




Guías ESC sobre dislipidemias 2016

Dr. Chih Hao Chen Ku, FACE
Servicio de Endocrinología, Hospital San Juan de Dios
Departamento de Farmacología y Toxicología Clínica,
Universidad de Costa Rica

EndoDrChen.com

Conflictos de interés

- Conferencista: Astra Zeneca, Abbott Nutrición, Novartis Oncology, Novo Nordisk, Merck Sharp & Dohme, Roche, Glaxo SmithKline, Sanofi Aventis
- Advisory Board: Novartis Oncology, Sanofi Aventis, Astra Zeneca, Novo Nordisk, Stendhal, Pfizer
- Investigación clínica: Astra Zeneca, Novartis Pharma Logistics Inc., Merck Sharp & Dohme, Glaxo SmithKline, Organon, Boehringer Ingelheim, Roche, Novo Nordisk

EndoDrChen.com

Agenda

- Revisar las guías del 2016 sobre manejo de dislipidemias
 - Estratificación de riesgo
 - Modificación de estilos de vida
 - Cuál es el impacto real?
 - Qué hay diferente en metas de tratamiento?

EndoDrChen.com

Algunas consideraciones...

- Pacientes de alto/muy alto riesgo requieren tratamiento
 - Prevención secundaria
 - Algunos diabéticos
 - Múltiples factores de riesgo
- Pacientes jóvenes y de bajo riesgo no requiere tratamiento usualmente
- La controversia es cómo identificar y qué hacer con el de riesgo intermedio

EndoDrChen.com

Caso #1

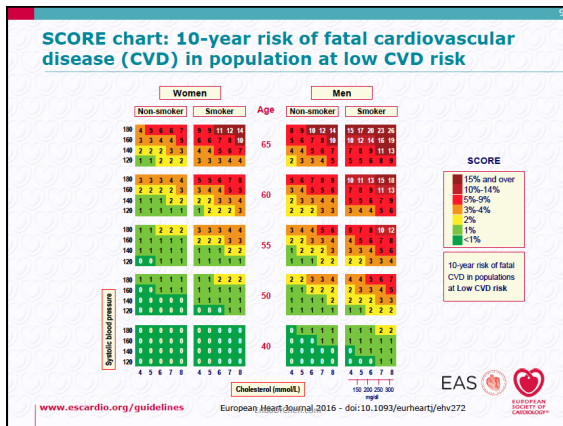
- Masculino de 50 años
- HTA tratado con candesartan 16 mg por día
- PA 144/90 mm Hg
- No tabaquista
- IMC 28 kg/m²
- Colesterol total 220 mg/dl, HDL 34 mg/dl, triglicéridos 235 mg/dl, LDL 139 mg/dl

EndoDrChen.com

**2016 ESC/EAS Guidelines
on the management of
dyslipidaemias**

European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272





Caso #1

- Según SCORE, el riesgo es bajo
- Según ASCVD Risk Estimator (Pooled Cohort Equation) 8.5% a 10 años
 - Alto riesgo
- Cuál es la diferencia?
- Mortalidad vs eventos
- Decisión de tratamiento

EndoDrChen.com

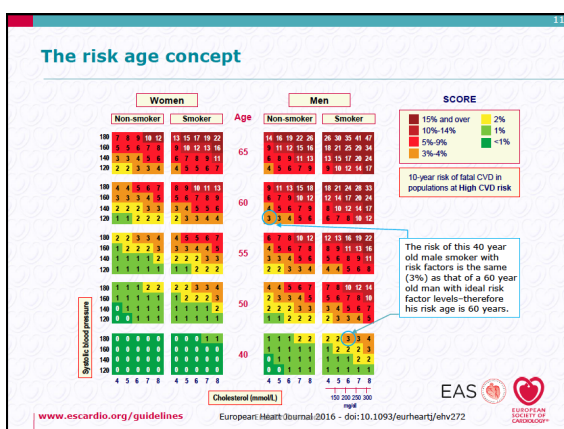
Caso #2

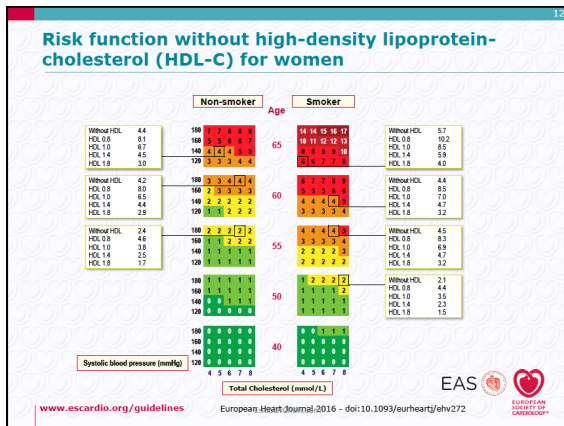
- Paciente masculino de 32 años de edad, consulta por un chequeo médico
- Tabaquista de 10 cigarrillos por día
- IMC 27 kg/m²
- PA 132/84 mm Hg
- Colesterol total 240 mg/dl, triglicéridos 350 mg/dl, HDL 30 mg/dl, LDL 140 mg/dl
- Cuál es el riesgo de este paciente?

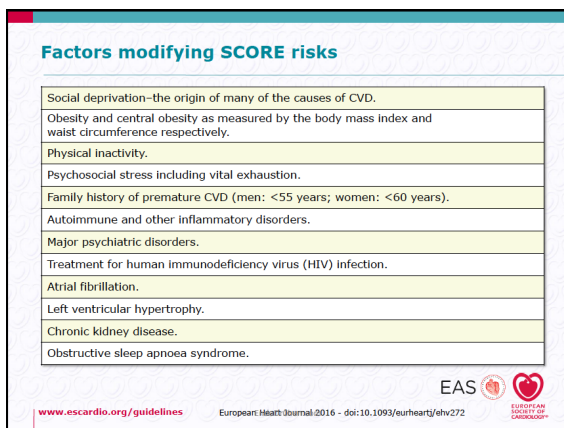
EndoDrChen.com

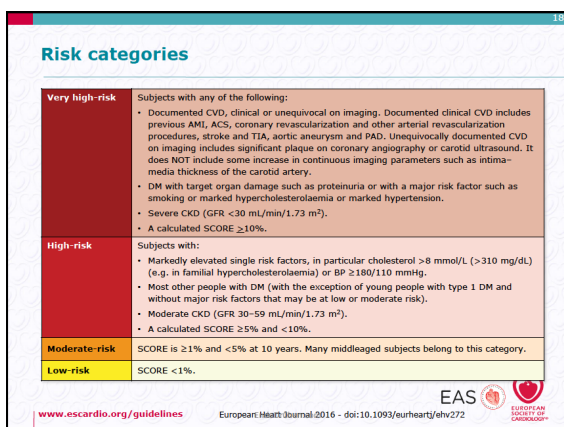


-
-
-
-
-
-










19

Intervention strategies

Total CV risk (SCORE) %	LDL-C levels				
	<70 mg/dL <1.8 mmol/L	70 to <100 mg/dL 1.8 to <2.6 mmol/L	100 to <155 mg/dL 2.6 to <4.0 mmol/L	155 to <190 mg/dL 4.0 to <4.9 mmol/L	≥190 mg/dL ≥4.9 mmol/L
<1	Lifestyle advice	Lifestyle advice	Lifestyle advice	Lifestyle advice	Lifestyle advice, consider drug if uncontrolled
Class/Level	IC	IC	IC	IC	IaA
≥1 to <5	Lifestyle advice	Lifestyle advice	Lifestyle advice, consider drug if uncontrolled	Lifestyle advice, consider drug if uncontrolled	Lifestyle advice, consider drug if uncontrolled
Class/Level	IC	IC	IaA	IaA	IA
≥5 to <10, or high-risk	Lifestyle advice	Lifestyle advice, consider drug if uncontrolled	Lifestyle advice and drug treatment for most	Lifestyle advice and drug treatment	Lifestyle advice and drug treatment
Class/Level	IaA	IaA	IaA	IA	IA
≥10 or very high-risk	Lifestyle advice, consider drug*	Lifestyle advice and concomitant drug treatment	Lifestyle advice and concomitant drug treatment	Lifestyle advice and concomitant drug treatment	Lifestyle advice and concomitant drug treatment
Class/Level	IaA	IaA	IA	IA	IA

*In patients with myocardial infarction, statin therapy should be considered irrespective of total cholesterol levels.

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272


EAS  EUROPEAN ASSOCIATION OF CARDIOVASCULAR NURSING

20

Risk estimation

Recommendations	Class	Level
Total risk estimation using a risk estimation system such as SCORE is recommended for asymptomatic adults >40 years of age without evidence of CVD, diabetes, CKD or familial hypercholesterolaemia.	I	C
High and very high-risk individuals can be detected on the basis of documented CVD, diabetes mellitus, moderate to severe renal disease, very high levels of individual risk factors, familial hypercholesterolaemia or a high SCORE risk and are a high priority for intensive advice with regard to all risk factors.	I	C

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272


EAS  EUROPEAN ASSOCIATION OF CARDIOVASCULAR NURSING

21

Risk estimation

Recommendations	Class	Level
TC is to be used for the estimation of total CV risk by means of the SCORE system.	I	C
LDL-C is recommended to be used as the primary lipid analysis for screening, risk estimation, diagnosis and management. HDL-C is a strong independent risk factor and is recommended to be used in the HeartScore algorithm.	I	C
TG adds information to risk and is indicated for risk estimation.	I	C
Non-HDL-C is a strong independent risk factor and should be considered as a risk marker, especially in subjects with high TG.	I	C
ApoB should be considered as an alternative risk marker whenever available, especially in subjects with high TG.	IIa	C
Lp(a) should be considered in selected cases at high-risk, in patients with a family history of premature CVD, and for reclassification in subjects with borderline risk.	IIa	C
The ratio apoB/apoA1 may be considered as an alternative analysis for risk estimation.	IIa	C
The ratio non-HDL-C/HDL-C may be considered as an alternative but HDL-C used in HeartScore gives a better risk estimation.	IIa	C


www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272

EAS  EUROPEAN ASSOCIATION OF CARDIOVASCULAR NURSING

22

Lipid analyses

Recommendations	Class	Level
LDL-C has to be used as the primary lipid analysis.	I	C
HDL-C is recommended to be analysed before treatment.	I	C
TG adds information about risk, and is indicated for diagnosis and choice of treatment.	I	C
Non-HDL-C is recommended to be calculated, especially in subjects with high TG.	I	C
When available, apoB should be an alternative to non-HDL-C.	IIa	C
Lp(a) should be recommended in selected cases at high-risk, for reclassification at borderline risk, and in subjects with a family history of premature CVD.	IIa	C
TC may be considered but is usually not enough for the characterization of dyslipidaemia before initiation of treatment.	IIb	C

www.escardio.org/guidelines
 European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272
 


CÓMO SE DEBE INTERVENIR?

EndoDrChen.com

23

Treatment targets and goals for cardiovascular disease prevention

Smoking	No exposure to tobacco in any form.
Diet	Healthy diet low in saturated fat with a focus on whole grain products, vegetables, fruit and fish.
Physical activity	2.5-5 h moderately vigorous physical activity per week or 30-60 min most days.
Body weight	BMI 20-25 kg/m ² , waist circumference <94 cm (men) and <80 cm (women).
Blood pressure	<140/90 mmHg.
Lipid LDL-C is the primary target	Very high-risk: LDL-C <1.8 mmol/L (70 mg/dL) or a reduction of at least 50% if the baseline is between 1.8 and 3.5 mmol/L (70 and 135 mg/dL).
	High-risk: LDL-C <2.6 mmol/L (100 mg/dL) or a reduction of at least 50% if the baseline is between 2.6 and 5.2 mmol/L (100 and 200 mg/dL).
	Low to moderate risk: LDL-C <3 mmol/L (115 mg/dL).
	Non-HDL-C secondary targets are <2.6, 3.4 and 3.8 mmol/L (100, 130 and 145 mg/dL) for very high-, high- and moderate-risk subjects, respectively.
	HDL-C: no target, but >1.0 mmol/L (40 mg/dL) in men and >1.2 mmol/L (48 mg/dL) in women indicates lower risk.
Diabetes	TG: no target but <1.7 mmol/L (150 mg/dL) indicates lower risk and higher levels indicate a need to look for other risk factors.
	HbA1c: <7% (<8.6 mmol/L).



www.escardio.org/guidelines
 European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272
 

26

Treatment goals for low-density lipoprotein-cholesterol

Recommendations	Class	Level
In patients at VERY HIGH CV risk, an LDL-C goal of <1.8 mmol/L (70 mg/dL) or a reduction of at least 50% if the baseline LDL-C is between 1.8 and 3.5 mmol/L (70 and 135 mg/dL) is recommended.	I	B
In patients at HIGH CV risk, an LDL-C goal of <2.6 mmol/L (100 mg/dL), or a reduction of at least 50% if the baseline LDL-C is between 2.6 and 5.2 mmol/L (100 and 200 mg/dL) is recommended.	I	B
In subjects at LOW or MODERATE risk an LDL-C goal of <3.0 mmol/L (<115 mg/dL) should be considered.	IIa	C

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272






28

Impact of specific lifestyle changes on lipid levels (1)

	Magnitude of the effect	Level of evidence	References
Lifestyle interventions to reduce TC and LDL-C levels			
Reduce dietary trans fat	+++	A	136, 139
Reduce dietary saturated fat	+++	A	136, 137
Increase dietary fibre	++	A	140, 141
Use functional foods enriched with phytosterols	++	A	142, 143
Use red yeast rice supplements	++	A	144-146
Reduce excessive body weight	++	A	147, 148
Reduce dietary cholesterol	+	B	149
Increase habitual physical activity	+	B	150
Use soy protein products	+/-	B	151

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272






29

Impact of specific lifestyle changes on lipid levels (2)

	Magnitude of the effect	Level of evidence	References
Lifestyle interventions to reduce TG-rich lipoprotein levels			
Reduce excessive body weight	+++	A	147, 148
Reduce alcohol intake	+++	A	152, 153
Increase habitual physical activity	++	A	150, 154
Reduce total amount of dietary carbohydrate	++	A	148, 155
Use supplements of n-3 polyunsaturated fat	++	A	156, 157
Reduce intake of mono- and disaccharides	++	B	158, 159
Replace saturated fat with mono- or polyunsaturated fat	+	B	136, 137

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272





30

Impact of specific lifestyle changes on lipid levels (3)

	Magnitude of the effect	Level of evidence	References
Lifestyle interventions to increase HDL-C levels			
Reduce dietary trans fat	+++	A	136, 160
Increase habitual physical activity	+++	A	150, 161
Reduce excessive body weight	++	A	147, 148
Reduce dietary carbohydrates and replace them with unsaturated fat	++	A	148, 162
Modest consumption in those who take alcohol may be continued	++	B	152
Quit smoking	+	B	163
Among carbohydrate-rich foods prefer those with low glycaemic index and high fibre content	+/-	C	164
Reduce intake of mono- and disaccharides	+/-	C	158, 159

www.escardio.org/guidelines European Heart Journal, 2016 - doi:10.1093/eurheartj/ehv272



EAS
 EUROPEAN ASSOCIATION
 SOCIETY OF
 CARDIOLOGY

31

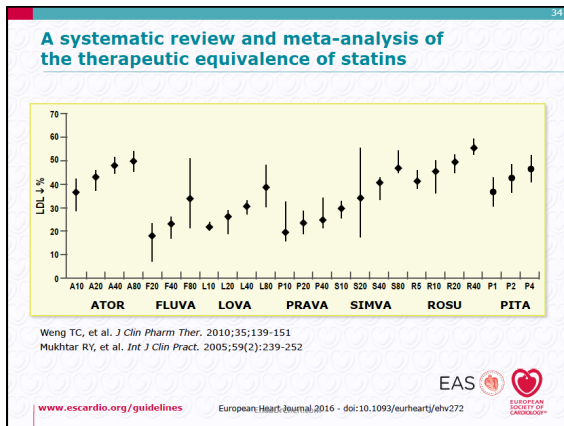
Dietary recommendations to lower low-density lipoprotein-cholesterol

	To be preferred	To be used with moderation	To be chosen occasionally in limited amounts
Cereals	Whole grains	Refined bread, rice and pasta, biscuits, corn flakes	Pastries, muffins, pies, croissants
Vegetables	Raw and cooked vegetables	Potatoes	Vegetables prepared in butter or cream
Legumes	Lentils, beans, fava beans, peas, chickpeas, soybean		
Fruit	Fresh or frozen fruit	Dried fruit, jelly, jam, canned fruit, sorbets, popsicles, fruit juice	
Sweets and sweeteners	Non-caloric sweeteners	Sucrose, honey, chocolate, candies	Cakes, ice creams, fructose, soft drinks
Meat and fish	Lean and oily fish, poultry without skin	Lean cuts of beef, lamb, pork or veal, seafood, shellfish	Sausages, salami, bacon, spare ribs, hot dogs, organ meats
Dairy food and eggs	Skim milk and yogurt	Low fat milk, low fat cheese and other milk products, eggs	Regular cheese, cream, whole milk and yogurt
Cooking fat and dressings	Vinegar, mustard, fat-free dressings	Olive oil, non-tropical vegetable oils, soft margarine, salad dressing, mayonnaise, ketchup	Trans fats and hard margarine (better to avoid them), palm and coconut oils, butter, lard, bacon fat
Nuts/seeds		All, unsalted (except coconut)	Coconut
Cooking procedures	Grilling, boiling, steaming	Stir-frying, roasting	Frying

www.escardio.org/guidelines European Heart Journal, 2016 - doi:10.1093/eurheartj/ehv272


EAS
 EUROPEAN ASSOCIATION
 SOCIETY OF
 CARDIOLOGY

TERAPIA FARMACOLÓGICA



Pharmacological treatment of hypercholesterolaemia

Recommendations	Class	Level
Prescribe statin up to the highest recommended dose or highest tolerable dose to reach the goal.	I	A
In the case of statin intolerance, ezetimibe or bile acid sequestrants, or these combined, should be considered.	IIa	C
If the goal is not reached, statin combination with a cholesterol absorption inhibitor should be considered.	IIa	B
If the goal is not reached, statin combination with a bile acid sequestrant may be considered.	IIb	C
In patients at very high-risk, with persistent high LDL-C despite treatment with maximal tolerated statin dose, in combination with ezetimibe or in patients with statin intolerance, a PCSK9 inhibitor may be considered.	IIb	C

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272

EAS

Drug treatments of hypertriglyceridaemia

Recommendations	Class	Level
Drug treatment should be considered in high-risk patients with TG >2.3 mmol/L (200 mg/dL).	IIa	B
Statin treatment may be considered as the first drug of choice for reducing CVD risk in high-risk individuals with hypertriglyceridaemia.	IIb	B
In high-risk patients with TG >2.3 mmol/L (200 mg/dL) despite statin treatment, fenofibrate may be considered in combination with statins.	IIb	C



www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272

EAS

Efficacy of drug combinations for the management of mixed dyslipidaemias



A combination of statins with fibrates can also be considered while monitoring for myopathy, but the combination with gemfibrozil should be avoided.

If TG are not controlled by statins or fibrates, prescription of n-3 fatty acids may be considered to decrease TG further, and these combinations are safe and well tolerated.

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272 EAS  

Drug treatments of low high-density lipoprotein-cholesterol is considered

Recommendations	Class	Level
Statins and fibrates raise HDL-C with similar magnitude and these drugs may be considered.	IIb	B
The efficacy of fibrates to increase HDL-C may be attenuated in people with type 2 diabetes.	IIb	B

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272 EAS  

SITUACIONES ESPECIALES

EndoDrChen.com



Dutch Lipid Clinic Network diagnostic criteria for familial hypercholesterolaemia

Criteria	Points
1) Family history	
First-degree relative with known premature (men: <55 years; women: <60 years) coronary or vascular disease, or	
First-degree relative with known LDL-C above the 95 th percentile.	1
First-degree relative with tendinous xanthomata and/or arcus cornealis, or children <18 years of age with LDL-C above the 95 th percentile.	2
2) Clinical history	
Patient with premature (men: <55 years; women: <60 years) coronary artery disease	2
Patient with premature (men: <55 years; women: <60 years) cerebral or peripheral vascular disease	1
3) Physical examination	
Tendinous xanthomata	6
Arcus cornealis before age 45 years	4
4) LDL-C levels	
LDL-C ≥ 8.5 mmol/L (325 mg/dL)	8
LDL-C 6.5-8.4 mmol/L (251-325 mg/dL)	5
LDL-C 5.0-6.4 mmol/L (191-250 mg/dL)	3
LDL-C 4.0-4.9 mmol/L (155-190 mg/dL)	1
5) DNA analysis	
Functional mutation in the LDLR, apoB or PCSK9 gene	8
Choose only one score per group, the highest applicable Diagnosis (diagnosis is based on the total number of points obtained)	
A 'definite' FH diagnosis requires >8 points	
A 'probable' FH diagnosis requires 6-8 points	
A 'possible' FH diagnosis requires 3-5 points	



EndoDrChen.com

Management of dyslipidaemia in women

Statin treatment is recommended for primary prevention of CAD in high-risk women.

Statins are recommended for secondary prevention in women with the same indications and targets as in men.

Lipid-lowering drugs should not be given when pregnancy is planned, during pregnancy or during the breastfeeding period. However, bile acid sequestrants (which are not absorbed) may be considered.

EAS  



www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272

46

Treatment of dyslipidaemia in older adults

Recommendations	Class	Level
Treatment with statins is recommended for older adults with established CVD in the same way as for younger patients.	I	A
Since older people often have co-morbidities and have altered pharmacokinetics, lipid-lowering medication should be started at a lower dose and then titrated with caution to achieve target lipid levels that are the same as in younger subjects.	IIa	C
Statin therapy should be considered in older adults free from CVD, particularly in the presence of hypertension, smoking, diabetes and dyslipidaemia.	IIa	B

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272

EAS   EUROPEAN SOCIETY OF CARDIOLOGY

Summary of dyslipidaemia in metabolic syndrome and in type 2 diabetes



Dyslipidaemia in MetS represents a cluster of lipid and lipoprotein abnormalities including elevation of both fasting and postprandial TG, apoB, and small dense LDL and low HDL-C and apoA1.

Non-HDL-C or apoB are good surrogate markers of TRLs and remnants and are a secondary objective of therapy. Non-HDL-C <3.4 mmol/L (<130 mg/dL) or apoB <100 mg/dL is desirable in those at high-risk, and <2.6 mmol/L (<100 mg/dL) and <80 mg/dL, respectively, in those at very high-risk.

Increased waist circumference and elevation of TG seems to be a simple tool to capture the high-risk subjects with MetS.

Atherogenic dyslipidaemia is one of the major risk factors for CVD in people with type 2 diabetes.

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272



EAS   EUROPEAN SOCIETY OF CARDIOLOGY

48

Treatment of dyslipidaemia in diabetes

Recommendations	Class	Level
In all patients with type 1 diabetes and in the presence of micro-albuminuria and/or renal disease, LDL-C lowering (at least 50%) with statins as the first choice is recommended irrespective of the baseline LDL-C concentration.	I	C
In patients with type 2 diabetes and CVD or CKD, and in those without CVD who are >40 years of age with one or more other CVD risk factors or markers of target organ damage, the recommended goal for LDL-C is <1.8 mmol/L (<70 mg/dL) and the secondary goal for non-HDL-C is <2.6 mmol/L (<100 mg/dL) and for apoB is <80 mg/dL.	I	B
In all patients with type 2 diabetes and no additional risk factors and/or evidence of target organ damage, LDL-C <2.6 mmol/L (<100 mg/dL) is the primary goal. Non-HDL-C <3.4 mmol/L (<130 mg/dL) and apoB <100 mg/dL are the secondary goals.	I	B

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272

EAS   EUROPEAN SOCIETY OF CARDIOLOGY

49

Lipid-lowering therapy

Recommendations	Class	Level
It is recommended to initiate or continue high dose statins early after admission in all ACS patients without contraindication or history of intolerance, regardless of initial LDL-C values.	I	A
If the LDL-C target is not reached with the highest tolerable statin dose, ezetimibe should be considered in combination with statins in post-ACS patients.	IIa	B
If the LDL-C target is not reached with the highest tolerable statin dose and/or ezetimibe, PCSK9 inhibitors may be considered on top of lipid-lowering therapy; or alone or in combination with ezetimibe in statin intolerant patients or in whom a statin is contra-indicated.	IIb	C
Lipids should be re-evaluated 4–6 weeks after ACS to determine whether target levels of LDL-C <1.8 mmol/L (<70 mg/dL) or a reduction of at least 50% if the baseline is between 1.8 and 3.5 mmol/L (70 and 135 mg/dL) have been reached and whether there are any safety issues. The therapy dose should then be adapted accordingly.	IIa	C
Routine short pretreatment or loading (on the background of chronic therapy) with high-dose statins before PCI should be considered in elective PCI or in NSTEMI-ACS.	IIa	A




www.escardio.org/guidelines EndoDrChen.com

50

Treatment of dyslipidaemia in heart failure or valvular disease

Recommendations	Class	Level
Cholesterol-lowering therapy with statins is not recommended (but is not harmful either) in patients with heart failure in the absence of other indications for their use.	III	A
n-3 PUFAs 1 g/day may be considered for addition to optimal treatment in patients with heart failure.	IIb	B
Cholesterol-lowering treatment is not recommended in patients with aortic valvular stenosis without CAD in the absence of other indications for their use.	III	A

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272




EAS   

51

Treatment of dyslipidaemia in autoimmune diseases

Recommendations	Class	Level
The universal use of lipid-lowering drugs is not recommended.	III	C

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272



EAS   

52

Lipid management in patients with moderate to severe chronic kidney disease

Recommendations	Class	Level
Patients with stage 3–5 CKD have to be considered at high or very high CV risk.	I	A
The use of statins or statin/ezetimibe combination is indicated in patients with non-dialysis-dependent CKD.	I	A
In patients with dialysis-dependent CKD and free of atherosclerotic CVD, statins should not be initiated.	III	A
In patients already on statins, ezetimibe or on a statin/ezetimibe combination at the time of dialysis initiation, these drugs should be continued particularly in patients with CVD.	IIa	C
In adult kidney transplant recipients treatment with statins may be considered.	IIb	C

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272



EAS  

54

Lipid-lowering drugs in patients with peripheral arterial disease (including carotid artery disease)

Recommendations	Class	Level
PAD is a very-high-risk condition and lipid-lowering therapy (mostly statins) is recommended in these patients.	I	A
Statin therapy should be considered to prevent the progression of abdominal aortic aneurysm.	IIa	B

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272



EAS  

55

Lipid-lowering drugs for primary and secondary prevention of stroke

Recommendations	Class	Level
Statin therapy to reach established treatment goals is recommended in patients at high or very high CV risk for primary prevention of stroke.	I	A
Lipid-lowering therapy is recommended in patients with other manifestations of CVD for primary prevention of stroke.	I	A
Intensive statin therapy is recommended in patients with a history of non-cardioembolic ischaemic stroke or TIA for secondary prevention of stroke.	I	A

www.escardio.org/guidelines European Heart Journal 2016 - doi:10.1093/eurheartj/ehv272

EAS  

Conclusiones

- Todas las guías tienen el componente de estratificación de riesgo
- Qué hacer con el paciente en riesgo intermedio?
- Recomendaciones específicas de modificación de estilos de vida y para situaciones especiales
- Las guías europeas siguen usando metas de tratamiento (excepto en el grupo de muy alto riesgo)

EndoDrChen.com

Preguntas...
chenku2409@gmail.Com
EndoDrChen.Com

EndoDrChen.com
