







# **NOVIDADES**

## DAS GUIDELINES DA ESC 2023

## Doença Cardiovascular e Diabetes

Beatriz Andrade

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

Developed by the task force on the management of cardiovascular disease in patients with diabetes of the European Society of Cardiology (ESC)

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## What is new?

Lipids and diabetes—Section 5.5

		•		
Recommendations  Cardiovascular risk assessment in diabetes— In patients with T2DM without symptomatic ASCVD	Class <sup>a</sup> Level <sup>b</sup> Section 4	If HF is suspected, it is recommended to measure  BNP/NT-proBNID	1	Α
or severe TOD, it is recommended to estimate 10-year CVD risk via SCORE2-Diabetes.  Weight reduction in patients with	I B	Systematic survey for HF symptoms and/or signs of HF is recommended at each clinical encounter in all patients with disk.	lla	В
Clopidogrel 75 mg o.u. loans already on	onto	Transthoracic echocardiography is recommended  Chest radiography (X-ray) is recommended  A comparison of the commended of the	A	С
patients with CCS, irrespective of stent type, ur patients with CCS, irrespective of stent type, ur w shorter duration is indicated due to the risk o	r Ness a	vitl recommended, including full blood count, urea, creatinine and electronic reatinine and electronic restriction is recommended, including full blood count, urea, creatinibe combination is recommended.	A	В
w shorter duration is indicated Ba occurrence of life-threatening bleeding.  Vei In patients with diabetes and ACS treated with the patients with the patients of the patients with the patients with the patients of the patients with th	th ot P2Y <sub>12</sub>	(NYHA class II-IV) and diabetes  SGLT2 inhibitors (dapagliflozin, empagliflozin, or HFrEF and T2DM to reduce the risk of UE  SGLT2 inhibitors (dapagliflozin, empagliflozin, or HFrEF and T2DM to reduce the risk of UE  ARB in patients with T2DM and eGFR > 30 mg/mmol (≥300 mg/mmol)	A	
recommended.  Adding very low-dose rivaroxaban to low- for long-term prevention of serious vascul should be considered in patients with dial CCS or symptomatic PAD without high bl	dose ASA ar events setes and	An intensive strategy of early initiation of evidence-based treatment (SGLT2 inhibitors, ARNI/ up-titration to trial-defined target doses starting the first 6 words of the strategy of early initiation of evidence-based treatment (SGLT2 inhibitors, ARNI/ up-titration to trial-defined target doses starting the first 6 words of the strategy of early initiation of evidence-based treatment (SGLT2 inhibitors, ARNI/ up-titration to trial-defined target doses starting the first 6 words of the strategy of early initiation of evidence-based treatment (SGLT2 inhibitors, ARNI/ up-titration to trial-defined target doses starting the first 6 words of the strategy of early initiation of evidence-based treatment (SGLT2 inhibitors, ARNI/ up-titration to trial-defined target doses starting the first 6 words of the strategy of early initiation of evidence-based treatment (SGLT2 inhibitors, ARNI/ up-titration to trial-defined target doses starting the first 6 words of the strategy of early initiation of evidence-based treatment (SGLT2 inhibitors, ARNI/ up-titration to trial-defined target doses starting the first 6 words of the strategy of early initiation of evidence-based treatment (SGLT2 inhibitors, ARNI/ up-titration to trial-defined target doses starting the first 6 words of the strategy of the strategy of early initiation of evidence-based treatment (SGLT2 inhibitors, ARNI/ up-titration to trial-defined target doses starting the strategy of the		A
		recommended to reduce re-admissions or mortality.	 rembf	<b>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</b>



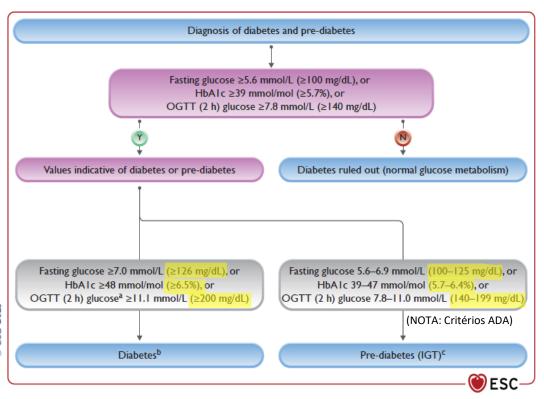
## **Diabetes – Diagnóstico**



Uma pandemia silenciosa...

- **537 milhões** de indivíduos em todo o mundo em 2021 (prevalência de 10,5%)
- espera-se que esse número aumente para **783 milhões de casos até 2045** (12,2%)

Recommendations	Classa	Level <sup>b</sup>	
Screening for diabetes is recommended in all individuals with CVD, <sup>c</sup> using fasting glucose and/or HbA1c. <sup>5–7,36,37,39</sup>	1	Α	
It is recommended that the diagnosis of diabetes is based on HbA1c and/or fasting plasma glucose, or on an OGTT if still in doubt 4.5-8,10,11	1	В	© ESC 2023



b\* Se sintomas, 1 teste é suficiente; se assintomático, são necesários 2 testes alterados

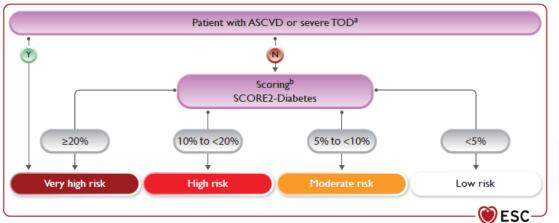


## Avaliação do Risco CV na Diabetes



Para os doentes com DMT2 sem doença cardiovascular estabelecida ou lesão de órgão alvo, introduz-se

um novo score de risco CV: **SCORE2-Diabetes** 



Recommendations to assess cardiovascular risk in patients with diabetes	Classa	Level <sup>b</sup>	
It is recommended to screen patients with diabetes for the presence of severe TOD. c.43,44	10	Α	
It is recommended to assess medical history and the presence of symptoms suggestive of ASCVD in patients with diabetes. 53-55	1	В	
In patients with T2DM without symptomatic ASCVD or severe TOD, <sup>c</sup> it is recommended to estimate 10-year CVD risk via SCORE2-Diabetes. <sup>4,50</sup>	1	В	© ESC 2023



(idade, tabagismo, PAS, colesterol total e HDL)



#### **Diabetes**

(idade no diagnóstico, HbA1c e TFG)

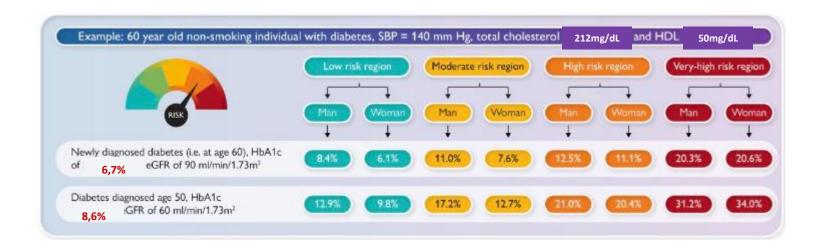




## Avaliação do Risco CV na Diabetes



Para os doentes com DMT2 sem doença cardiovascular estabelecida ou lesão de órgão alvo, introduz-se um novo score de risco CV: SCORE2-Diabetes





Recommendation Table 3 — Recommendations for reducing weight in patients with type 2 diabetes with or without cardiovascular disease

Recommendations	Classa	Level <sup>b</sup>
It is recommended that individuals living with overweight or obesity aim to reduce weight and increase physical exercise to improve metabolic control and overall CVD risk profile. 56,79	1	A
Glucose-lowering medications with effects on weight loss (e.g. GLP-1 RAs) should be considered in patients with overweight or obesity to reduce weight. <sup>67</sup>	lla	В
Bariatric surgery should be considered for high and very high risk patients with BMI ≥35 kg/m² (≥Class II°) when repetitive and structured efforts of lifestyle changes combined with weight-reducing medications do not result in maintained weight loss. (33-77)	_ IIa	В

#### Estilo de Vida

Recommendation Table 4 — Recommendations for nutrition in patients with type 2 diabetes with or without cardiovascular disease

Recommendations	Classa	Level <sup>b</sup>	
It is recommended to adopt a Mediterranean or plant-based diet with high unsaturated fat content to lower cardiovascular risk <sup>82,85</sup>	1	Α	ESC 2023

Recommendation Table 5 — Recommendations for physical activity/exercise in patients with type 2 diabetes

with or without cardiovascular disease

Recommendation	Classa	Level <sup>b</sup>
It is recommended to increase any physical activity (e.g. 10 min daily walking) in all patients with T2DM with and without CVD. Optimal is a weekly activity of 150 min of moderate intensity or 75 min of vigorous endurance intensity. 97,98	i.	Α
It is recommended to adapt exercise interventions to T2DM-associated comorbidities, e.g. frailty, neuropathy, or retinopathy. 108,115	1	В
It is recommended to introduce structured exercise training in patients with T2DM and established CVD, e.g. CAD, HFpEF, HFmrEF, HFrEF, or AF to improve metabolic control, exercise capacity and quality of life, and to reduce CV events. 108,115,116	i.	В
It is recommended to perform resistance exercise in addition to endurance exercise at least twice a week. 115,117	1	В

Recommendation Table 6 — Recommendations for smoking cessation in patients with type 2 diabetes with or without cardiovascular disease

Recommendations	Classa	Level <sup>b</sup>	
It is recommended to stop smoking to reduce cardiovascular risk. 118–120	1	Α	
Nicotine replacement therapy, varenicline, and bupropion, as well as individual or telephone counselling, should be considered to improve smoking cessation success rate. <sup>121</sup>	lla	В	© ESC 2023

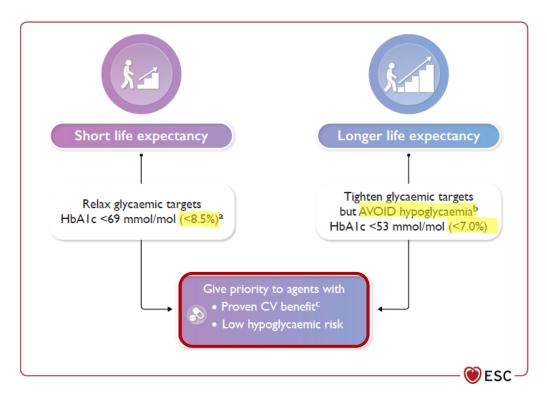


#### **Alvos Glicémicos**



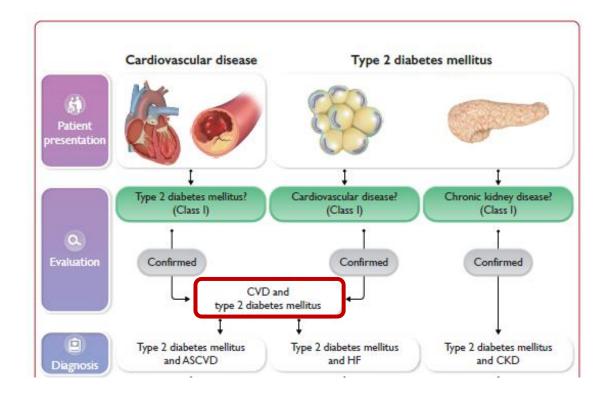
- Alvos personalizados
- Exposição à **hipoglicémia < 1%** (i.e. <15min/dia) em indivíduos com elevado risco CV

Recommendations	Classa	Level <sup>b</sup>	
It is recommended to apply tight glycaemic control (HbA1c <7%) to reduce microvascular complications. 126–128,133	1	A	
It is recommended to avoid hypoglycaemia, particularly in patients with CVD. <sup>134–137,147</sup>	1	В	
It is recommended to individualize HbA1c targets according to comorbidities, diabetes duration, and life expectancy. 134,137	1	с	
Tight glycaemic control should be considered for reducing CAD in the long term, preferably using agents with proven CV benefit. c,129–132	Ha	В	© ESC 2023





## Diabetes e Doença CV





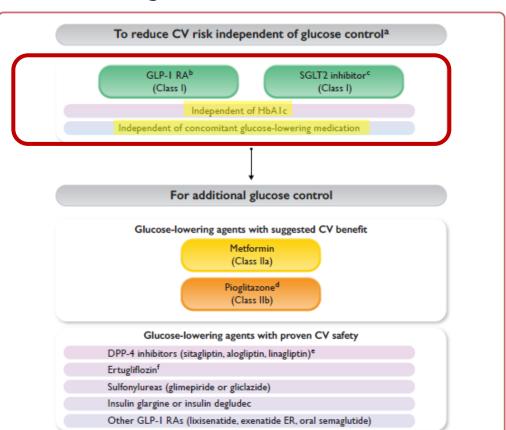
## Diabetes e Doença CV



iSGLT2 E aGLP1 para reduzir o risco cardiovascular, independentemente do controlo glicémico!



Risk assessment for patients with type 2 diabetes based on the presence of ASCVD/severe TOD and 10-year CVD risk estimation via SCORE2-Diabetes





## Diabetes e Doença CV

Recommendation Table 8 — Recommendations for glucose-lowering treatment for patients with type 2 diabetes and atherosclerotic cardiovascular disease to reduce cardiovascular risk

Recommendations	Classa	Levelb
It is recommended to prioritize the use of glucose-lowering agents with proven CV benefits <sup>c,d</sup> followed by agents with proven CV safety <sup>e</sup> over agents without proven CV benefit or proven CV safety.	1	с
Sodium-glucose co-transporter-2 inhibitors		
SGLT2 inhibitors with proven CV benefit <sup>c</sup> are recommended in patients with T2DM and ASCVD to reduce CV events independent of baseline or target HbA1c and independent of concomitant glucose-lowering medication. 71,150–152,155,189	ı	Α
Glucagon-like peptide-1 receptor agonists		
GLP-1 RAs with proven CV benefit <sup>d</sup> are recommended in patients with T2DM and ASCVD to reduce CV events, independent of baseline or target HbA1c and independent of concomitant glucose-lowering medication, 70,72,161,163,164	ı	Α
Other glucose-lowering medications to reduce	ce cardiov	ascular
If additional glucose control is needed, metformin		
should be considered in patients with T2DM and ASCVD.	IIa	С
If additional glucose control is needed, pioglitazone may be considered in patients with T2DM and ASCVD without HF. <sup>165</sup>	ПР	В

Recommendation Table 9 — Recommendation for glucose-lowering treatment for patients with type 2 diabetes without atherosclerotic cardiovascular disease or severe target-organ damage to reduce cardiovascular risk

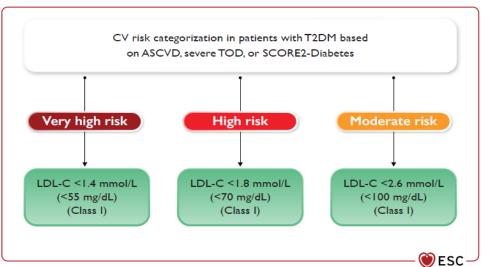
Recommendations	Classa	Level <sup>b</sup>
In patients with T2DM without ASCVD or severe TOD <sup>c</sup> at low or moderate risk, treatment with metformin should be considered to reduce CV risk. 183	IIa	с
In patients with T2DM without ASCVD or severe TOD <sup>c</sup> at high or very high risk, treatment with metformin may be considered to reduce CV risk.	ШЬ	с
In patients with T2DM without ASCVD or severe  TOD <sup>c</sup> but with a calculated 10-year CVD risk <sup>d</sup> ≥10%, treatment with a SGLT2 inhibitor or GLP-1  RA may be considered to reduce CV risk. 155,164	IIb	с



Risk assessment for patients with type 2 diabetes based on the presence of ASCVD/severe TOD and 10-year CVD risk estimation via SCORE2-Diabetes



## Diabetes e Dislipidémia





Recommendations	Classa	Level <sup>b</sup>
Lipid targets		
In patients with T2DM at moderate CV risk, an LDL-C target of <2.6 mmol/L (<100 mg/dL) is recommended. <sup>248,249</sup>	1	A
In patients with T2DM at high CV risk, an LDL-C target of <1.8 mmol/L (<70 mg/dL) and LDL-C reduction of at least 50% is recommended. 248,249	1	A

In patients with T2DM at very high CV risk, an LDL-C target of <1.4 mmol/L (<55 mg/dL) and LDL-C	1	В
reduction of at least 50% is recommended. 248,249  In patients with T2DM, a secondary goal of a		
non-HDL-C target of <2.2 mmol/L (<85 mg/dL) in		
very high CV risk patients and <2.6 mmol/L  (<100 mg/dL) in high CV risk patients is	- 1	В
recommended. <sup>283–285</sup>		

Lipid-lowering treatment			
Statins are recommended as the first-choice LDL-C-lowering treatment in patients with d and above-target LDL-C levels. Administration statins is defined based on the CV risk profile patients and the recommended LDL-C (or non-HDL-C) target levels. 247–249	on of	Α	
A PCSK9 inhibitor is recommended in patient very high CV risk, with persistently high LDL-dabove target despite treatment with a maximal tolerated statin dose, in combination with excorning patients with statin intolerance.	C levels	Α	
If the target LDL-C is not reached with static combination therapy with ezetimibe is recommended. 259,260	ns,	В	
If a statin-based regimen is not tolerated at a dosage (even after re-challenge), a PCSK9 inladded to ezetimibe should be considered. <sup>287</sup>	hibitor IIa	В	
If a statin-based regimen is not tolerated at a dosage (even after re-challenge), ezetimibe sh considered. 259,260	-	с	
High-dose icosapent ethyl (2 g b.i.d.) may be considered in combination with a statin in pa	itients IIb	В	SC 2023

Linid-lowering treatment

with hypertriglyceridaemia<sup>c,274</sup>



## **Diabetes e HTA**

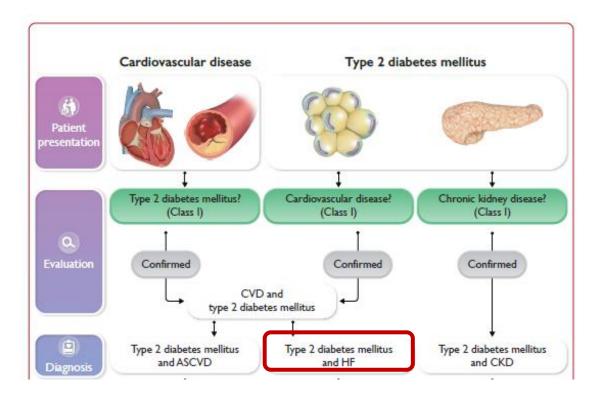


Recommendations	Classa	Level <sup>b</sup>
Screening for hypertension		
Regular BP measurements are recommended in all patients with diabetes to detect and treat hypertension to reduce CV risk. 193,232,233  Treatment targets	1	A
Anti-hypertensive drug treatment is recommended for people with diabetes when office BP is ≥140/90 mmHg.196,202,234,235	1	Α
It is recommended to treat hypertension in patients with diabetes in an individualized manner. The BP goal is to target SBP to 130 mmHg and <130 mmHg if tolerated, but not <120 mmHg. In older people (age >65 years), it is recommended to target SBP to 130–139 mmHg. 196,236–238	i.	Α
An on-treatment SBP target of <130 mmHg may be considered in patients with diabetes at particularly high risk of a cerebrovascular event to further reduce their risk of stroke. 194–198,239,240	IIb	В

Treatment and evaluation		
Lifestyle changes (weight loss if overweight, physical activity, alcohol restriction, sodium restriction, increased consumption of vegetables, using low-fat dairy products) are recommended in patients with diabetes and hypertension. 205–207,210	ı	Α
It is recommended to initiate treatment with a combination of a RAS inhibitor and a CCB or thiazide/thiazide-like diuretic. 196,213–216,218,241	1	A
Home BP self-monitoring should be considered in patients with diabetes on anti-hypertensive treatments to check that BP is appropriately controlled. <sup>242</sup>	IIa	В
24 h ambulatory blood pressure monitoring should be considered to assess abnormal 24 h BP patterns, including nocturnal hypertension and reduced or reversed nocturnal BP dipping, and to adjust anti-hypertensive treatment. <sup>243</sup>	lla	В



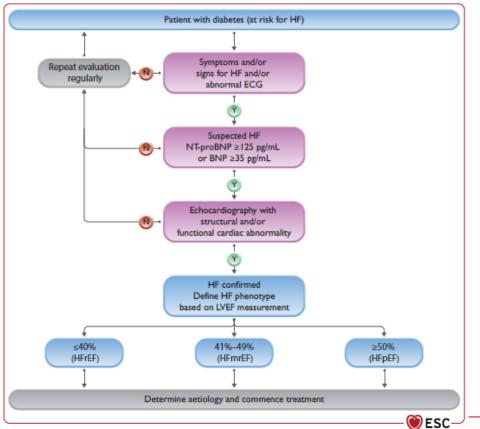
#### Diabetes e Insuficiência Cardíaca





## Diabetes e Insuficiência Cardíaca

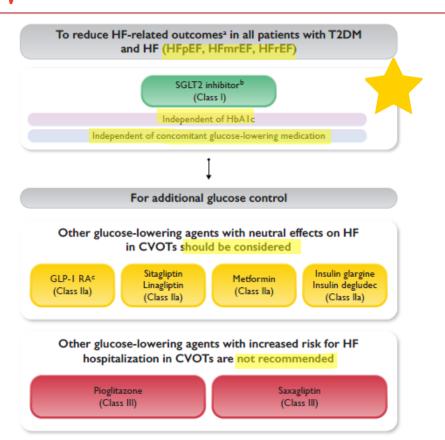




Recommendations	Classa	Level <sup>b</sup>
Evaluating for heart failure		
If HF is suspected, it is recommended to measure BNP/NT-proBNP. <sup>485</sup>	1	В
Systematic survey for HF symptoms and/or signs of HF is recommended at each clinical encounter in all patients with diabetes.	10	С
Diagnostic tests in all patients with suspected	l heart fai	lure
12-lead ECG is recommended.	1	С
Transthoracic echocardiography is recommended.	1	С
Chest radiography (X-ray) is recommended. Routine blood tests for comorbidities are	1	С
recommended, including full blood count, urea, creatinine and electrolytes, thyroid function, lipids, and iron status (ferritin and TSAT).	1	С



#### Diabetes e Insuficiência Cardíaca

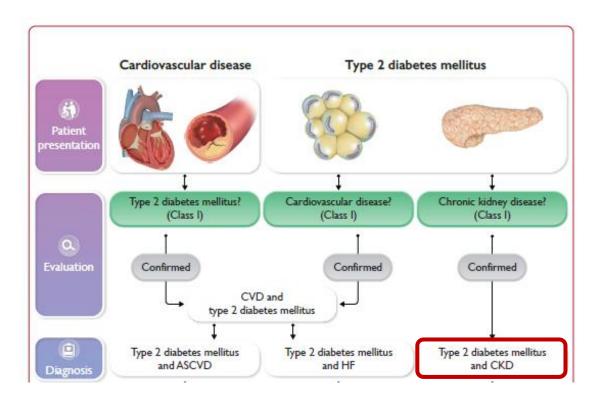


	indicated in patients with HFrEF (NYHA class diabetes		d	
IC FEr	SGLT2 inhibitors (dapagliflozin, empagliflozin, or sotagliflozin <sup>c</sup> ) are recommended in all patients with HFrEF and T2DM to reduce the risk of HF hospitalization and CV death. 189,491,494,497	1	А	
	Sacubitril/valsartan or an ACE-I is recommended in all patients with HFrEF and diabetes to reduce the risk of HF hospitalization and death. 471,501,502,527	1	A	
	Beta-blockers <sup>d</sup> are recommended in patients with HFrEF and diabetes to reduce the risk of HF hospitalization and death. 509–512,528	1	A	
	MRAs <sup>e</sup> are recommended in patients with HFrEF and diabetes to reduce the risk of HF hospitalization and death. 507,529	1	A	
	Recommendations	Classa	Level <sup>b</sup>	
IC FEp	Empagliflozin or dapagliflozin are recommended in patients with T2DM and LVEF > 40% (HFmrEF and HFpEF) to reduce the risk of HF hospitalization or CV death. 530–533	1	A	
	Diuretics are recommended in patients with HFpEF or HFmrEF and diabetes with signs and/or symptoms of fluid congestion to improve symptoms, exercise capacity, and HF hospitalization. 520	1	с	© ESC 2023

Recommendations for the pharmacological treatment

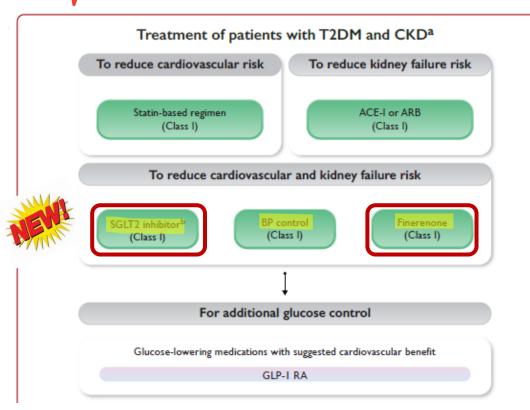


#### Diabetes e DRC





#### Diabetes e DRC



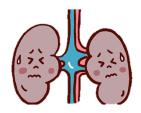
Recommendation Table 24 — Recommendations for patients with chronic kidney disease and diabetes

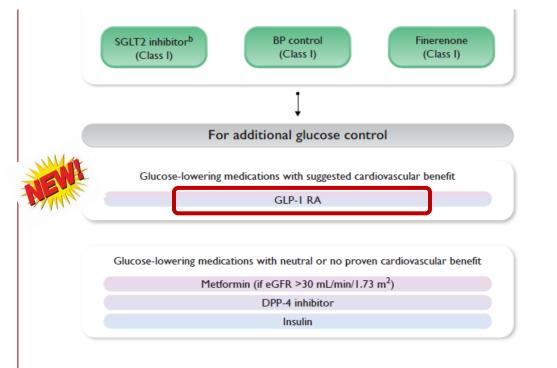
Recommendations	Classa	Level <sup>b</sup>
Intensive LDL-C lowering with statins or a statin/ ezetimibe combination is recommended. C697,698	1	Α
A BP target of ≤130/80 mmHg is recommended to reduce risk of CVD and albuminuria. 196	1.0	Α
Personalized HbA1c targets 6.5–8.0% (48–64 mmol/mol) are recommended, with a target <7.0% (<53 mmol/mol) to reduce microvascular complications, wherever possible. 132,133	ı	Α
The maximum tolerated dose of an ACE-I or ARB is recommended. 705-709	1	Α
A SGLT2 inhibitor (canagliflozin, empagliflozin, or dapagliflozin) <sup>a</sup> is recommended in patients with T2DM and CKD with ar eGFR ≥20 mL/min/1.73 m <sup>2</sup> to reduce the risk of CVD and kidney failure. 150,153,542,543,711,714,715	1	A
Finerenone is recommended in addition to an ACE-I or ARB in patients with T2DM and eGFR >60 mL/min/1.73 m <sup>2</sup> with a UACR ≥30 mg/mmol (≥300 mg/g), or eGFR 25-60 mL/min/1.73 m <sup>2</sup> and UACR ≥3 mg/mmol (≥30 mg/g) to reduce CV events and kidney failure.	i.	A

UACR, urinary albumin-to-creatinine ratio.



#### Diabetes e DRC





A GLP-1 RA is recommended at eGFR > 15 mL/min/ 1.73 m <sup>2</sup> to achieve adequate glycaemic control, due to low risk of hypoglycaemia and beneficial effects on weight, CV risk, and albuminuria. 164	1	A
Low-dose ASA (75–100 mg o.d.) is recommended in patients with CKD and ASCVD. 325,735	1	Α
It is recommended that patients with diabetes are routinely screened for kidney disease by assessing eGFR defined by CKD-EPI and UACR. 43,678,745	1	В
Treatment with intensive medical or an initial invasive strategy is recommended in people with CKD, diabetes, and stable moderate or severe CAD, due to similar outcomes. e.740,746	1	В

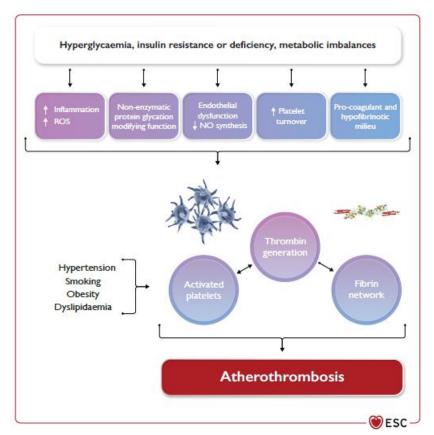




#### Terapêutica antitrombótica na diabetes

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

Recommendation	Classa	Level <sup>b</sup>	
In adults with T2DM without a history of			
symptomatic ASCVD or revascularization, ASA (75-			
100 mg o.d.) may be considered to prevent the first	IIb	Α	2023
severe vascular event, in the absence of clear			SC
contraindications. c,292,293			©





Recommendation

risk <sup>787,788</sup>

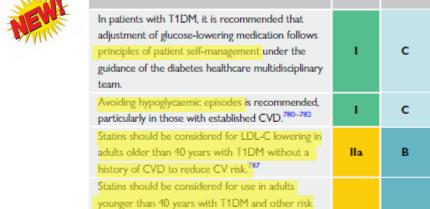
#### **Diabetes Mellitus tipo 1**

#### Recommendation Table 26 — Recommendations for patients with type 1 diabetes

Classa

lla

ΠЬ



factors of CVD or microvascular end-organ damage

or 10-year CVD risk ≥10% to reduce CVD

The use of the Scottish/Swedish risk prediction model may be considered to estimate 10-year CVD

risk in patients with T1DM.793

A DM tipo 1 acarreta um aumento 3x na mortalidade, que se repercute na perda de 11 anos de EMV. A morte de causa cardiovascular engloba 30-44% de todas as mortes!



Importância do controlo da diabetes e FRCV!

✓ Estratificação de risco CV mais difícil e com menos evidência ✓ Importância da idade de início da doença

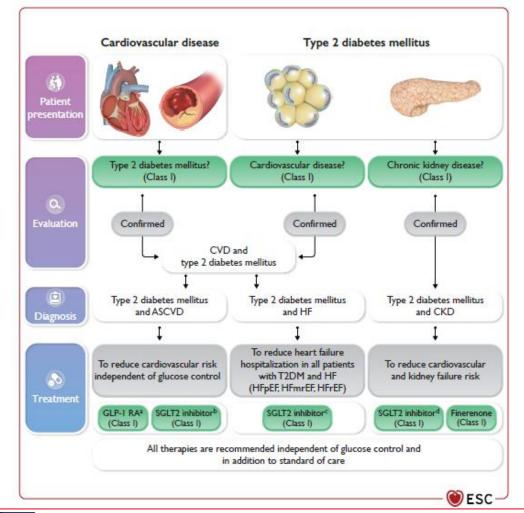
> PA alvo 120/80mmHg Estatina em prevenção primária





### Conclusão

- Rastreio sistemático da diabetes (DMT2) em doentes com doença cardiovascular aterosclerótica (DCV) e vice versa
- Novo score de cálculo de RCV a 10 anos em doentes com DMT2 sem DCV ou lesão de órgão alvo (SCORE2-DIABETES)
- Tratamento diferenciado da diabetes em doentes com DCV
  - aGLP1 e iSGLT2
- Tratamento da insuficiência cardíaca e doença renal crónica em doentes com DMT2
- Gestão interdisciplinar, patient-centered











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