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Advances in Cardiology in 2023

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ABSTRACT

Cardiology continues to evolve from year to year with major advances in its different disciplines which we have summarized in this review by selecting the main chapters allowing us to improve our daily practice.

KEYWORDS: Coronary disease, Cardiomyopathies, Heart failure, Endocarditis, Diabetes.

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ACUTE CORONARY SYNDROME

Cardiovascular disease (CVD) is the leading cause of morbidity and mortality worldwide, with prevalence rising sharply in low-income countries[1].

Ischemic heart disease is the most common form of CVD. As a result, acute coronary syndrome (ACS) remains, more than ever, one of the world's major public health problems. That's why, every year, hundreds of studies are carried out in every corner of the world in an attempt to improve the management of this pathology.

The year 2023 saw a major turning point in ACS recommendations. For the first time, the European Society of Cardiology (ESC) has decided to publish common recommendations for acute coronary syndromes with and without ST-segment elevation. The two entities are closely linked in their clinical presentation and management, the aim being to offer a single care pathway in the acute phase and long-term follow-up of ACS.

The new recommendations take a fresh look at a number of issues. For example, it restricts the use of antithrombotics in the acute phase, consolidates the role of intra-vascular imaging, and details the secondary cardiovascular prevention strategy, in particular the intensification of lipid-lowering treatment and the introduction of colchicine to the therapeutic weapons. It also emphasized patient involvement in decision-making, the adoption of a healthy lifestyle and multidisciplinary rehabilitation programs. A special section of the document was devoted to the management of cancer patients with ACS.

New features in antithrombotic therapy

The use of antithrombotic pretreatment has been reconsidered following a number of studies that have questioned its benefit, while also highlighting the increased risk of bleeding complications.

While the administration of a loading dose of a P2Y12 receptor inhibitor prior to primary angioplasty of ST-segment elevation acute coronary syndrome (STEMI) was a class I recommendation with the highest level of evidence (A) in the 2017 guidelines, recent studies have, against all expectations, led to a broad downgrading of this practice to the lowest class of recommendation (IIb)[2] .

For non-ST-segment elevation acute coronary syndromes (NSTE-ACS), administering a loading dose to a patient eligible for an early invasive strategy (within the first 24 hours) before knowing the coronary anatomy is now a class III recommendation, while patients for whom early coronary angiography is not indicated, this treatment may be considered depending on bleeding risk (class IIb) [3].

Furthermore, one of the key messages of these new recommendations is that the choice of antiplatelet therapy and its duration must be tailored to each patient's ischemic and hemorrhagic risk [4]. The general rule for secondary prevention is double antiplatelet therapy (DAPT) with aspirin and a P2Y12 receptor inhibitor (prasugrel, ticagrelor or clopidogrel) during one year after ACS, followed by aspirin monotherapy (class I).

In cases of high bleeding risk, 1 month of DAPT may be sufficient (IIb). Discontinuation of dual therapy at one month in this population would be associated with similar rates of major adverse cardiovascular events and less bleeding than for the usual duration [5].

For patients not at high ischemic risk, it is recommended to switch to monotherapy after 3 to 6 months without a

cardiovascular event, preferably using a P2Y12 inhibitor (class IIa).

For patients on oral anticoagulants, antithrombotic therapy may be discontinued after 6 months, particularly in elderly patients at high risk of bleeding. In this same population, the use of clopidogrel rather than other anti-P2Y12 agents is recommended in IIb.

Invasive strategy

Intra-coronary imaging has made a notable appearance in the new guidelines, with IVUS (intra-vascular ultrasound) or OCT (optical coherence tomography) now recommended in class IIa to guide PCI. However, the indication remains less formal if the culprit lesion is not easily identifiable (IIb). A consensus of international interventional cardiology experts (Europeans, Chinese, Hong Kongers, Australians and New Zealanders) has demonstrated that intra-coronary imaging offers a clear advantage over PCI in patients at high risk of stent thrombosis and recurrent ACS [6].

Eric Secemsky M. D and his team found that nearly 50% of patients admitted for ACS have a stenosis in more than one artery[7].This statistic demonstrates the importance of managing patients with multi-vessel involvement. A meta-analysis of 10 randomized trials on patients diagnosed as STEMI with multiple angiographic lesions demonstrated the lower cardiovascular mortality with complete revascularization compared with PCI of the culprit artery only[8]. Whereas previous recommendations authorized repermeabilization of all lesions during the hospital stay (IIa), this is now a formal indication (class I, level of evidence A) during the first coronary angiography or within 45 days of the diagnosis. However, invasive coronary functional assessment of non-culprit lesions using fractional flow reserve (FFR) is no longer indicated during the initial procedure.

The initial management of NSTE-ACS has also undergone some minor changes. High-risk NSTE-ACS is still an indication for coronary angiography within 24 hours, but the class of recommendation has been downgraded from grade I to grade IIa. This slight downgrading is attributable to a recent Swedish study whose results suggested that the delay of an invasive strategy in patients diagnosed as high-risk NSTE-ACS, according to the ESC definition, should be based on a personalized approach for each patient rather than a strict general recommendation[9].

ACS and cancer

Given the difficulty of striking the right balance between anti-ischemic efficacy and bleeding risk, the management of ACS in patients with active cancer represents a challenge for cardiologists. The frequency of occurrence of such a situation is constantly increasing[10]. It is for this reason that the ESC has given a special place to the treatment of these patients in its latest guidelines. As with other patients, the invasive strategy remains the rule for individuals with an estimated life expectancy of at least 06 months. If it's less than 06 months, or if the risk of bleeding is high, medical treatment alone is preferable.

Thrombocytopenia is common in this patient population, so the ESC has set platelet count thresholds below which the various antiplatelet therapy should not be administered (<10,000/µl for aspirin, <30,000/µl for clopidogrel and <50,000/µl for prasugrel and ticagrelor) [11].

Association of lipid-lowering therapy

The onset of ACS requires clinicians to target an LDL-c less than 55 mg/dl as secondary prevention, using a high-potent statin[12]. This target is not always achieved with a statin, despite maximum dose and good compliance, which is why the ESC 2023 guidelines emphasize the importance of intensifying lipid-lowering therapy in coronary artery disease. As a second-line treatment, ezetimibe should be combined with a statin. If this combination therapy is not sufficient after 4 to 6 weeks of treatment, the addition of a PCSK9 inhibitor (class I recommendation, level of evidence A) has shown clear efficacy in reducing LDL-c levels, with good tolerability[13].

Colchicine, a new cardiovascular protector

One of the main new features of these latest recommendations is the possibility of introducing low-dose colchicine (0.5 mg/day) for secondary prevention of cardiovascular risk.

The anti-inflammatory properties of this molecule, usually used in the treatment of gout, enable stabilization and sometimes reduction of atherosclerotic plaques, inflammation being a crucial factor at all stages of atherosclerosis [14,15].

Various studies have demonstrated the role of colchicine in reducing morbidity and mortality due to cardiovascular disease, by significantly reducing the risk of sudden death, major adverse cardiac events and stroke[14,16].

The ESC recommends considering the addition of colchicine to standard medical treatment, particularly if other risk factors are insufficiently controlled, or if a recurrence occurs under optimal treatment. However, the benefits of this treatment would be consistent and independent of the patient's ischemic history or the time between the acute event and the initiation of treatment[17].

Patient's perspective

Finally, the guidelines also emphasize the patient's perspective. Patients should be kept as well-informed as possible about their pathology, any complications, their new lifestyle and the drugs they have been prescribed. The "teach back" method is recommended to ensure that the message gets across. The medical team must also ensure that patients and their families are involved in treatment decisions as much as possible, to improve adherence and compliance.

HEART FAILURE

Since the 2021 European guidelines, heart failure is defined as a clinical syndrome with symptoms and signs resulting from a cardiac abnormality, supported by elevated levels of

natriuretic peptides and/or objective signs of congestion [18]. This approach, similar to acute coronary syndromes, incorporates natriuretic peptides into the diagnosis of heart failure. An international campaign called "Peptide for Life" aims to standardize these assays to enhance primary care diagnosis, adapting the approach to the characteristics of each national healthcare organization.

Towards a generalization of SGLT2 inhibitors for all classes of heart failure

American and European experts unanimously agree on the incorporation of sodium-glucose co-transporter type 2 inhibitors (SGLT2 inhibitors) as first-line treatment for heart failure with reduced ejection fraction (HFrEF), with a high level of recommendation (Class I, Level A), in addition to other essential classes (Beta-blockers, Renin–angiotensin system inhibitors, Mineralocorticoid receptor antagonists).

The use of SGLT2 inhibitors is characterized by its simplicity, involving a single oral dose of 10 mg dapagliflozin or empagliflozin, with no need for subsequent titration. These medications can be prescribed up to a glomerular filtration rate (GFR) of 20 mL/min without significant hypotensive effects. They are effective, well-tolerated, and can be combined with other heart failure treatments[19,20].

Additionally, patients with a slight reduction in ejection fraction (between 40% and 50%) or preserved ejection fraction (beyond 50%) may benefit from the inclusion of sodium-glucose co-transporter-2 inhibitors (SGLT2 inhibitors) in their therapeutic plan, supported by a high level of recommendation (Class I, Level A). This treatment represents a significant advancement in the management of heart failure with preserved ejection fraction (HFpEF). While therapeutic options for heart failure with reduced ejection fraction (HFrEF) have faced challenges, empagliflozin stands out by reducing hospitalizations for heart failure and/or cardiovascular mortality, irrespective of whether patients are diabetic or not.

The DELIVER study enrolled 6,263 patients with heart failure (HF) and a left ventricular ejection fraction (LVEF) ≥ 40%. Randomized into two groups (dapagliflozin 10 mg/day vs placebo) for 2.3 years, patients exhibited symptoms (NYHA II-IV), structural heart disease, and elevated natriuretic peptides. The primary outcome measure was cardiovascular mortality, worsening, or urgent consultation for HF. Dapagliflozin reduced the risk of cardiovascular death or worsening of HF by 18% (16.4% vs. 19.5%) independent of LVEF. It also decreased hospitalizations for HF and cardiovascular deaths while improving the Kansas City score at 8 months, with no increase in adverse effects compared to the placebo [21,22].

Rapid titration of heart failure treatment remains a rather demanding challenge

In December 2022, the publication of the STRONG-HF study highlighted that a highly intensive care approach resulted in a 33% decrease in mortality and rehospitalizations related to heart failure in recently hospitalized patients [23]. These findings led to a new recommendation in favor of an intensive strategy, involving the rapid initiation of evidence-based medical treatments before hospital discharge and during follow-up visits, with this timeframe set at 6 weeks.

Comorbidities associated with heart failure have also attracted particular attention

For patients with significant comorbidities such as diabetes or chronic kidney disease, recommendations advocate prioritizing hypoglycemic agents with established cardiovascular benefits. This marks a paradigm shift, urging clinicians to choose medications that ensure not only adequate glycemic control but also a proven reduction in cardiovascular risk. This comprehensive approach aims to simultaneously address both pathologies.

Additionally, finerenone, a non-steroidal selective mineralocorticoid receptor antagonist, has been incorporated into the recommendations for patients with diabetes or chronic kidney disease. Intravenous iron supplementation, using ferric carboxymaltose or ferric derisomaltose, is also recommended for patients with heart failure and a reduced or moderately reduced ejection fraction associated with iron deficiency [24,25].

STEP HF, a study that deserves attention

The STEP-HF study included 529 patients with a phenotype of heart failure with preserved ejection fraction (LVEF > 45%), obesity (BMI > 30 kg/m2), and non-diabetic. The primary outcome measure was a composite criterion involving the variation in the Kansas City Cardiomyopathy Questionnaire (KCCQ) and weight loss.

As expected, the STEP-HF study demonstrates significant weight loss in patients treated with semaglutide (average reduction of 13.3% vs. 2.6% with placebo [estimated difference of -10.7%; 95% CI: -11.9 to -9.4; $p < 0.001$]), as well as a significant improvement in the KCCQ score [estimated difference of 7.8 points; 95% CI: 4.8 to 10.9; $p < 0.001$]) [26].

The weight reduction in treated patients leads to a significant decrease in the impact of heart failure. The use of semaglutide appears to be increasingly significant in cardiology, with its positioning in heart failure further reinforced by the recent results of the SELECT study released at the American Heart Association (AHA) in November 2023.

CARDIOMYOPATHIES

Unlike the latest ESC 2014 recommendations which only concerned hypertrophic cardiomyopathies, the ESC 2023 recommendations focused on all cardiomyopathies.

These recommendations address dilated, restrictive cardiomyopathy, arrhythmogenic right ventricular cardiomyopathy (ARVC), as well as non-dilated left ventricular cardiomyopathy, a new entity among these pathologies affecting the heart muscle.

Left ventricular non-compaction and Tako-Tsubo syndrome are no longer part of the classification of cardiomyopathies.

The strong points

Holistic care for children, adults and pregnant women ranging from prevention to treatment and aspects of daily life.
Need to visit an expert center at least once (class I).
The importance of etiological diagnosis by the study of genetics [27], and by the contribution of cardiac MRI for diagnosis (class I), as well as for monitoring (class IIa).
Correction of cardiovascular risk factors, a part often neglected in cardiomyopathy.

Hypertrophic cardiomyopathy

The recommendations on hypertrophic cardiomyopathy (HCM) revisit the disease in its entirety. The need to distinguish sarcomeric forms from secondary MHCs.
The diagnosis is very codified, including the history of the patient and his family, the clinical examination but also multimodal imaging with tissue characterization by cardiac MRI to ultimately stratify the risk for each HCM phenotype.
The search for left intra-ventricular obstruction (> 30 mmHg), at rest and induced (Valsalva test) is crucial because it guides the treatment, medicinal or surgical (septal reduction in severe forms) [28].
Thanks to cardiac MRI [29], the assessment of the risk of sudden death has evolved to integrate two additional risk factors:
– a late increase of more than 15% in left ventricular mass;
– LVEF < 50%.
The need for implantation of a cardiac defibrillator can be considered (IIb) in low-risk patients in the presence of these two criteria.
The practice of physical activity is no longer contraindicated; it is authorized depending on the genotype and phenotype of the patient. In the absence of criteria associated with an increased risk of sudden death, light to moderate physical activity is then recommended in all patients with cardiomyopathy (Class I) except for competitive sports (Class IIb).
Development of a sudden death score in children under 16 years of age, indicated during initial assessment and follow-up (class I) [30].
The arrival of mavacamten, (class IIa) a first-in-class cardiac inhibitor of myosin adenosine triphosphatase (ATPase) which acts by reducing the formation of actin-myosin cross-bridges, thereby reducing contractility and improving the energetics of the myocardium. It should be considered as a second line after beta-blockers and verapamil.
In the EXPLORER-HCM study, mavacamten used in patients with obstructive HCM, it reduced the left ventricular outflow tract (LVOT) gradient and improved exercise capacity compared to placebo in patients with HCM and symptomatic LVOTO (NYHA II-III and FE >55%); 27% of patients on mavacamten experienced a reduction in LVOT gradient to <30 mmHg and improvement to NYHA [31] class I. Transient LV systolic dysfunction was observed in a subset of patients that resolved after temporary discontinuation of the drug.
Dehydration and excessive alcohol consumption should be avoided in symptomatic patients with LVOT, unlike weight loss which should be encouraged.
Arterial and venous dilators, including nitrates and phosphodiesterase type 5 inhibitors, can exacerbate LVOTO and should be avoided if possible [32].

Dilated cardiomyopathy

The definition is cardiographic echo and corresponds to:
- for adults, an LV end-diastolic diameter > 58 mm in men and > 52 mm in women and an LVEDV index ≥ 75 mL/m 2 in men and ≥ 62 mL/m 2 in women [33-35].
- Global systolic dysfunction of the left ventricle defined by an LVEF < 50%.

-A specific sudden death risk score was developed in the event of identification of a mutation in the lamin A gene (LMNA), responsible for severe forms.
-The defibrillator is recommended if the score is > 10% and associated with cardiac damage (Class I).
-Certain mutations such as DSP, PLN, RBM20 and FLNC are high risk and the defibrillator should be considered when the LVEF is > 35% and is added to one or more additional risk factors (Class IIb or IIa depending on the case) [36].
-Gliflozins are part of the therapeutic management following the recommendations for the treatment of heart failure with low ejection fraction [37].

Non-dilated left ventricular cardiomyopathy

It is defined by the presence of a non-ischemic LV scar or fatty replacement of the LV in the absence of LV dilation, with or without global or regional wall motion abnormalities, or global hypokinesia. isolated from the LV without scar unexplained only by abnormal loading conditions (hypertension, valvular disease) or coronary artery. Global LV systolic dysfunction is defined by abnormal LVEF (<50%) [38].
Given the significant risk of sudden death from ventricular arrhythmia, implantation of a defibrillator is indicated in patients who have symptomatic heart failure and an LVEF ≤ 35% (Class IIa), or in the case of a high-risk genotype associated with an LVEF ≥ 35%, with or without additional risk factors (Class IIa or IIb respectively).

Arrhythmogenic right ventricular cardiomyopathy

The integration of a new algorithm for sudden death risk stratification[39] .
Treatment with amiodarone should be considered (class IIa) in the event of failure of treatment with beta-blockers as well as ablation (class IIa) in the event of recurrent ventricular tachycardia.

Restrictive cardiomyopathy

It can also appear in patients with end-stage HCM or CMD.
CMR is associated with the worst prognosis of all cardiomyopathy phenotypes. Thanks to the algorithms that

have been developed to detect cardiac amyloidosis, there has been a increase in diagnoses in recent years[40] .

In the case of transthyretin cardiac amyloidosis, treatment with the specific transthyretin stabilizer tafamidis takes its place [41].

Bone syntigraphy retains its place in the diagnosis of transthretin cardiac amyloidosis [42].

INFECTIOUS ENDOCARDITIS

Introduction

Infective endocarditis remains a topical subject since mortality remains high.

This is a subject that occupies us a lot in our hospitals as in hospitals around the world , These recommendations enrich and complement those of the ESC 2015 with 42 new recommendations and 23 revised recommendations, including a refinement of the indications for antibiotic prophylaxis, improvements in diagnostic capabilities with a greater role for cross-sectional imaging modalities and nuclear medicine, the role of the "Endocarditis team" and expert centers as well as the identification of patients eligible for outpatient antibiotic therapy .

Infective endocarditis remains rare, but it can have serious consequences. In half of cases, surgery is necessary to remove infected tissue and repair or replace affected heart valves. Hospital mortality is nevertheless high, remaining around 20%, while five-year mortality can reach 40%.

Endocarditis-team" the cornerstone

These recommendations confirm the importance of multidisciplinary care. All patients must be discussed with an expert team. Even patients who seem mild, who are in smaller hospitals, which will allow earlier and more precise diagnosis of the disease and its complications [45].

Antibioprophylaxis

The importance of preventive measures is once again emphasized in these recommendations.

The oral and dental origin (streptococcus infection) represents a third of cases antibiotic prophylaxis remains restricted to patients at high risk of endocarditis [46]. The level of this recommendation is nevertheless reinforced (Class IIa to Class I) following results of a large observational study that was able to confirm the benefit of prophylaxis during oral care in patients at high risk of endocarditis whose definition includes patients with percutaneous TAVI, mitral aortic prostheses TMVI or ventricular assist devices [47].

Among the new developments, antibiotic prophylaxis can also be considered in high-risk patients before an invasive procedure for diagnostic or therapeutic purposes in the management of a respiratory or gastrointestinal pathology, affecting the genitourinary tract or the musculoskeletal system in IIb [48].

Diagnostic approach

Ultrasound (transthoracic (TTE); transesophageal (TOE)) and blood cultures remain fundamental. However, multimodal imaging is also taking an increasing place in these new recommendations with increased use of cardiac scanner and position emission tomography (PET scanner) especially for patients with prosthetic valves or a pacemaker or if the ultrasound is non-contributory.

New diagnostic algorithms present the different imaging to be used depending on the type of endocarditis suspected (on native valve, prosthesis or stimulation equipment) [49,50].

Regarding microbiological diagnosis, no major change. Blood culture must be performed before starting antibiotics (Class I). A negative blood culture is followed by serology to look for a possible immune reaction against microorganisms that are difficult to culture in the laboratory [51].

Diagnosis is based on the modified 2023 ESC criteria for endocarditis [52].

Therapeutic care

The treatment of endocarditis is based on prolonged intravenous antibiotic therapy.

The choice of molecule is based on the nature of the microorganism involved.

The duration of treatment is longer in the case of infective endocarditis of a prosthetic valve (at least six weeks) than in the case of endocarditis of a native valve (two to six weeks) [53].

However, a major change appears with the possibility of switching to oral antibiotic therapy after at least ten days of intravenous antibiotic therapy (or seven days after cardiac surgery) in patients whose condition is stabilized and in the absence of complications. transesophageal ultrasound (Class IIa) according to the results of the POET randomized study [54, 55].

There is an urgent indication for surgery (< 24 hours or within 3 to 5 days) If a patient has:

• Heart failure

• Remains febrile despite antibiotic treatment (perivalvular abscess or positive blood cultures after 10 days)

• If there is a vegetation of more than 10mm and an embolic event under antibiotic treatment (and even without valvular dysfunction or embolism with a lower level of proof class IIb),

Intervention to prevent thromboembolic risk must be done early, during the first week of treatment since the thromboembolic risk is particularly high during this period [56].

DIABETES AND CARDIOVASCULAR DISEASES

Patients with diabetes are two to four times more at risk of coronary heart disease, stroke, or heart failure than no-diabetic individuals. And when they are affected by cardiovascular disease, the prognosis is worse[57] Furthermore, the prevalence of diabetes continues to increase: it is estimated that 537 million people were affected worldwide in 2021 (10.5%), and this number is projected to reach 783 million by 2045 (12.2%) [58]. Today, the treatment of diabetes is no longer solely focused on managing blood glucose, meaning it is not limited to achieving the set goals for

glycosylated hemoglobin (HbA1c) levels in order to prevent microvascular complications. Cardiovascular and renal protection are also considered a priority for individuals at risk [59]. This is one of the important messages from the new 2023 ESC guidelines, which emphasize a key point : the screening of diabetic patients with atherosclerotic disease, heart failure, or kidney disease [60].

Here are the essential points presented in this document

The working group led by Prof. Nikolaus Marx recommends systematic screening for diabetes using fasting blood glucose tests and/or glycated hemoglobin (HbA1c) measurements in all individuals with cardiovascular disease.

Symptoms of cardiovascular disease should also be evaluated in diabetic patients.

The recommendations specify that severe organ damage occurs when the estimated glomerular filtration rate (eGFR) is below 45 ml/min/1.73m2, regardless of the urine albumin level (albuminuria), or when the eGFR value ranges from 45 to 59 ml/min/1.73m2 with a urinary albumin-to-creatinine ratio between 30 and 300 mg/g, or when this ratio exceeds 300 mg/g. Additionally, the presence of at least one microvascular disease in at least three sites, such as kidney disease, neuropathy, and retinopathy, indicates severe organ damage [61,62]. Therefore, screening for chronic kidney disease is recommended for diabetic patients at least once a year.

Patients with type 2 diabetes and chronic kidney disease should be prescribed SGLT2 inhibitors (gliflozines) and/or finerenone to reduce cardiovascular risk and worsening of renal failure.

Introduction of a 10-year cardiovascular risk score

In patients with type 2 diabetes who do not have evident cardiovascular disease or severe organ damage, it is recommended to estimate their 10-year cardiovascular risk using a new score called SCORE2-Diabetes, which applies to individuals aged 40 years and older [63]. This score estimates the risk of fatal and non-fatal cardiovascular events (myocardial infarction, stroke) over a 10-year period [64]. The score incorporates information on conventional risk factors (smoking, blood pressure, total cholesterol, HDL cholesterol), as well as information associated with diabetes, such as age at diabetes diagnosis, glycated hemoglobin (HbA1c) levels, and eGFR [65]. An application (ESC CVD Risk Calculation App), which includes the SCORE2-Diabetes score, can be used to assess cardiovascular risk and is available in English on the ESC website. SCORE2-Diabetes should guide the management of type 2 diabetic patients without manifest cardiovascular disease or severe organ damage, as it predicts the occurrence of major cardiovascular events based on four risk strata: low (< 5%), moderate (5% to <10%), high (10% to 20%), very high (⩾ 20%) [65].

Cardiovascular benefit before glycemic control

Individualized treatment goals now extend beyond achieving glycemic balance and also consider the level of cardiovascular and renal risk. The recommendations provide clear indications on how to treat diabetic patients with cardiovascular and renal manifestations. "Thus, for patients with diabetes and cardiovascular disease due to atherosclerosis, treatment with GLP1 receptor agonists (GLP-1 RA) and/or SGLT2 inhibitors is recommended to reduce cardiovascular risk, independent of glycemic control, in addition to standard treatment (antiplatelet, antihypertensive, or lipid-lowering therapies)" [66]. Experts consider SGLT2 inhibitors, like GLP1 receptor agonists, to be preferred hypoglycemic treatments for patients with type 2 diabetes and atherosclerotic cardiovascular disease, regardless of glycemic considerations and irrespective of the use of metformin [67,68]. In other words, treatment with SGLT2 inhibitors and/or GLP1 receptor agonists is justified in primary prevention for diabetic patients considered at high cardiovascular risk, with a 10-year probability of experiencing a major cardiovascular event of 20% or higher [69]. Regarding the choice of medication, "GLP-1 receptor agonists should be preferably prescribed to obese patients" [70], but there are no specific recommendations for prescribing finerenone or SGLT2 inhibitors as a first-line option in other cases.

Diabetes as a significant risk factor for heart failure

The ESC document emphasizes the management of heart failure in diabetic patients, a field that has been underestimated for years, as the experts believe. The risk of heart failure is two to four times higher in diabetics than in no-diabetic individuals [71]. When heart failure is suspected by non-cardiologists (general practitioners or diabetologists) based on symptoms (exertional dyspnea, fatigue, among others) and clinical signs (weight gain, peripheral edema, among others), it is recommended to measure BNP/NT-proBNP levels in the blood plasma [72,73].

Based on data from large cardiovascular trials, "it is recommended to treat diabetic patients with chronic heart failure (regardless of left ventricular ejection fraction) with SGLT2 inhibitors in order to reduce hospitalizations for heart failure," conclude the ESC experts [74-76]. Lastly, the ESC working group emphasizes that women are underrepresented in clinical trials despite diabetes being a greater risk factor for cardiovascular disease in women than in men. While data from large clinical trials do not indicate the need for gender-specific treatments, the experts recommend balanced sex recruitment strategies for future clinical trials, as well as pre-specified analyses focusing on gender differences.

Conflicts Of Interest: none

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