

Sesión biobliográfica MI-CAULE

- .. Antiagregación en diferentes situaciones.
- .. Inhibidores de la proteína de transferencia de ésteres de colesterol (CETP)¿ Dónde estamos ?

Christian Teijo Núñez Unidad HTA y Riesgo Vascular M. Interna (CAULE)

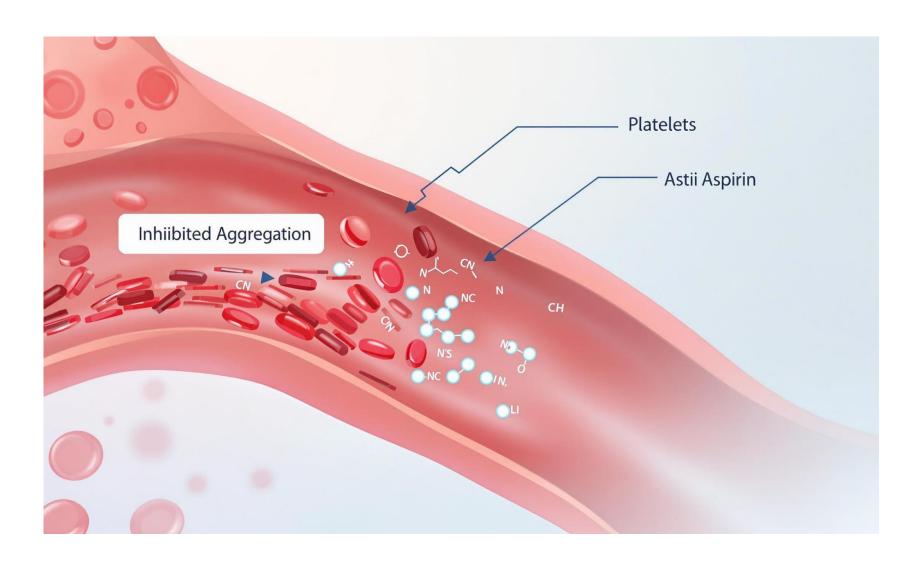








Antiagregación en prevención primaria



2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines

Recommendations for Aspirin Use

Referenced studies that support recommendations are summarized in Online Data Supplements 17 and 18.

COR	LOE	Recommendations	
IIb	Α	 Low-dose aspirin (75-100 mg orally daily) might be considered for the primary prevention of ASCVD among select adults 40 to 70 years of age who are at higher ASCVD risk but not at increased bleeding risk. 54.6-1-54.6-8 	4
III: Harm	B-R	Low-dose aspirin (75-100 mg orally daily) should not be administered on a routine basis for the primary prevention of ASCVD among adults >70 years of age. ^{54,6-9}	
III: Harm	C-LD	3. Low-dose aspirin (75-100 mg orally daily) should not be administered for the primary prevention of ASCVD among adults of any age who are at increased risk of bleeding. 54.6-10	

40 -70 años



> 70 años



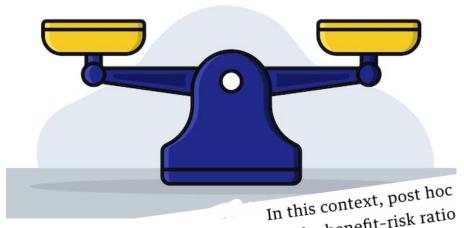
Aspirina en prevención primaria. Ilb.

Hombres y mujeres de 40 - 70 años y al menos uno de:

- Antecedentes familiares de ASCVD prematura
- Hipertensión
- Dislipidemia
- Diabetes

CI:

- Hemorragia gastrointestinal o de otros sitios.
- Edad > 70 años.
- Trombocitopenia, coagulopatía.
- ERC.
- Uso concomitante AINE's, Cc's, ACOD.



In this context, post and study of older trials suggests that the benefit-risk ratio for prophylactic aspirin generally becomes more favorable at >10% estimated 10-year ASCVD risk (\$4.6-15,



JAMA | US Preventive Services Task Force | RECOMMENDATION STATEMENT

Aspirin Use to Prevent Cardiovascular Disease
US Preventive Services Task Force Recommendation Statement

JAMA. 2022;327(16):1577-1584. doi:10.1001/jama.2022.4983

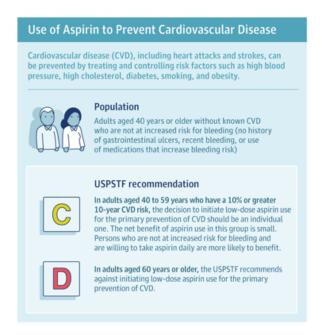
ANTICOLO LUI LCIAL

Estándares de la Sociedad Española de Arteriosclerosis 2024 para el control global del riesgo vascular



1º → Controlar FRCV.

 2° se "sugiere" AAS en 40 -70 a. y RCV alto:



C: ... AAS en 40 -60 a. y RCV alto:

y esperanza de vida ≥ 10 años

y dispuestos a tomar AAS 10 años

Antiagregación en prevención primaria + HTA

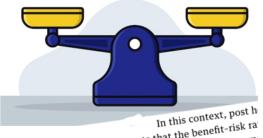


2023 ESH Guidelines for the management of arterial hypertension

Aspirina en prevención primaria. Ilb.

Hombres y mujeres de 40 - 70 años y al menos uno de

- Antecedentes familiares de ASCVD prematura
- · Hipertensión
- Dislipidemia
- Diabetes



study of older trials suggests that the benefit-risk ra for prophylactic aspirin generally becomes m favorable at >10% estimated 10-year ASCVD risk (S4.6

Recommendations of antiplatelet therapy in hypertension

Recommendations and statements	CoR	LoE
Low-dose aspirin is not recommended for primary prevention in patients with hypertension.	Ш	Α
Antiplatelet therapy is recommended for secondary prevention in hypertensive patients.	1	Α
Use of a polypill containing low-dose aspirin can be considered in hypertensive patients for secondary prevention.	II	Α

Antiagregación en prevención primaria + DM2

2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes

Recommendation Table 12 — Recommendations for patients with diabetes without a history of symptomatic atherosclerotic cardiovascular disease or revascularization

Recommendation	Class ^a	Level ^b	
En adultos con DM2 sin antecedentes de ASCVD sintomática o revascularización, se puede considerar el AAS (75-100 mg/24h) para prevenir el primer evento vascular grave, en ausencia de contraindicaciones claras.	ШЬ	A	© ESC 2023

DM2 – Antiagregación:

Standards of Care in Diabetes
2025

American Diabetes
Association
ISSN 0149-51

Prevención secundaria:

Aspirina (75-162 mg/día) como estrategia de **prevención secundaria** en aquellos con diabetes y antecedentes de enfermedad cardiovascular aterosclerótica (ASCVD). **A.**

La terapia combinada con **aspirina más rivaroxabán** en dosis baja debe considerarse para individuos con **enfermedad coronaria y/o arterial periférica (EAP)** estable y bajo riesgo de sangrado, para prevenir eventos adversos mayores de extremidades y cardiovasculares. A.

Prevención primaria:

Aspirina (75-162 mg/día) puede considerarse como una estrategia de prevención primaria en aquellos con diabetes que tienen un **riesgo cardiovascular aumentado**, después de una discusión exhaustiva con el individuo sobre los beneficios / riesgo. A.

Prevención primaria + DM2:

Aspirina (75-162 mg/día) puede considerarse como una estrategia de prevención primaria en aquellos con diabetes que tienen un **riesgo cardiovascular aumentado**, después de una discusión exhaustiva con el individuo sobre los beneficios / riesgo. **A.**

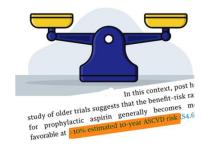
- Aspirina en prevención primaria. A.:
- Hombres y mujeres de ≥ 50 años con diabetes y al menos un factor de riesgo importante adicional:
- Antecedentes familiares de ASCVD prematura
- Hipertensión
- Dislipidemia
- Tabaquismo
- ERC / albuminuria



Aspirina en prevención primaria. Ilb.

Hombres y mujeres de 40 - 70 años y al menos uno de

- Antecedentes familiares de ASCVD prematura
- Hipertensión
- · Dislipidemia
- Diabetes



Effects of Aspirin for Primary Prevention in Persons with Diabetes Mellitus

The ASCEND Study Collaborative Group*

ASCEND, 2018⁴⁷

15 480 Patients aged ≥40 years with diabetes, no evident CVD, and substantial uncertainty about whether antiplatelet therapy would confer worthwhile benefit.

Low-dose ASA vs. placebo

Non-fatal MI, non-fatal stroke (excluding confirmed ICH), TIA, or death from any vascular cause (excluding confirmed ICH)

Predicted incidence: 1.2–1.3%/year Observed incidence: 1.3%/year Predicted relative reduction: 15% Observed relative reduction: 12%

No difference in fatal bleeding and ICH

Tabla 1: Características Basales de los Participantes en ASCEND

Característica	Aspirina (N=7740)	Placebo (N=7740)
Edad (media)	63.2 ± 9.2	63.3 ± 9.2
Sexo masculino (%)	62.6	62.5
Duración de diabetes (años)	7 (3-13)	7 (3-13)
Uso de estatinas (%)	75.6	74.9

Tabla 2: Eventos Vasculares y Hemorrágicos en ASCEND

Tipo de Evento	Aspirina (%)	Placebo (%)	Razón de tasas (95% CI)
Eventos vasculares serios	8.5	9.6	0.88 (0.79-0.97)
Hemorragias mayores	4.1	3.2	1.29 (1.09-1.52)

Tabla 1: Eventos de Sangrado en el Estudio ASCEND

Tipo de Sangrado	Aspirina (N=7740)	Placebo (N=7740)	Razón de tasas (95% CI)	P- valor
Total de eventos de sangrado	314 (4.1%)	245 (3.2%)	1.29 (1.09-1.52)	0.003
Sangrado fatal	19 (0.2%)	16 (0.2%)	1.19 (0.63-2.25)	0.6
Sangrado gastrointestinal	137 (1.8%)	101 (1.3%)	1.36 (1.05-1.75)	0.02
Sangrado intracraneal	55 (0.7%)	45 (0.6%)	0.98 (0.80-1.19)	0.5
Sangrado ocular (amenazante)	57 (0.7%)	64 (0.8%)	0.88 (0.62-1.27)	0.7
Otros sangrados mayores	74 (1.0%)	43 (0.6%)	1.70 (1.18-2.44)	0.003

Hemorragia grave : Evento hemorrágico que resultó en hospitalización o transfusión o que fue mortal)

Parámetro	Aspirina (100 mg)	Placebo	Diferencia absoluta (%)
Eventos cardiovasculares	8.5%	9.6%	-1.1%
Hemorragias mayores	4.1%	3.2%	+0.9%
NNT (eventos prevenidos)	91	-	-
NNH (hemorragias causadas)	112	-	-

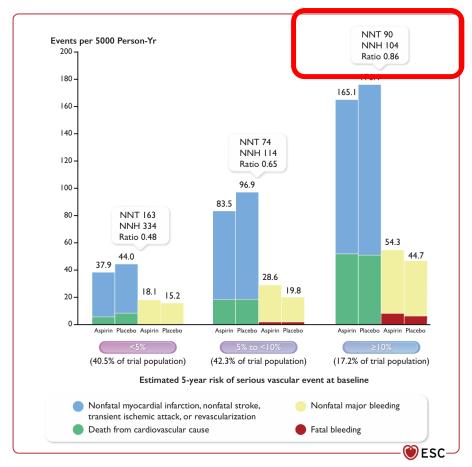


Figure \$7 Observed absolute effect in aspirin and placebo groups for serious vascular events, including major bleeding or revascularization. ASCEND, A Study of Cardiovascular Events in Diabetes; NNH, number needed to harm; NNT, number needed to treat; yr, year. The figure shows the efficacy and safety outcomes in three sub-groups of patients stratified according to the estimated risk of serious vascular events at baseline. The number needed to treat (NNT) and number needed to harm (NNH) are shown in each group, showing no clear difference in the benefit-risk balance according to the baseline risk stratification. The net benefit in each group favours NNT over NNH (ratio NNT:NNH <1). Figure modified from The ASCEND Study Collaborative Group. 47

Hemorragia grave : Evento hemorrágico que resultó en hospitalización o transfusión o que fue mortal)

Effects of Aspirin for Primary Prevention in Persons with Diabetes Mellitus

The ASCEND Study Collaborative Group*

N Engl J Med 2018;379:1529-39. DOI: 10.1056/NEJMoa1804988

Standards of Care in Diabetes 2025 American Diabetes Association

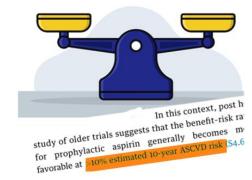
- Aspirina en prevención primaria + DM2. A.
- Hombres y mujeres de ≥ 50 años con diabetes y al menos un factor de riesgo importante adicional:
- Antecedentes familiares de ASCVD prematura
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Aspirina en prevención primaria. Ilb.

Hombres y mujeres de 40 - 70 años y al menos uno de

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Effects of Aspirin for Primary Prevention in Persons with Diabetes Mellitus

The ASCEND Study Collaborative Group*

MACE: 0.88

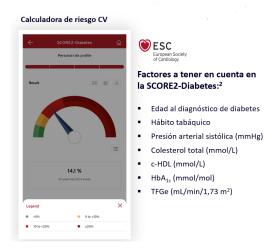


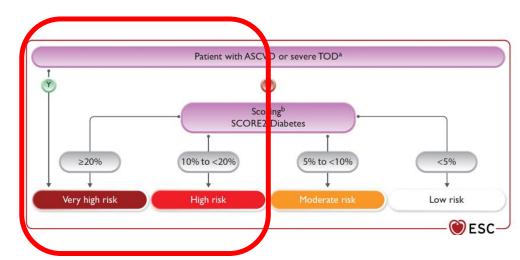
Total Sangrado: 1.29 Sangrado GI: 1.36

Empleo IBP: 24%

No difference in fatal bleeding and ICH

Duración: 7.4 años con aspirina.

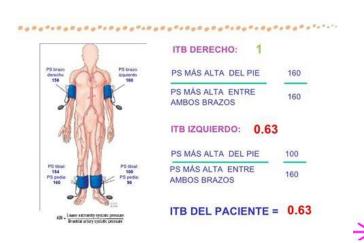




EAEI - AAS:

Recommendation Table 9 — Recommendations for lipid-lowering therapy in patients with peripheral arterial and aortic diseases

Recommendations	Class ^a	Level ^b
In patients with atherosclerotic PAAD, lipid-lowering therapy is recommended. 242,334–336	1	Α
An ultimate LDL-C goal of <1.4 mmol/L (55 mg/dL) and a >50% reduction in LDL-C vs. baseline are recommended in patients with atherosclerotic PAAD. 19,242,246,300,335	1	A
Statins are recommended in all patients with PAD. 328,329,337,371	1	Α
If the target LDL-C level is not achieved on maximally tolerated statins and ezetimibe, treatment with a PCSK9 inhibitor is recommended in patients with atherosclerotic PAAD, to achieve target values. 372,373	1	A
If the target LDL-C level is not achieved, a combination of statins and ezetimibe is indicated in patients with atherosclerotic PAAD, to achieve the given target values. ²⁴⁷	1	В
For statin-intolerant patients with atherosclerotic PAAD, at high CV risk, who do not achieve their LDL-C goal on ezetimibe, it is recommended to add bempedoic acid either alone or in combination with a PCSK9 inhibitor. ³⁶¹	1	В
Statins for the reduction of growth and rupture of AAA should be considered. 347–349,352,354	lla	В



< 0.9	Enfermedad arterial periférica (EAP). Diagnóstico confirmado.
0.6 - 0.89	EAP leve a moderada. Puede haber claudicación intermitente.
< 0.6	EAP severa. Riesgo de dolor en reposo, úlceras o gangrena.
< 0.4	Isquemia crítica. Urgencia médica.
> 1.4	Arterias no compresibles (calcificación severa). Requiere pruebas adicionales, como ecodoppler.

Recommendation Table 14 — Recommendations for antithrombotic therapy in patients with peripheral arterial disease (see also Evidence Table 6)

Recommendations	Classa	Level ^b	
Use of antiplatelet therapy with aspirin alone (range 75–160 mg o.d.) or clopidogrel alone (75 mg o.d.) is recommended for the reduction of MACE in patients with symptomatic PAD. ^{488–490}	1	A	
Treatment with combination rivaroxaban (2.5 mg b.i.d.) and aspirin (100 mg o.d.) should be considered for patients with PAD, high ischaemic risk, ^c and non-high bleeding risk. ^{d,429,498,499}	lla	A	
Aspirin (75–100 mg) for primary prevention may be considered in patients with asymptomatic PAD and DM, in the absence of contraindications. 419,487	ШЬ	A	
It is not recommended to systematically treat patients with asymptomatic PAD without any sign of clinically relevant ASCVD with antiplatelet drugs, 485	III	В	© ESC 2024

2024 ESC Guidelines for the management of peripheral arterial and aortic diseases

EA Carotidea – AAS:

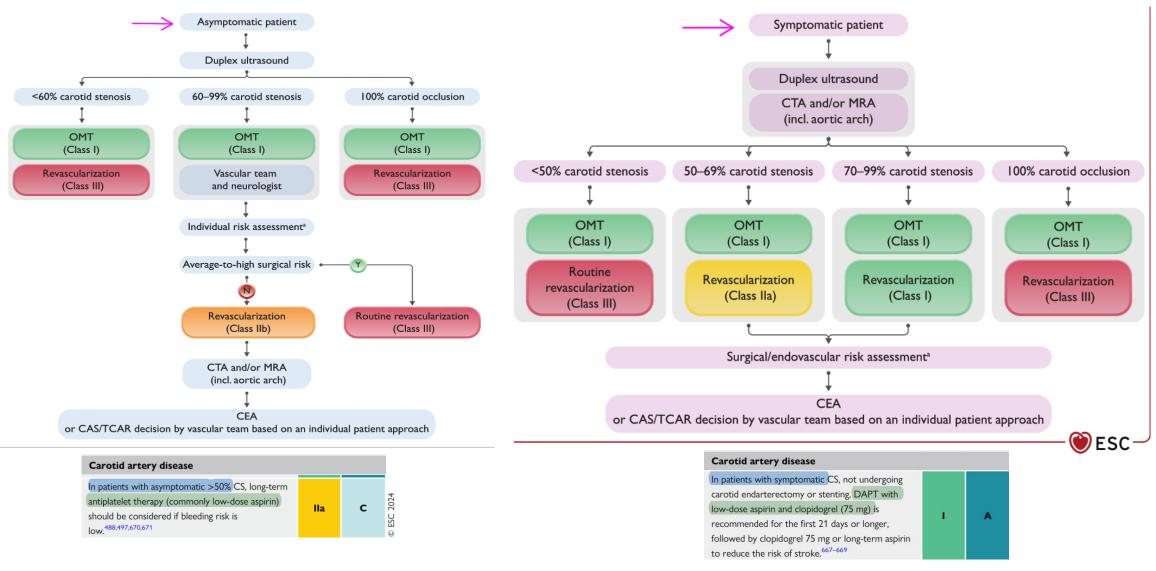


Figure 18 Algorithm of carotid artery stenosis management. CAS, carotid artery stenting; CEA, carotid endarterectomy; CTA, computed tomography angiography; MRA, magnetic resonance angiography; OMT, optimal medical treatment; TCAR, transcarotid artery revascularization; TIA, transient ischaemic attack. Assess presence of high-risk features according to Table 11. If surgery/revascularization is considered, assess the overall risk related to surgery according to Table 12.

2024 ESC Guidelines for the management of peripheral arterial and aortic diseases

2024 ESC Guidelines for the management of chronic coronary syndromes

Tabla 1: Indicaciones para el Uso de IBP en Pacientes Antiagregados

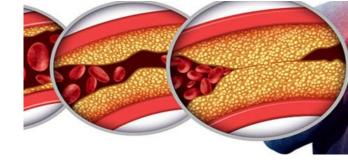
Indicaciones para IBP	Descripción	ı	A
Historia de úlceras pépticas	Pacientes con antecedentes de úlceras o hemorragias gastrointestina	les.	
Dosis altas de aspirina	Pacientes con enfermedad cardiovascular que requieren dosis altas d	e aspirina	ì.
Factores de riesgo	Pacientes > 65 años o con comorbilidades (ERC, Hepatopatía, OH, CCs, AINE´s, uso de anticoagulantes).		CCs,

Use of proton pump inhibitors			
A proton pump inhibitor is recommended in patients at increased risk of gastrointestinal bleeding for the duration of combined antithrombotic therapy (antiplatelet therapy and/or OAC). 646–648,664	1	Α	024
A proton pump inhibitor should be considered when a single antithrombotic (antiplatelet or anticoagulant) drug is used, considering the gastrointestinal bleeding risk of the individual patient. 646,665–668	lla	Α	© ESC 2









Sesión biobliográfica MI-CAULE

.. Antiagregación en diferentes situaciones.

.... ???







Torcetrapib, ILLUMINATE:

NEJM 2007; 357:2109-22

Dalcetrapib, dal-OUTCOMES:

NEJM 2012; 367:2089-99

Evacetrapib, ACCELERATE:

NEJM 2017; 376:1933-42

Anacetrapib: REVEAL:

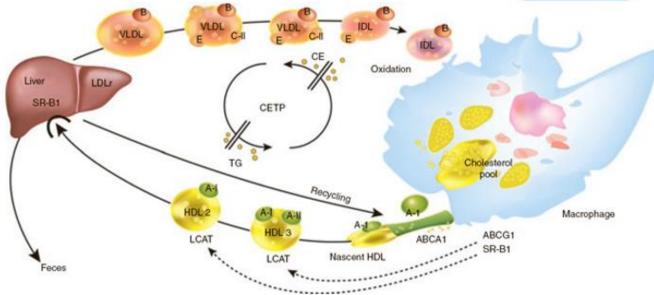
NEJM 2017; 377:1217-27





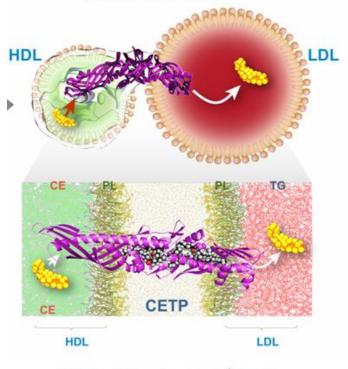




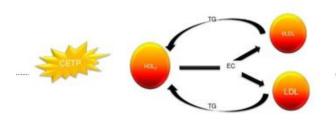


Reverse Cholesterol Transport

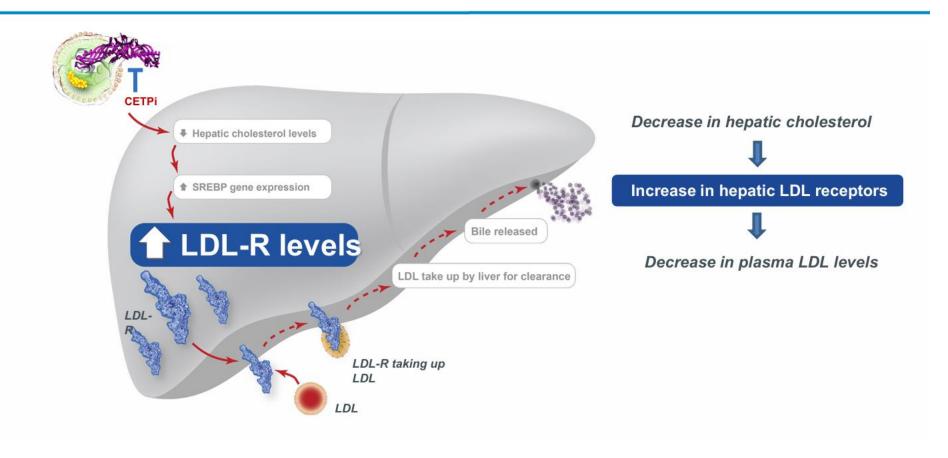
CETP transfers cholesterol esters from HDL to LDL



Proteína de Transferencia de Ésteres de Colesterol (CETP)



CETPi decreases hepatic cholesterol -> upregulation of LDL-R -> improved LDL and ApoB clearance through the liver



Genetically lower CETP associated with lower cardiovascular risks

The Ashkenazi Jewish Longevity Gene Project

Individuals with exceptional longevity had significantly higher (up to 3.6-fold) homozygosity for the 405 valine (I405V) allele of CETP (VV genotype) vs controls

The Copenhagen City Heart Study

Prospective study, n= 10,261; ~34 years follow-up Carriers of CETP (inactivating) genotpes had decreased LDL cholesterol levels and lower cardiovascular risk:

ischemic cardiovascular event: HR 0.7

ischemic heart disease: HR 0.65

ischemic cerebrovascular disease: HR 0.71

Inhibidores de la proteína de transferencia de ésteres de colesterol (CETP)

Ultra-short summary of the complex history of pharmacologic CETP inhibition



Torcetrapib, ILLUMINATE: negative study, off-target effects (e.g. increased BP)

NEJM 2007; 357:2109-22

Dalcetrapib, dal-OUTCOMES: neutral study, no LDL-C lowering

NEJM 2012; 367:2089-99

Evacetrapib, ACCELERATE: non-significant trends, study underpowered / too short

NEJM 2017; 376:1933-42

Anacetrapib: REVEAL: modest effect, insufficient LDL-C lowering (~-11mg/dl)

NEJM 2017; 377:1217-27

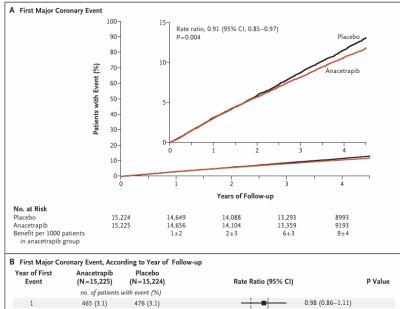
Reducción MACE (HR 0.91; 95% IC, 0.85-0.97; P=0.004)

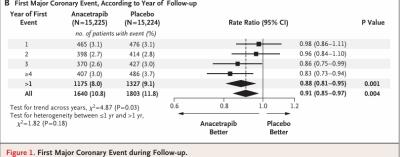
Effects of Anacetrapib in Patients with Atherosclerotic Vascular Disease

The HPS3/TIMI55-REVEAL Collaborative Group*

ABSTRACT

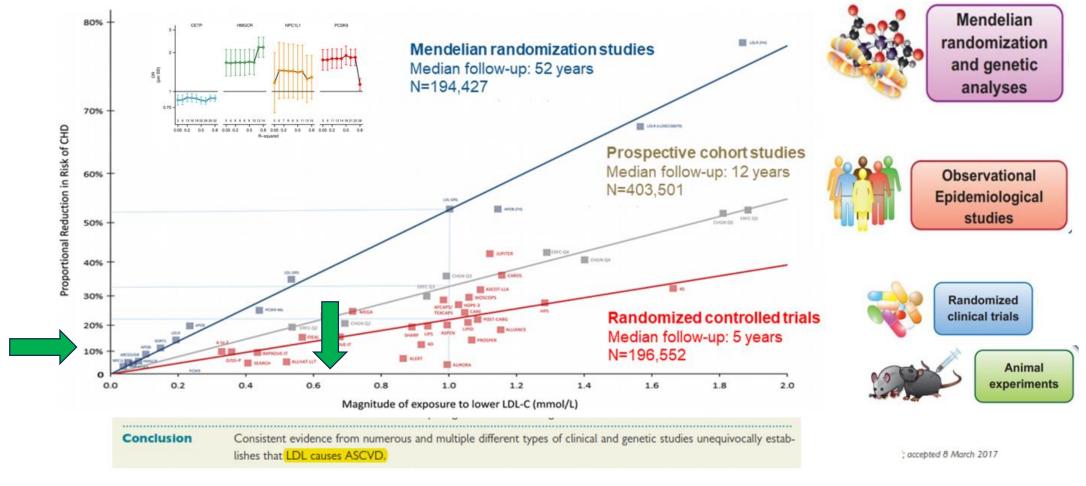
- 30,449 adultos
- Anacetrapib 100 mg diarios o placebo
- (+) Atorvastatina.
- Seguimiento mediano de 4.1 años
- Descenso LDL: 11 mg/dL , 17% respecto basal





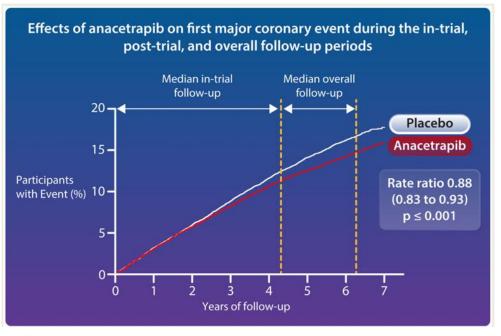
Reducción MACE (HR 0.91; 95% IC, 0.85-0.97; P=0.004)

Low-density lipoproteins cause atherosclerotic cardiovascular disease. 1. Evidence from genetic, epidemiologic, and clinical studies. A consensus statement from the European Atherosclerosis Society Consensus Panel



Long-term safety and efficacy of anacetrapib in patients with atherosclerotic vascular disease

The HPS3/TIMI55-REVEAL Collaborative Group



Year of First Event (N=15225) (N=15224) Rate Ratio (95% CI) P Value Year 1 465 (3.1) 476 (3.1) ————————————————————————————————————	В	Anacetrapib	Placebo			
Year 2 398 (2.7) 414 (2.8) Year 3 370 (2.6) 428 (3.0) Year 4 349 (2.6) 402 (3.0) Year 5 255 (2.0) 335 (2.7) Year 6+ 309 (2.7) 364 (3.3)	Year of First Event	(N=15225)	(N=15224)	R	ate Ratio (95% CI)	P Value
Year 3 370 (2.6) 428 (3.0) Year 4 349 (2.6) 402 (3.0) Year 5 255 (2.0) 335 (2.7) Year 6+ 309 (2.7) 364 (3.3)	Year 1	465 (3.1)	476 (3.1)	-	_ 0	
Year 4 349 (2.6) 402 (3.0) Year 5 255 (2.0) 335 (2.7) Year 6+ 309 (2.7) 364 (3.3)	Year 2	398 (2.7)	414 (2.8)	-	-	
Year 5 255 (2.0) 335 (2.7)	Year 3	370 (2.6)	428 (3.0)	-		
Year 6+ 309 (2.7) 364 (3.3)	Year 4	349 (2.6)	402 (3.0)			
4-37	Year 5	255 (2.0)	335 (2.7)			
All 2146 (14.1) 2419 (15.9) • 0.88 (0.83-0.93) <0.00	Year 6+	309 (2.7)	364 (3.3)			
	All	2146 (14.1)	2419 (15.9)	•	0.88 (0.83-0.9	93) <0.001
			Anad	cetrapib Better	Placebo Better	

ROSE study: Obicetrapib in combination with high-intensity statins

Inclusion criteria

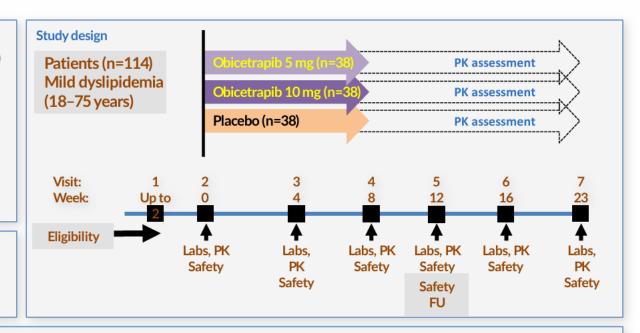
- stable dose of HIS (A 40/80 mg; R 20/40 mg)
 - 8 weeks prior to screening
- LDL-Clevels >1.8 mmol/L

Exclusion criteria

- significant CV disease
- · diabetes mellitus
- uncontrolled hypertension

Primary efficacy endpoint

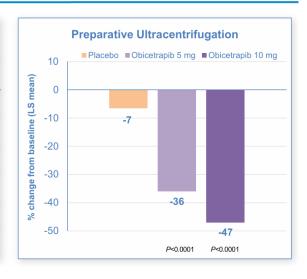
Percent change from baseline in LDL-C compared to the placebo group



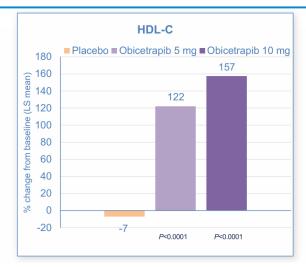
Pre-specified assessment of LDL-C levels by preparative ultra-centrifugation and Friedewald

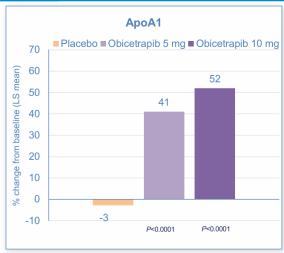
ROSE study: LDL-Cholesterol Lowering

Friedewald 10 Placebo © Obicetrapib 5 mg © Obicetrapib 10 mg -5 -5 -30 -40 -50 P<0.0001 P<0.0001

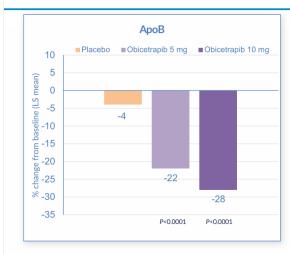


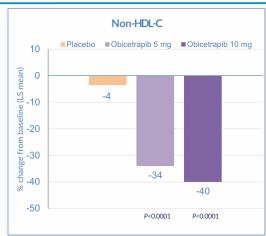
ROSE study: HDL-Cholesterol and ApoA1 increase



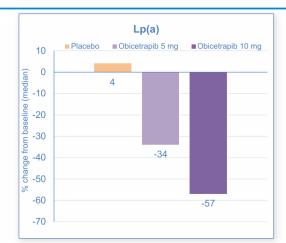


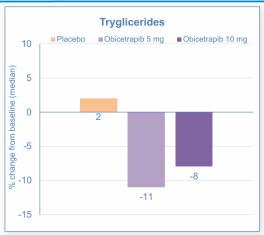
ROSE study: ApoB and Non-HDL-C Lowering





ROSE study: Lipoprotein(a) and Triglyceride Lowering





ROSE: Adverse Events

Adverse events occurring in ≥2 subjects in any treatment arm in the safety population

MedDRA System Organ Class/Preferred Term	Placebo N=40 n (%)	Obicetrapib 5 mg N=40 n (%)	Obicetrapib 10 mg N=40 n (%)
Musculoskeletal and connective tissue disorders	4 (10.0)	4 (10.0)	4 (10.0)
Muscle spasms	2 (5.0)	0	0
General disorders and administration site conditions	4 (10.0)	3 (7.5)	2 (5.0)
Fatigue	2 (5.0)	2 (5.0)	1 (2.5)
Gastrointestinal disorders	4 (10.0)	3 (7.5)	0
Nausea	2 (5.0)	1 (2.5)	0
Nervous system disorders	3 (7.5)	2 (5.0)	2 (5.0)
Investigations	3 (7.5)	2 (5.0)	0
Respiratory, thoracic and mediastinal disorders	3 (7.5)	2 (5.0)	0
Infections and infestations	3 (7.5)	1 (2.5)	0
Injury, poisoning and procedural complications	1 (2.5)	3 (7.5)	1 (2.5)
Metabolism and nutrition disorders	0	2 (5.0)	0
Type 2 diabetes mellitus	0	2 (5.0)	0
Neoplasms benign, malignant and unspecified ^a	2 (5.0)	0	0
Basal-cell carcinoma	2 (5.0)	0	0
Vascular disorders	0	2 (5.0)	0
Hypertension	0	2 (5.0)	0

Nicholls SJ et al. Nat Med 2022;28(8):1672-8

Obicetrapib projected clinical studies



Study Design and Baseline Characteristics of Phase 3 Trials

BROOKLYN 1º endpoint - week 12 N = 354Obicetrapib 10 mg (2:1 randomization)

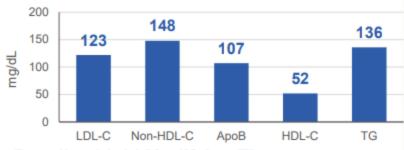
Placebo

13-months

Key Inclusion Criteria

- HeFH
- LDL-C ≥70 mg/dL
- Maximally tolerated lipid lowering therapy

Baseline Lipids (obicetrapib 10mg mean)



Baseline Lipid Modifying Therapy

Any statin 89%

- PCSK9i 14%
- High intensity statin: 79%
- Other 8%
- Ezetimibe: 54%



1º endpoint - week 12

N = 2530

Obicetrapib 10 mg (2:1 randomization)

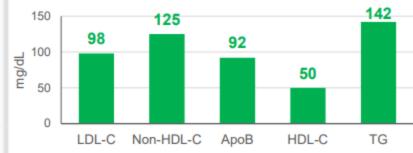
Placebo

13-months

Key Inclusion Criteria

- ASCVD or HeFH
- LDL-C ≥55 mg/dL w/risk factors, or
- LDL-C≥ 100 mg/dL
- Maximally tolerated lipid lowering therapy

Baseline Lipids (blinded mean)



Baseline Lipid Modifying Therapy

- Any statin 91%
- PCSK9i 4%
- High intensity statin: 65%
 Other 11%
- Ezetimibe: 26%

PREVAIL

LDL-C endpoint

N = 9541

Obicetrapib 10 mg (1:1 randomization)

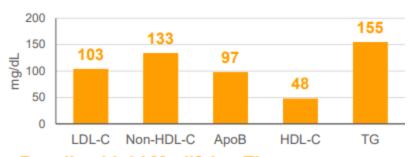
Placebo

54-months

Key Inclusion Criteria

- ASCVD
- LDL-C ≥55 mg/dL w/risk factors, or
- LDL-C≥ 100 ma/dL
- Maximally tolerated lipid lowering therapy

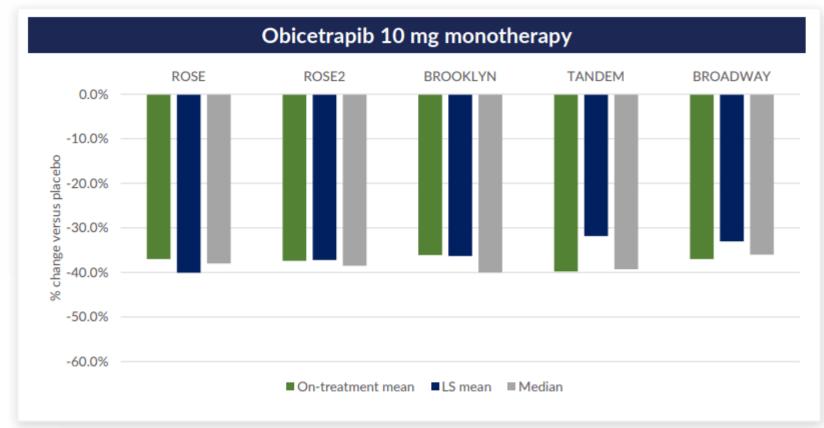
Baseline Lipids (blinded mean)

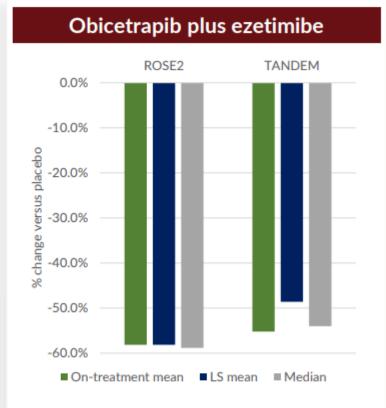


Baseline Lipid Modifying Therapy

- Any statin >90%
- High intensity statin: 70%
- Ezetimibe: 23%

Consistent LDL-C Reduction Observed Across Our Phase 2 and Phase 3 Trials





Monotherapy reductions of 35-40%

Combo reductions of 50-60%

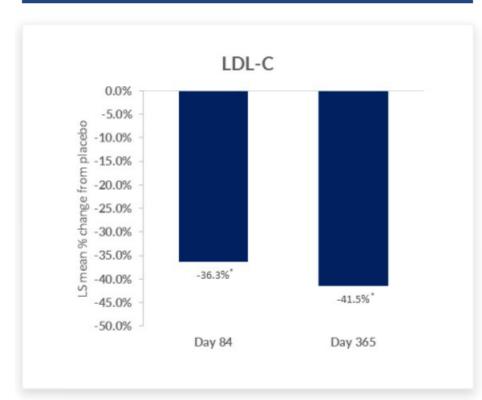


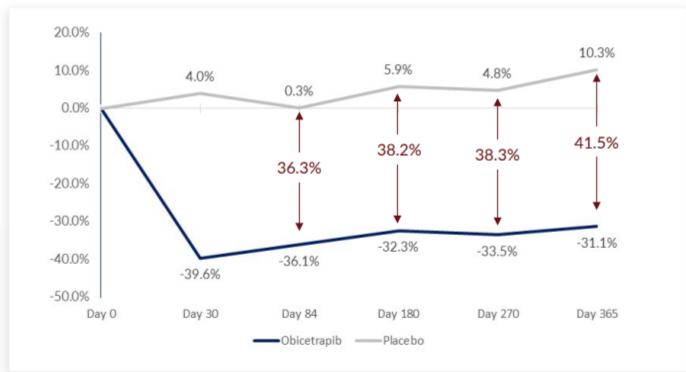


Consistent LDL-C Reduction Observed Over One Year Trial Duration

LS Mean % change vs. placebo

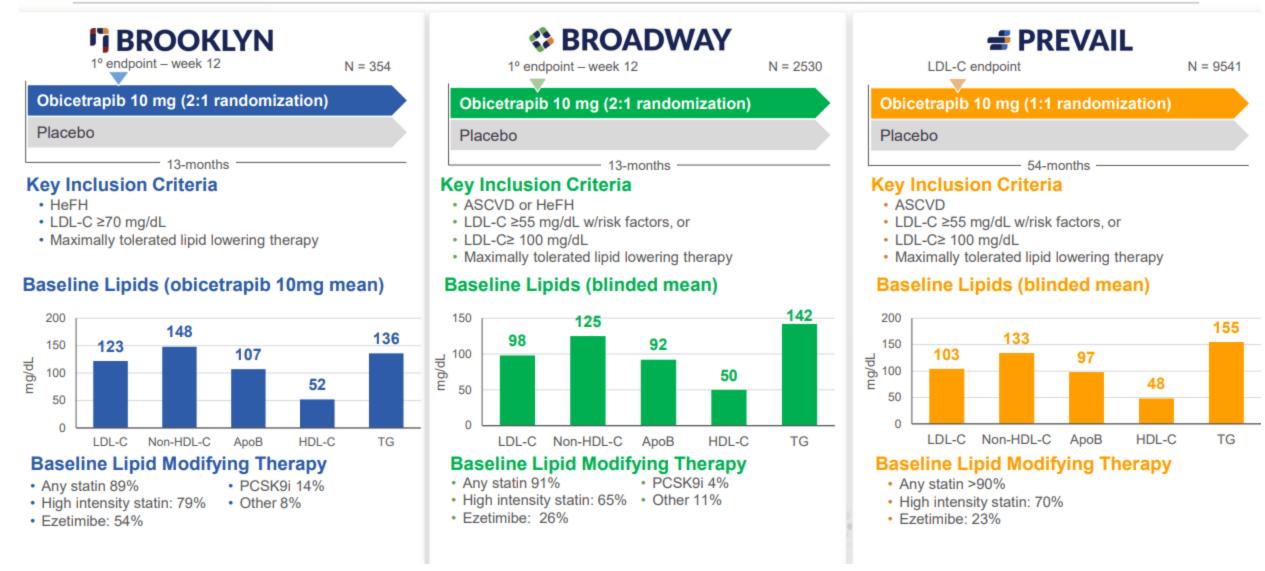
LDL-C reduction over time (ITT population)







Study Design and Baseline Characteristics of Phase 3 Trials



- Seguridad y tolerabilidad: Obicetrapib fue bien tolerado con un perfil de seguridad comparable al placebo.

