase levels.
- Cirrhosis or liver carcinoma
- Ptosis
- Ophthalmoplegia

Mental Retardation and Ataxia Due to Normotriglyceridemic Hypobetalipoproteinemia

Vivienne M. Homer, PhD,[1] Peter M. George, FRCPA,[1]
Stephen du Toit, BSc Hons.MMED,[2]
James S. Davidson, PhD, FRCPath[3]
and Callum J. Wilson, FRACP[4]

Ann Neurol 2005;58:160–163

Molecular Psychiatry (2007) 12, 258–263

www.nature.com/mp

ORIGINAL ARTICLE

Violent behavior associated with hypocholesterolemia due to a novel *APOB* gene mutation


Eso es por la ausencia de ApoB, no por LDLbajo
SAMSUNG
Dr. Javier Escalada San Martín
Dpto. de Endocrinología y Nutrición
CLÍNICA UNIVERSIDAD DE NAVARRA

ARGUMENTOS

- PACIENTES CON NIVELES MUY BAJOS DE COLESTEROL EVIDENCIA.
- **COLESTEROL Y ALTERACIONES PSICOLOGICAS**
- COLESTEROL Y CANCER

Incremento del riesgo de suicidio en sujetos con niveles bajos de colesterol (antes de las estatinas)

Table 1 Relative risks (95% confidence interval) of suicide among 6393 men by average serum cholesterol concentration and change in cholesterol concentration

	No of subjects	No of suicides	Adjusted relative risk (95% confidence interval)*	P value
Average serum cholesterol concentration (mmol/l)+				
<4.78	827	10	3.16 (1.38 to 7.22)	0.007
4.78-6.21	3600	13	1.00	
>6.21	1966	9	1.28 (0.55 to 3.01)	0.56
Change in serum cholesterol concentration (mmol/l a year)++				
Decline >0.13	1143	11	2.17 (0.97 to 4.84)	0.056
Change </=0.13	2795	13	1.00	
Increase >0.13	2455	8	0.72 (0.30 to 1.72)	0.46

BMJ 1996;313:64951

Cholesterol and Violence: Is There a Connection?
Beatrice A. Golomb, MD, PhD

Table 3. Suicide Attempts and Violence in Patients with Low Cholesterol Levels Compared with Patients with High Cholesterol Levels

Study (Reference)	Patients, *n*	Sex	Cholesterol Level		Type of Patient	Suicide or Violence Measure	Relative Risk for Parasuicide or Violence
			Low	High			
Golier et al. (34)	343	Female	Low quartile	Rest	Psychiatric inpatients	Medically serious suicide attempt*	NS†
Golier et al. (34)	307	Male	Low quartile	Rest	Psychiatric inpatients	Medically serious suicide attempt*	2.22‡
Sullivan et al. (35)	90	Male and female	Low quartile	High quartile	Outpatients with depression	Suicide ideation or attempt	5.14§
Spitz et al. (36) and Hillbrand et al. (37)	106	Male	<200 mg/dL‖	≥200 mg/dL‖	Violent criminals	Number of aggressive incidents in 2 years	3.3¶

Intentos de suicidio o violencia en pacientes psiquiátricos.
El cuartil más bajo de LDLc se asoció en la mayoria de los estudios a incrementos del riesgo en 2 y 5 veces.

Ann Intern Med. 1998;128:478-487

Cholesterol and Violence: Is There a Connection?
Beatrice A. Golomb, MD, PhD

Table 1. Association of Violent Death and Low Cholesterol Level in Cohort Studies

Study (Reference)	Violent Deaths, *n**	Low Cholesterol Level†	High Cholesterol Level†	Covariates	Relative Risk for Violent Death in the Low-Cholesterol Group Compared with the High-Cholesterol Group
Jacobs et al. (16)‡	~3800	<160 mg/dL	160–190 mg/dL	Age, smoking, blood pressure, basal metabolic index, alcohol use	1.5§
Neaton et al. (17)	1277	<160 mg/dL	≥160 mg/dL	Age, smoking, blood pressure, race, socioeconomic status‖, season	1.3¶
Lindberg et al. (18)	376	<204 mg/dL	>294 mg/dL	Age	2.8**
Vartiainen et al. (19)	193	1 mmol/L change		Age, smoking, blood pressure, alcohol use	1.0
Iribarren et al. (20)	75	1 SD change		Age, blood pressure, intake of dietary cholesterol, blood glucose level, alcohol use	1.1
Pekkanen et al. (21)	47	<234 mg/dL	≥234 mg/dL	Age, smoking, blood pressure, socioeconomic status‖, basal metabolic index	1.2
Farchi et al. (22)	35	1 mg/dL change		Age, smoking, blood pressure, FEV_1, arm circumference	~1.0††
Zureik et al. (23)‡‡	32	<184 mg/dL	184–239 mg/dL	Age, mean corpuscular volume§§, smoking	3.2§
Chen et al. (24)	17	≤136 mg/dL	≥179 mg/dL	Age, sex, blood pressure, smoking, alcohol use	6.7¶

Muertes violentas y niveles de LDLc en estudios de cohortes
En la mayoría de los estudios se incremento el riesgo en los pacientes con niveles más bajos entre 1,3-6,7

Ann Intern Med. 1998;128:478-487

Cholesterol and Violence: Is There a Connection? Beatrice A. Golomb, MD, PhD

Table 4. Meta-Analyses of Randomized Trials in Humans: Violent Death in Persons Who Received Cholesterol-Lowering Treatment Compared with Controls

Study (Reference)	Intervention	Sex	Violent Deaths, *n*	Odds Ratio
Muldoon et al. (42)	Primary prevention	Male	105	1.76*
Cummings and Psaty (43)	Primary prevention	Male	115	1.42
Davey Smith and Pekkanen (44)†	Primary prevention	Male	64	1.75‡
Davey Smith and Pekkanen (44)§	Primary prevention	Male	70	1.20
Muldoon et al. (45)	Primary and secondary prevention	Male	150	1.55*
Ravnskov (46)	Primary and secondary prevention	Male and female	Not stated	1.55‡
Cummings and Psaty (43)	Primary and secondary prevention	Male and female	179	1.24
Law et al. (25)	Primary and secondary prevention	Male and female	184	1.17

Ensayos randomizados con terapías hipolipemiantes y riesgo de muerte violentas

En la mayoría de los estudios se incremento en riesgo en los pacientes con con terapias hipolipemiantes entre 1,1-1,7

Ann Intern Med. 1998;128:478-487

Se argumentaban explicaciones

"Low membrane cholesterol decreases the number of serotonin receptors. Since membrane cholesterol exchanges freely with cholesterol in the surrounding medium, a lowered serum cholesterol concentration may contribute to a decrease in brain serotonin, with poorer suppression of aggressive behaviour"

Br J Psychiatry. 1993 Jun;162:818-25.

Niveles de colesterol y depresión

	Serum cholesterol[2] (range of percentile)	Men (N=4115) Moderate, n (%)	Severe, n (%)	P[3]
HDL-C	Lower quarter (<25%)	166 (17.62)	17 (1.35)	0.18
	Intermedia (25–74%)	314 (13.96)	37 (1.58)	
	Upper quarter (≥75%)	196 (16.87)	17 (1.24)	
LDL-C[4]	Lower quarter (<25%)	80 (16.58)	12 (2.36)	0.01
	Intermedia (25–74%)	151 (14.05)	10 (0.51)	
	Upper quarter (≥75%)	65 (11.50)	8 (1.26)	
TCL-C	Lower quarter (<25%)	189 (15.74)	28 (2.09)	0.09
	Intermedia (25–74%)	316 (14.52)	27 (0.93)	
	Upper quarter (≥75%)	171 (17.42)	16 (1.72)	

Journal of Affective Disorders 135 (2011) 115–121

Descenso de los niveles de colesterol y capacidad cognitiva

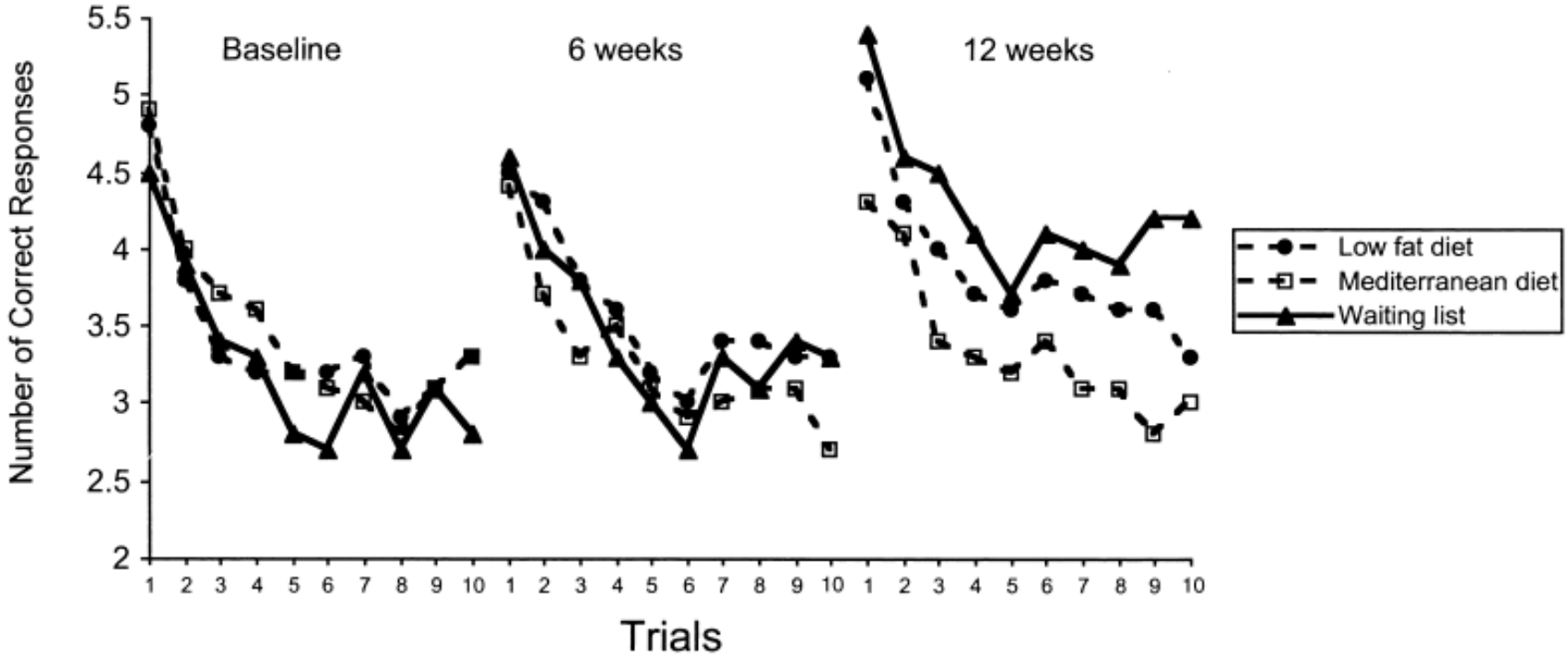


Figure 2. Number of correct task responses in each of the three diet groups at baseline (0), 6 weeks, and 12 weeks.

AmJ Med. 2000;108:547–553.

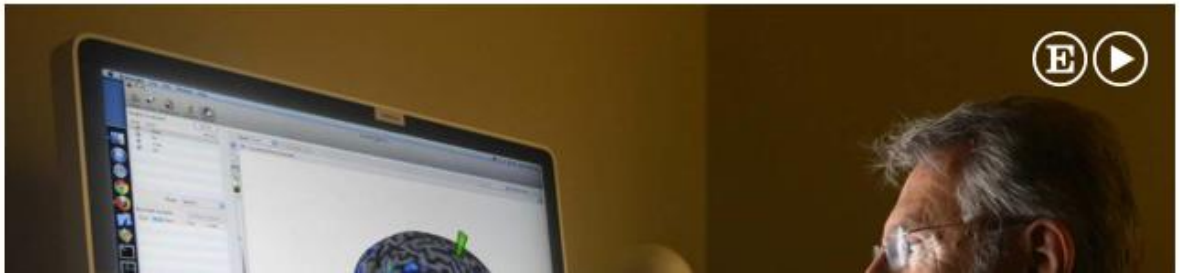
Relación de colesterol y capacidd cognitiva

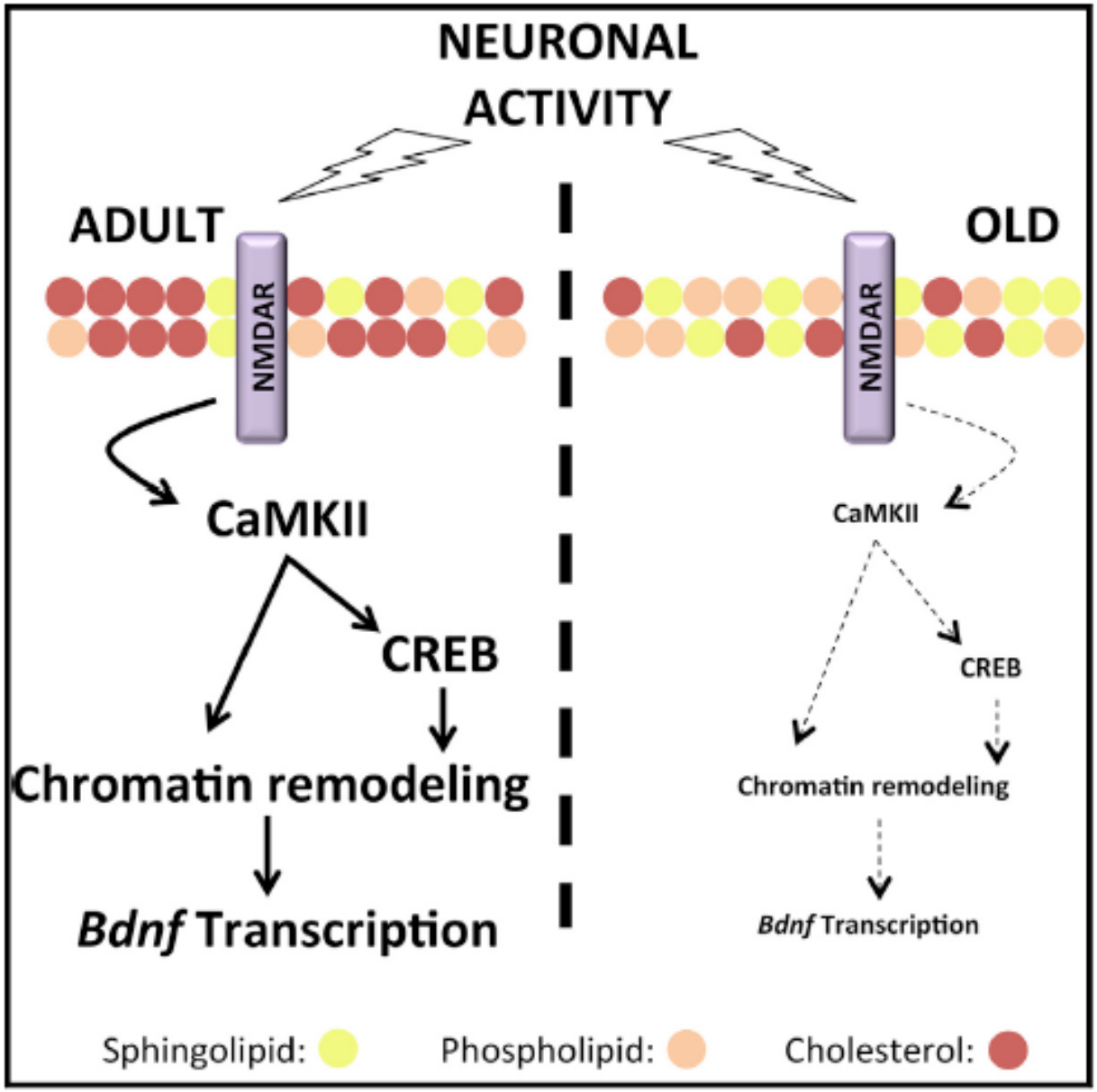
Colesterol, el arma secreta del cerebro para proteger la memoria

Científicos españoles demuestran en ratones que esta molécula podría evitar los síntomas de la demencia y el alzhéimer

NUÑO DOMÍNGUEZ

15 SEP 2016 - 19:59 CEST





Cell Rep. 2016 Sep 13;16(11):2889-900

Estatinas y memoria

ULTIMAS NOTICIAS CLINTON ACUSA A TRUMP DE AYUDAR A QUE ESTADO ISLÁMICO RECLUTE

FDA suma diabetes y pérdida memoria a advertencia por estatinas

martes 28 de febrero de 2012 16:32 GYT

Imprimir [-] Texto [+]

Por Bill Berkrot

(Reuters) - Los reguladores de salud de Estados Unidos añadirán advertencias a las etiquetas de fármacos para bajar el colesterol de uso masivo, como Lipitor, para indicar que pueden elevar los niveles de azúcar en sangre y causar pérdida de la memoria.

La Administración de Alimentos y Medicamentos (FDA por su sigla en inglés) anunció los cambios en la información de seguridad que aparece

ARGUMENTOS

- PACIENTES CON NIVELES MUY BAJOS DE COLESTEROL EVIDENCIA.
- COLESTEROL Y ALTERACIONES PSICOLOGICAS
- **COLESTEROL Y CANCER**

Here's to your health: couples need £108 a week to live healthily

Andrew Speaker had surgery last week at the University of Colorado Hospital.

problem. A border agent failed to stop him (*BMJ* 2007;334:1242, 16 Jun).

Meta-analysis says low LDL cholesterol may be associated with greater risk of cancer

Janice Hopkins Tanne NEW YORK

Patients with low concentrations of low density lipoprotein (LDL) cholesterol, lowered as a result of taking statins, are at significantly more risk of being diagnosed as having cancer compared with patients with higher concentrations of the cholesterol, a meta-analysis of 23 large studies of statins shows (*Journal of the American College of Cardiology* 2007;5:409-18).

The analysis found one more case of newly diagnosed enzymes was 271 with high dose statin, 195 with intermediate dose, and 114 with low dose statin per 100 000 person years for each 10% reduction in LDL cholesterol ($P<0.001$ for all pairwise comparisons). Rates of rhabdomyolysis were also higher with higher doses of statins, although not significantly so.

The meta-analysis included 23 published trials of different statins used at a range of doses.

absolute reduction in LDL cholesterol and rates of cancer.

Richard Karas, professor of medicine at Tufts University School of Medicine in Boston, and lead author of the study, cautioned, "This analysis doesn't implicate the statins in increasing the risk of cancer.

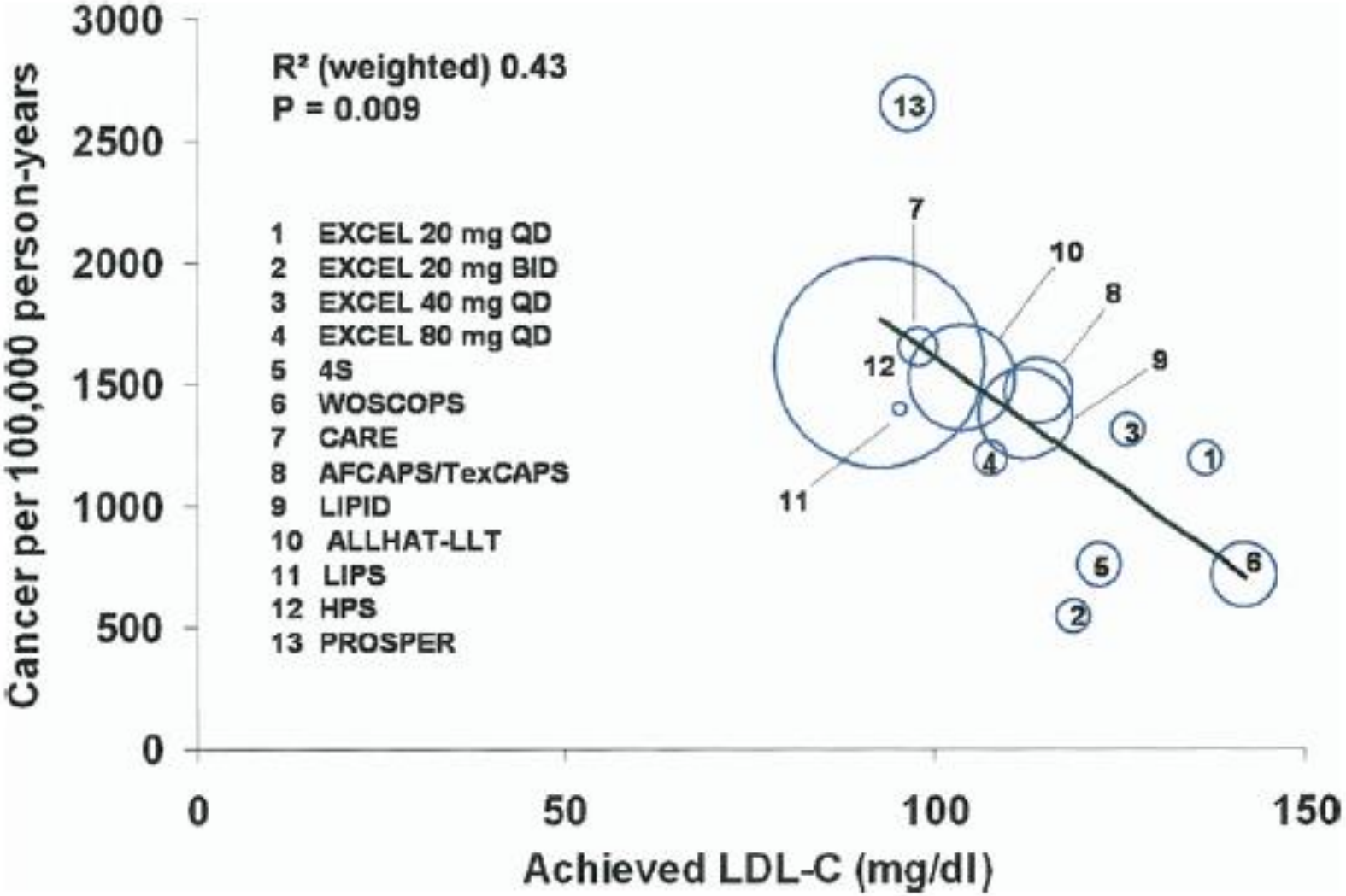
"This analysis doesn't implicate the statins in increasing the risk of cancer"

However, certain aspects of

the authors warned, "It may be prudent not to use a statin dose beyond what is required to achieve the LDL cholesterol target," but "evidence is reassuring that statin use in itself is not associated with an increased risk of cancer compared with placebo."

Another study showed that use of simvastatin was associated with an almost 50% reduction in the risk of Alzheimer's disease and Parkinson's disease and that

BMJ 2007



J Am Coll Cardiol. 2007 Jul 31;50(5):409-18

6,230 working men, age 43-52 years in 1967-1972, who had at least three annual measurements of serum cholesterol.

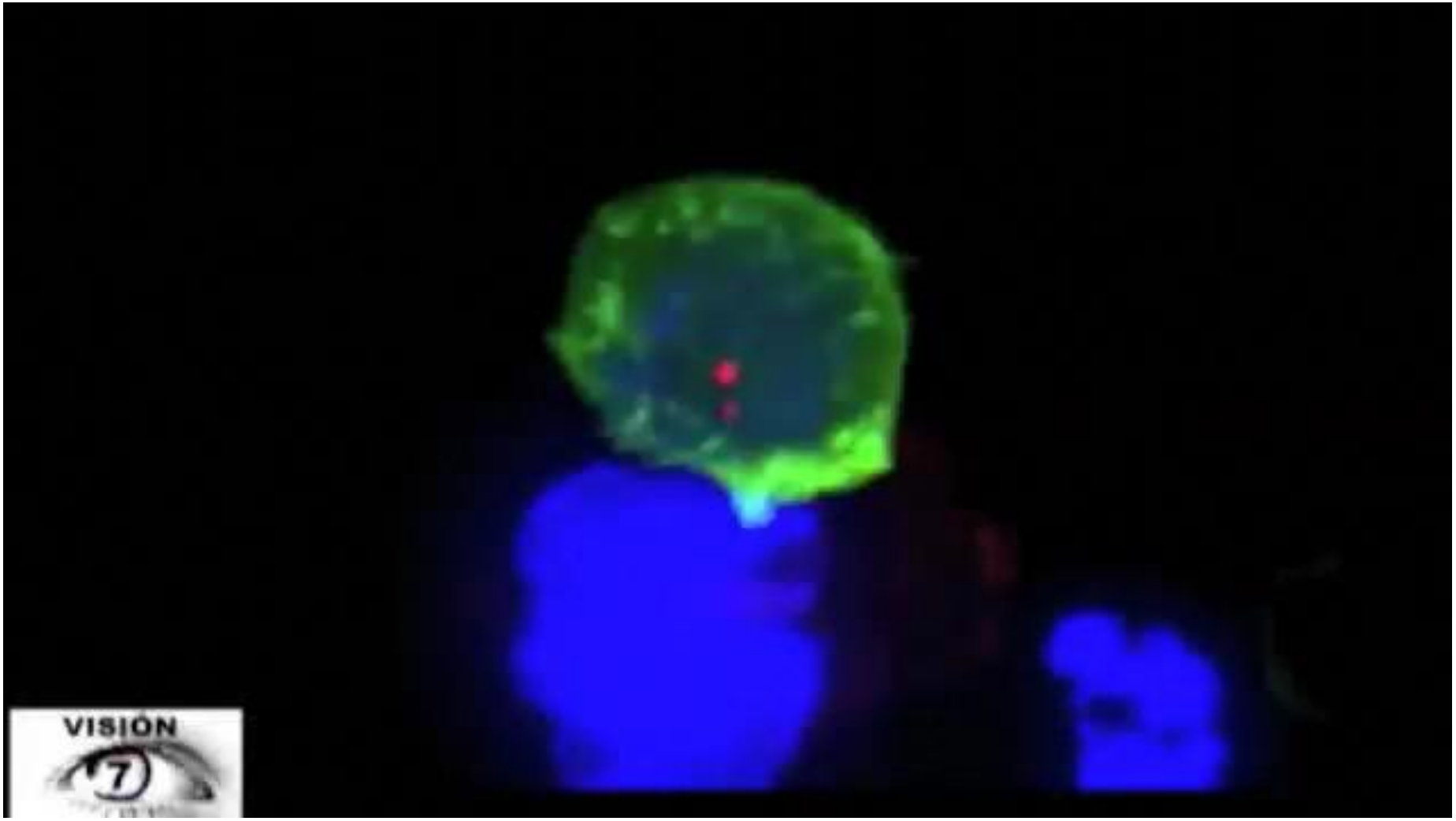
During an average of 17 years of follow-up after the last examination, 747 subjects died from cancer.

Total Cancer*	Number of Cases	Number of Person-Years	Multivariate-Adjusted† RR (95% CI)
Serum total cholesterol change			
Category 1 (highest decrease)‡	225	25,796	1
Category 2	183	27,413	0.74 (0.61–0.91)
Category 3	169	26,899	0.71 (0.57–0.88)
Category 4 (highest increase)	170	26,179	0.70 (0.56–0.87)

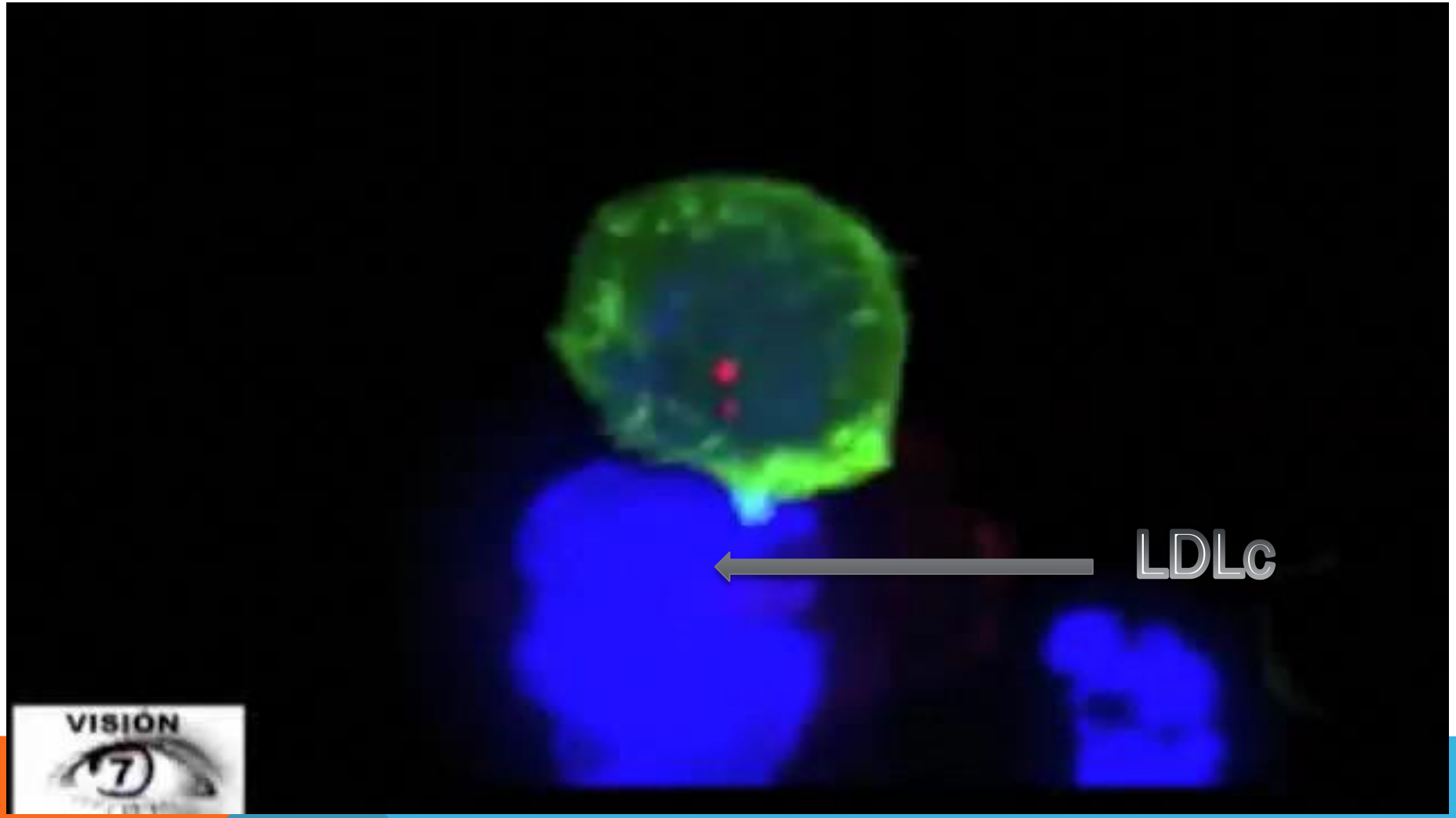
Epidemiology. 1997 Mar;8(2):137-43.

SUFICIENTES ARGUMENTOS PARA SER PRUDENTES

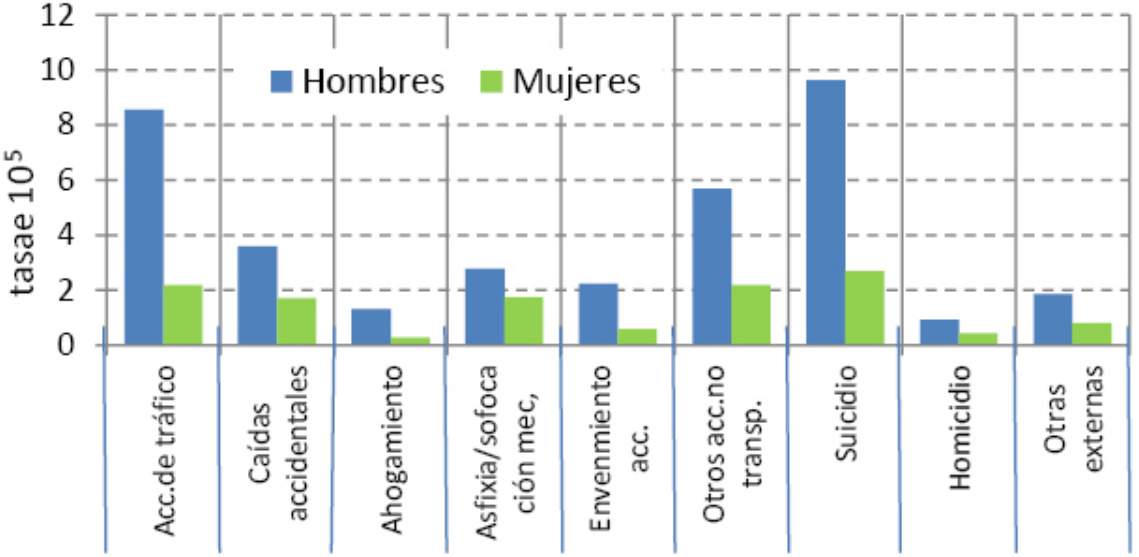
- **PACIENTES CON NIVELES MUY BAJOS DE COLESTEROL EVIDENCIA.**
- **COLESTEROL Y ALTERACIONES PSICOLOGICAS**
- **COLESTEROL Y CANCER**

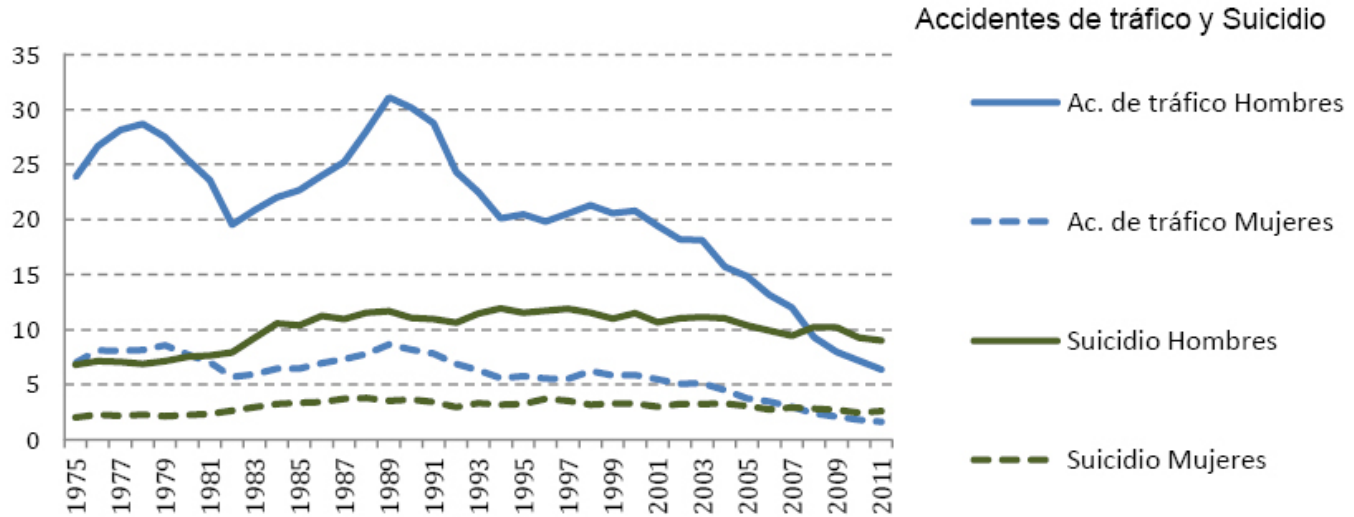

VISIÓN
7

¿SABES JAVIER QUE HECHO BIOLOGICO OCURRE EN EL VIDEO QUE HE PUESTO?

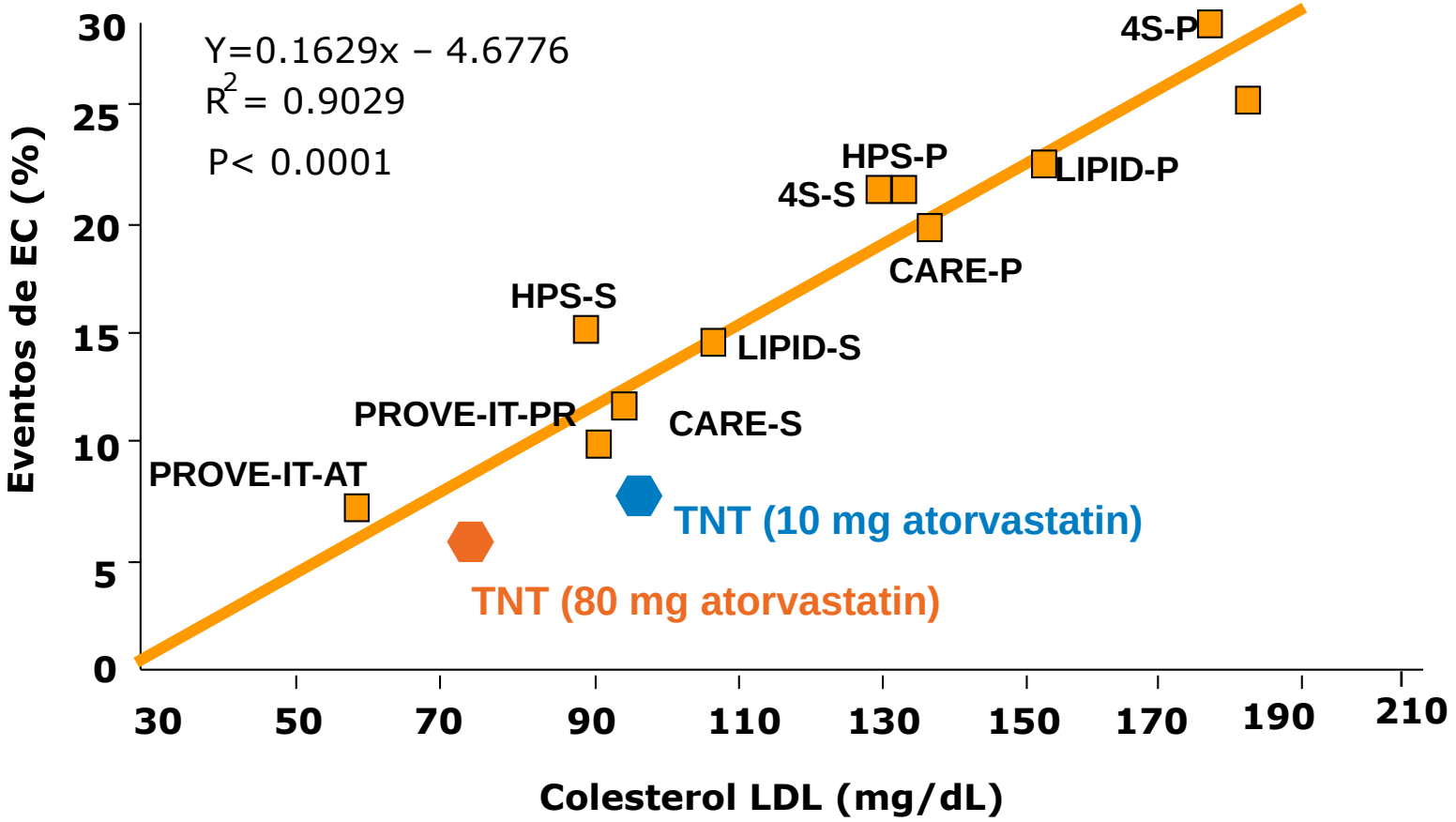

LDLc
VISIÓN
7

Mortalidad por causas externas por sexo 2007-2011. Tasas ajustadas por edad por 100.000 h

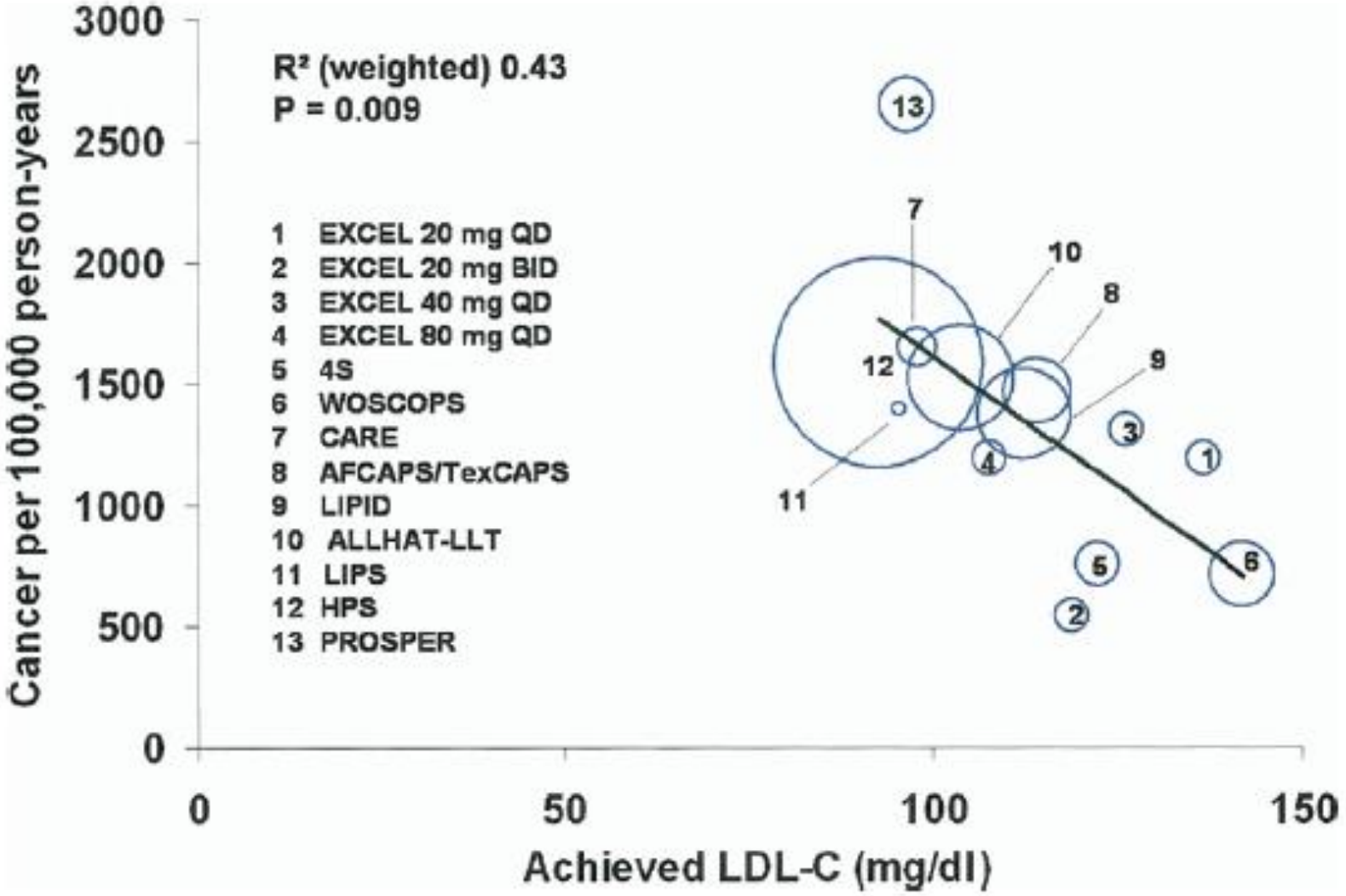




Reduccion de c-LDL y reducción de eventos coronarios

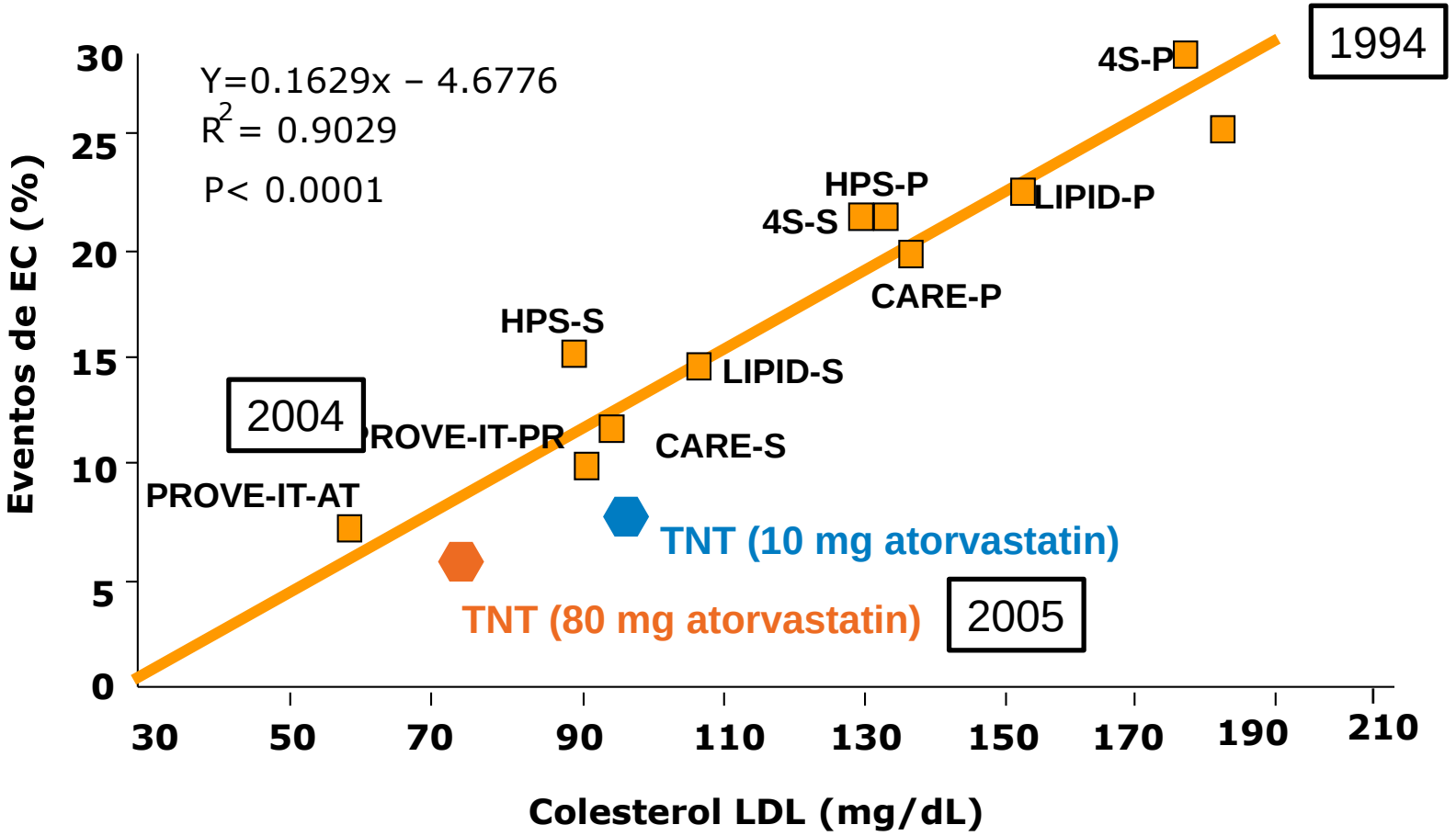


O'Keefe JH, et al. Optimal low-density lipoprotein is 50 to 70 mg/dl. Lower is better and physiologically normal. *Journal of the American College of Cardiology*. 2004;43(11):2142-6.



J Am Coll Cardiol. 2007 Jul 31;50(5):409-18

Reduccion de c-LDL y reducción de eventos coronarios



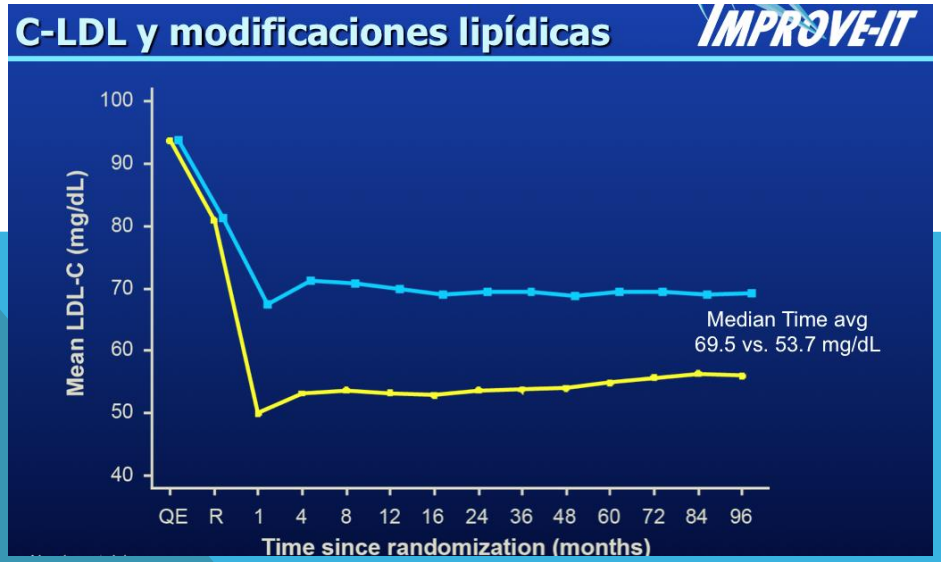
O'Keefe JH, et al. Optimal low-density lipoprotein is 50 to 70 mg/dl. Lower is better and physiologically normal. *Journal of the American College of Cardiology*. 2004;43(11):2142-6.

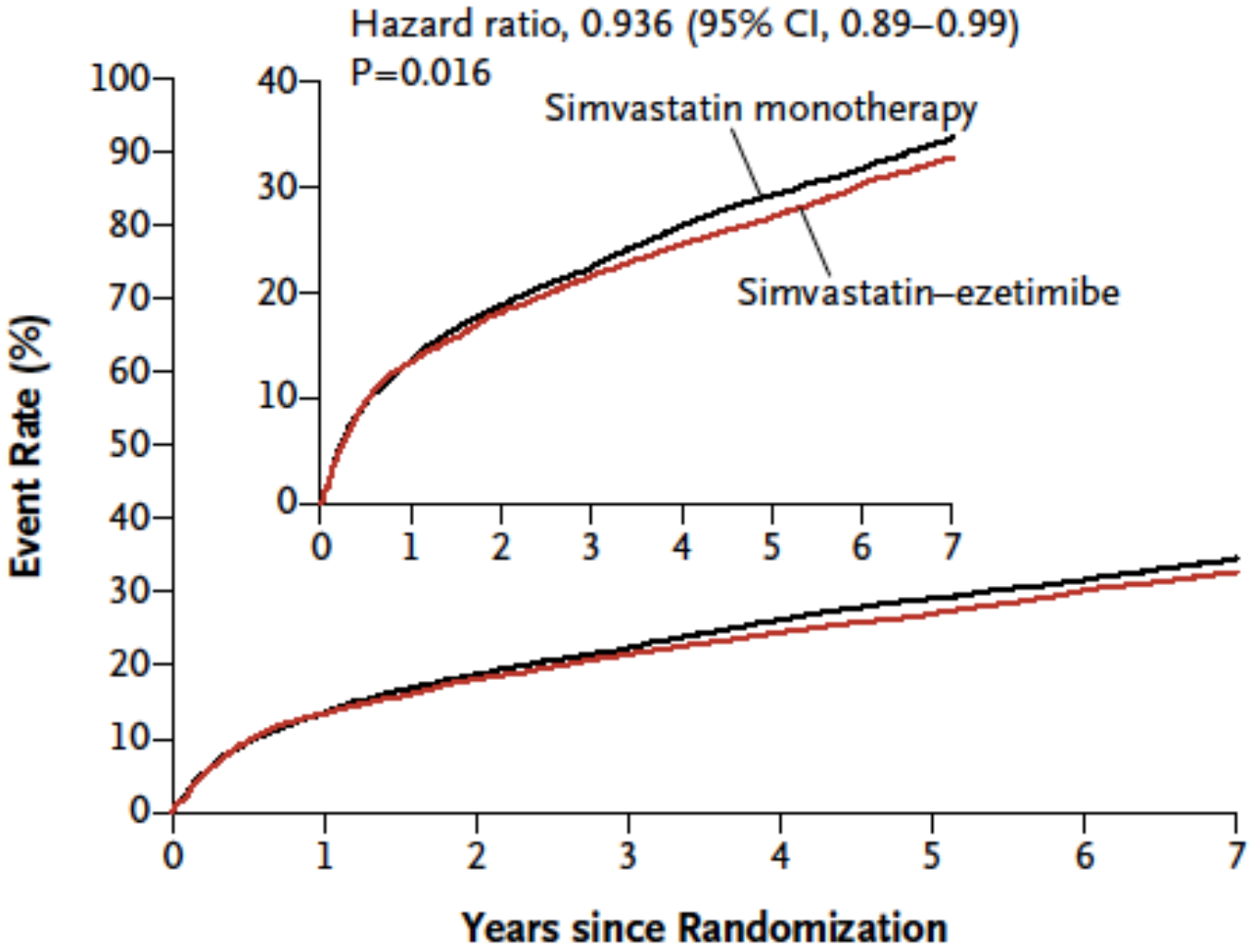
The NEW ENGLAND JOURNAL of MEDICINE

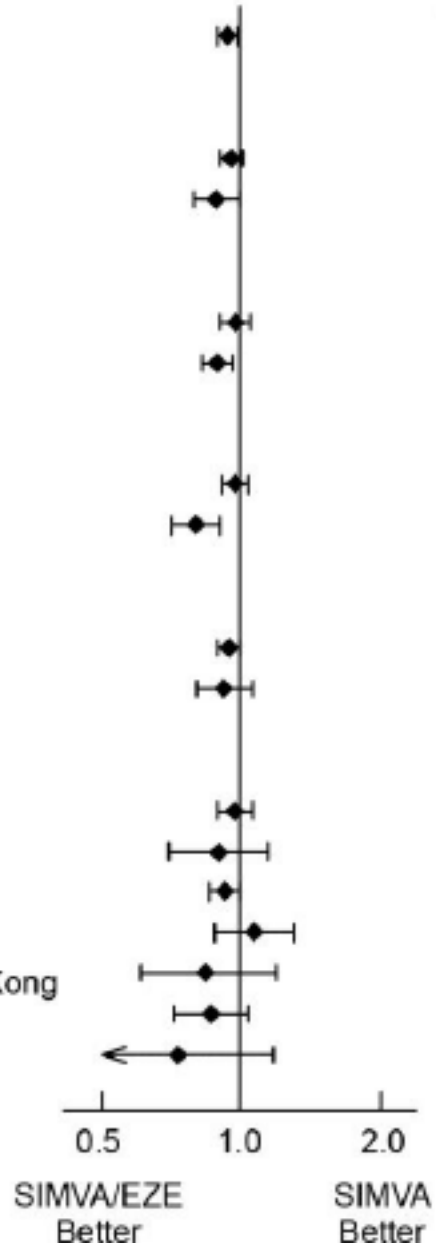
ESTABLISHED IN 1812 JUNE 18, 2015 VOL. 372 NO. 25

Ezetimibe Added to Statin Therapy after Acute Coronary Syndromes

Christopher P. Cannon, M.D., Michael A. Blazing, M.D., Robert P. Giugliano, M.D., Amy McCagg, B.S., Jennifer A. White, M.S., Pierre Theroux, M.D., Harald Darius, M.D., Basil S. Lewis, M.D., Ton Oude Ophuis, M.D., Ph.D., J. Wouter Jukema, M.D., Ph.D., Gaetano M. De Ferrari, M.D., Witold Ruzyllo, M.D., Paul De Lucca, Ph.D., KyungAh Im, Ph.D., Erin A. Bohula, M.D., D.Phil., Craig Reist, Ph.D., Stephen D. Wiviott, M.D., Andrew M. Tershakovec, M.D., M.P.H., Thomas A. Musliner, M.D., Eugene Braunwald, M.D., and Robert M. Califf, M.D., for the IMPROVE-IT Investigators*




Hazard ratio, 0.936 (95% CI, 0.89–0.99)
P=0.016
Simvastatin monotherapy
Simvastatin–ezetimibe
Event Rate (%)
Years since Randomization
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7



Characteristic	Total Patients	KM % at 7 years SIMVA/EZE	KM % at 7 years SIMVA	Hazard Ratio (95% CI)	Interaction *P*-Value
Overall	5314	32.73	34.67	0.936 (0.887, 0.988)	
Gender					
Male	13728	33.26	34.87	0.952 (0.895, 1.012)	0.267
Female	4416	31.01	34.02	0.885 (0.791, 0.991)	
Age Group 1 (years)					
<65	10173	29.94	30.79	0.975 (0.904, 1.051)	0.098
≥65	7971	36.35	39.94	0.890 (0.824, 0.961)	
Age Group 2 (years)					
<75	15346	31.67	32.46	0.971 (0.915, 1.031)	0.005
≥75	2798	38.95	47.60	0.797 (0.704, 0.902)	
Race					
Caucasian	15202	33.06	35.02	0.939 (0.885, 0.995)	0.790
Non-Caucasian	2923	31.15	32.90	0.919 (0.799, 1.058)	
Region					
United States	5866	34.41	35.41	0.969 (0.883, 1.064)	0.575
Canada	1107	22.15	25.54	0.894 (0.698, 1.145)	
Western Europe	7274	33.92	35.87	0.923 (0.849, 1.002)	
Eastern Europe	1416	33.43	32.94	1.071 (0.878, 1.307)	
Malaysia/Singapore/Hong Kong	616	25.90	28.29	0.845 (0.602, 1.187)	
South America	1585	32.05	37.68	0.859 (0.714, 1.034)	
Australia/New Zealand	280	24.06	32.12	0.734 (0.460, 1.170)	

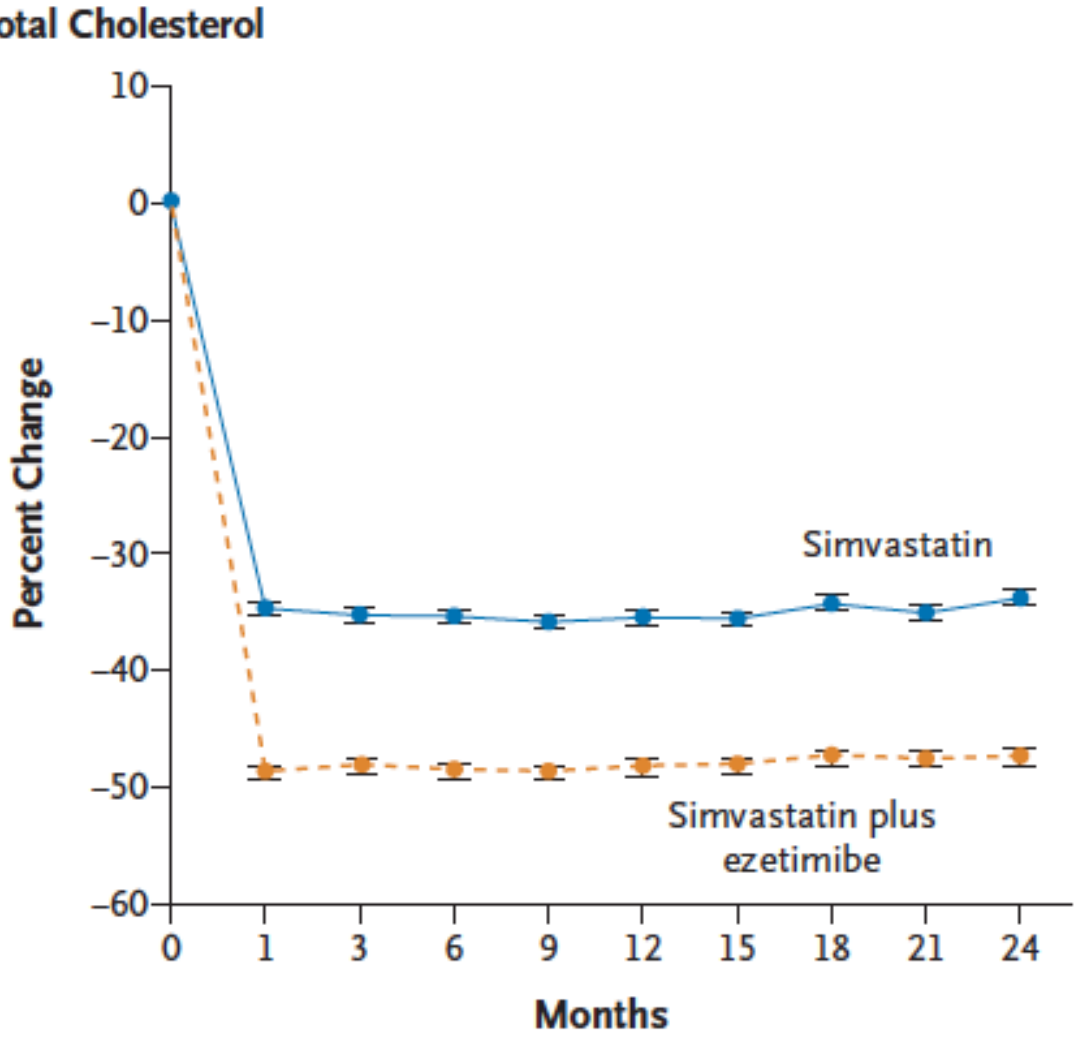
Tertiary end points†	Simvastatin Monotherapy (N=9077)	Simvastatin–Ezetimibe (N=9067)	Hazard Ratio (95% CI)	P Value
Death from any cause	1231 (15.3)	1215 (15.4)	0.99 (0.91–1.07)	0.78
Death from cardiovascular causes	538 (6.8)	537 (6.9)	1.00 (0.89–1.13)	1.00
Death from coronary heart disease	461 (5.8)	440 (5.7)	0.96 (0.84–1.09)	0.50

	Simvastatin Monotherapy (N=9077)	Simvastatin–Ezetimibe (N=9067)	P Value
Death from cancer†	272 (3.6)	280 (3.8)	0.71

EN MORTALIDAD NADA DE NADA

Ha contado Javier el Estudio **ENHANCE ?**

N Engl J Med. 2008 Apr 3;358(14):1431-43.



N Engl J Med. 2008 Apr 3;358(14):1431-43.

No significant changes in 1° or 2° endpoints

Variable	Simvastatin Monotherapy		Simvastatin plus Ezetimibe		P value (mean)
	Mean	Median	Mean	Median	
			Millimeters		
Baseline		n=342		n=338	
Mean cIMT	0.70±0.13	0.69	0.69±0.13	0.68	0.64
Mean maximum cIMT	0.80±0.16	0.78	0.80±0.17	0.76	0.94
24 months follow-up		n=320		n=322	
Mean cIMT	0.70±0.14	0.69	0.71±0.15	0.68	0.29
Mean maximum cIMT	0.81±0.17	0.79	0.82±0.18	0.78	0.27
Difference from baseline					
Mean cIMT	0.0058±0.0037	0.0095	0.0111±0.0038	0.0058	0.29 NS
Mean maximum cIMT	0.0103±0.0049	0.0103	0.0175±0.0049	0.0160	0.27

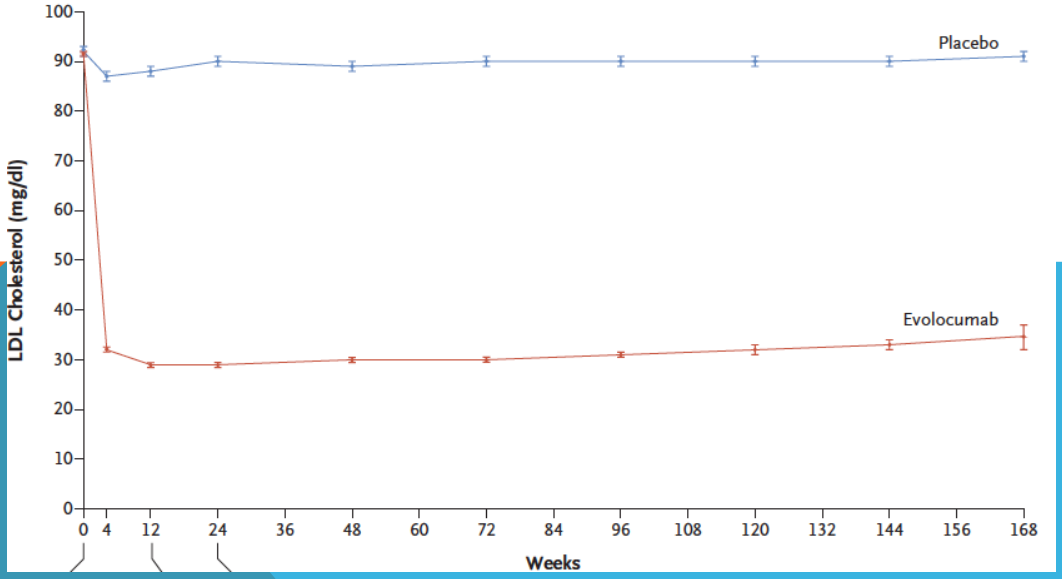
DIFERENCIA 0,0053 mm

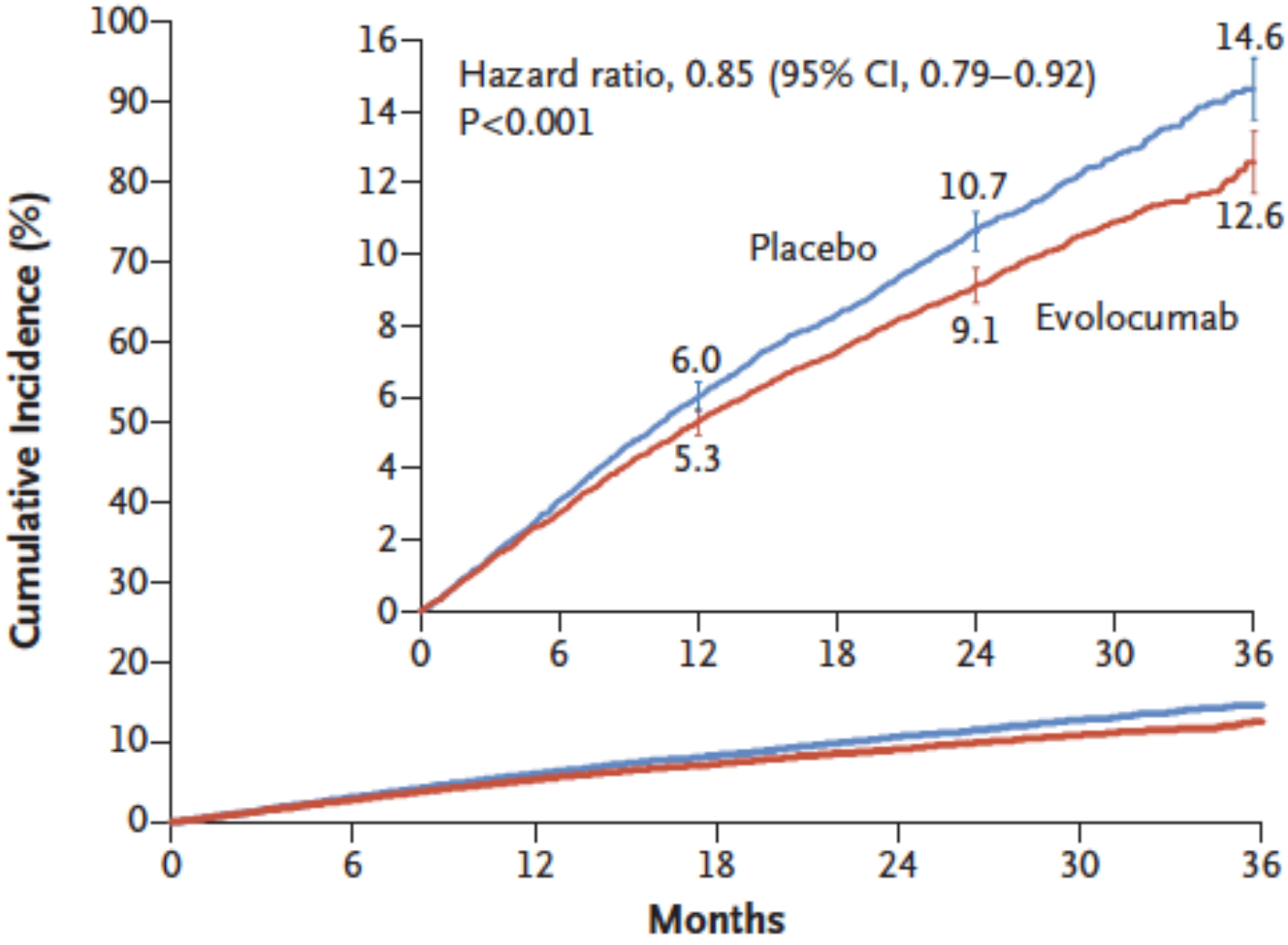
The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 MAY 4, 2017 VOL. 376 NO. 18

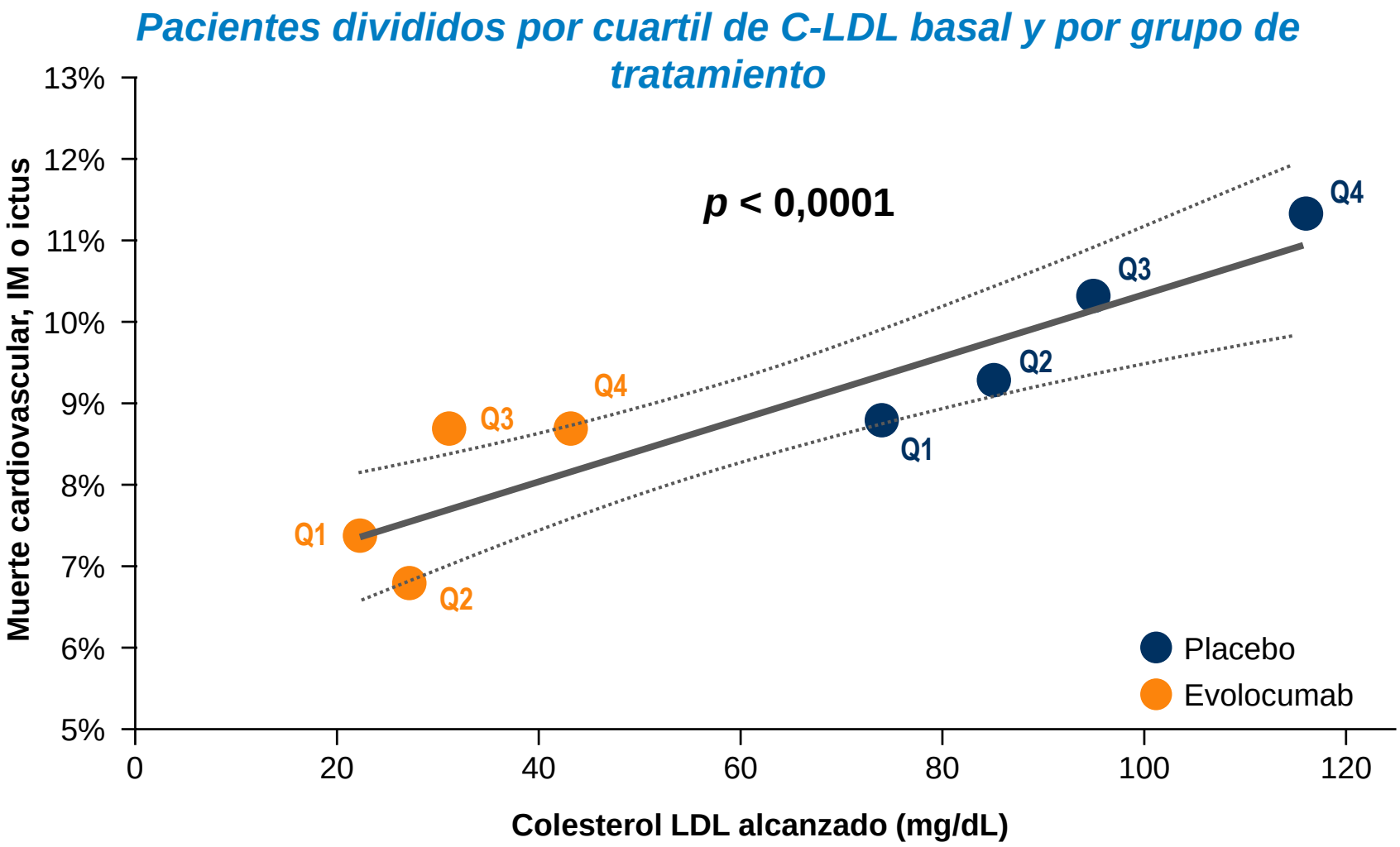
Evolocumab and Clinical Outcomes in Patients with Cardiovascular Disease

Marc S. Sabatine, M.D., M.P.H., Robert P. Giugliano, M.D., Anthony C. Keech, M.D., Narimon Honarpour, M.D., Ph.D., Stephen D. Wiviott, M.D., Sabina A. Murphy, M.P.H., Julia F. Kuder, M.A., Huei Wang, Ph.D., Thomas Liu, Ph.D., Scott M. Wasserman, M.D., Peter S. Sever, Ph.D., F.R.C.P., and Terje R. Pedersen, M.D., for the FOURIER Steering Committee and Investigators*




Cumulative Incidence (%)
100
90
80
70
60
50
40
30
20
10
0
0
6
12
18
24
30
36
Months
16
14
12
10
8
6
4
2
0
Hazard ratio, 0.85 (95% CI, 0.79–0.92)
P<0.001
14.6
10.7
12.6
Placebo
9.1
Evolocumab
6.0
5.3

Asociación de los niveles de C-LDL y los eventos CV



Sabatine MS, *et al. American College of Cardiology – 66th Annual Scientific Session Late-Breaking Clinical Trial*. Washington, D.C. March 17, 2017.

	Evolocumab (N=13,784)	Placebo (N=13,780)	Hazard Ratio (95% CI)	P Value*
Cardiovascular death	251 (1.8)	240 (1.7)	1.05 (0.88–1.25)	0.62
Due to acute myocardial infarction	25 (0.18)	30 (0.22)	0.84 (0.49–1.42)	
Due to stroke	31 (0.22)	33 (0.24)	0.94 (0.58–1.54)	
Other cardiovascular death	195 (1.4)	177 (1.3)	1.10 (0.90–1.35)	
Death from any cause	444 (3.2)	426 (3.1)	1.04 (0.91–1.19)	0.54

	Evolocumab (N=13,769)	**Placebo (N=13,756)**
Neurocognitive event	217 (1.6)	202 (1.5)

EN MORTALIDAD NADA DE NADA

Principio de precaución

El “ principio de precaución ” es un concepto que se invoca para adoptar medidas de protección cuando una evaluación científica, multidisciplinar, independiente y hecha en base a datos empíricos disponibles, no permite valorar los niveles de riesgo de determinado suceso, si ese suceso puede afectar a la salud humana, animal, vegetal o medioambiental

Un pacto con Javier

Empezamos a pactar

CONCLUSIONS AND RELEVANCE Ideally, treatment of hypercholesterolemia for patients at risk of ASCVD should start before they turn 80 years old. No RCT evidence exists to guide statin initiation after age 80 years. Decisions to use statins in older individuals are made individually and are not supported by high-quality evidence.

JAMA. 2014;312(11):1136-1144.

MUCHAS GRACIAS