SUMMARY of 2016 ESC GUIDELINES on heart failure, atrial fibrillation, dyslipidaemia and cardiovascular prevention

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Introduction

During the ESC congress in September 2016 in Rome, the new ESC guidelines were presented and are now available on the ESC website (http://www.escardio.org/guidelines).

The new guidelines cover management recommendations on following cardiovascular items: Heart failure, atrial fibrillation, dyslipidemia and cardiovascular prevention..

The present document gives a summary of these guidelines and highlights the most important recommendations and changes in the management of these diseases.

It will help to increase awareness about the new guidelines and may stimulate to consult the full document for specific items. Ultimately, the authors hope that this document will enhance implementation of new ESC guidelines in daily clinical practice.

Guidelines for the diagnosis and treatment of acute and chronic heart failure

Summary by Wilfried Mullens, MD PhD

Heart failure (HF) is a clinical syndrome characterized by typical symptoms (e.g. breathlessness, ankle swelling and fatigue) that may be accompanied by signs (e.g. elevated jugular venous pressure, pulmonary crackles and peripheral oedema) caused by a structural and/or functional cardiac abnormality, resulting in a reduced cardiac output and/or elevated intracardiac pressures at rest or during stress. However, patients can present with asymptomatic structural or functional cardiac abnormalities, which are precursors of HF which need to be recognized as treatment already at the preclinical stage improves outcomes. The new guidelines are extraordinarily clear, practical, and very concise. While much of what carried over from prior editions of the guidelines is rooted in evidence, many of the new approaches advocated rely on expert opinion or new interpretations of existing data. However, the new guidelines are very usable, and provide a fantastic algorithm for managing patients with heart failure with reduced ejection fraction (HFrEF).

The main changes and highlights of the 2016 ESC recommendations are:

1) Diagnosis of HF: The diagnostic process is streamlined and now focuses on five key elements: patient's history, physical examination, ECG, serum level of either brain natriuretic peptide (BNP) or N-terminal(NT)-proBNP, and echocardiography. The guidelines also specify threshold levels of BNP and NT-proBNP that can effectively rule out heart failure, a BNP level of at least 35 pg/mL or a NT-proBNP level of at least 125 pg/mL. Importantly, while both biomarkers have a high negative predictive value, their positive predictive value is low at these levels. No reimbursement for either test exist in Belgium.
2) Classification of HF: a new heart failure category, midrange ejection fraction (HFmrEF), was created. The classification depends on left ventricular ejection fraction as determined by echocardiography: LVEF < 40% defined HFrEF, a LVEF of 40%-49% HFmrEF, and a LVEF ≥ 50% HFpEF. At the moment, HFmrEF remains a category with only theoretical importance as the management of patients with HFmrEF should not differ from patients with HFpEF.
3) Acute HF: the most revolutionary change of the new guidelines is the detailed roadmap to manage patients who present with acute decompensated heart failure. Importantly, the underlying principles cited to justify this radically different approach are also provided. While evidence-based treatments lack in acute heart failure patients, the guidelines strongly recommend the concept to shorten the time of diagnosis and for therapeutic decisions. Indeed, it's strongly encouraged to manage a patient's congestion and impaired peripheral perfusion within a time frame of 1-2 hours. As such, a new acronym "CHAMP" (acute Coronary syndrome, Hypertension emergency, Arrhythmia, acute Mechanical cause, and Pulmonary embolism) was created, designed to guide the management of patients with acute heart failure. Early treatment is intended to restore the hemodynamic and neurohumoral alterations of acute decompensated heart failure. However, a major limitation to the potential efficacy of a rapidly initiated management strategy is that few interventions currently exist with proven benefits for acute heart failure patients.
4) Comorbidities: 16 distinct comorbidities for clinicians to keep in mind when managing HF patients are discussed to personalize medicine, by subgrouping HF patients into groups that need to receive special attention. Comorbidities make the diagnosis of heart failure difficult, they aggravate symptoms, interfere with HF treatment, and contribute to additional hospitalizations. For example, treating iron deficiency in heart failure patients who do not have anemia, was endorsed as a level IIa recommendation.
5) Chronic treatment: clearly the greatest change incorporated in a very practical algorithm (Figure) was the adoption of the Angiotensin-Receptor/Neprilysin Inhibitor (ARNI) sacubitril/valsartan and ivabradine as important new components of the basic drug formula for treating patients with HFrEF. It is recommended to start an ARNI after first demonstrating that patients tolerated treatment with an ACE inhibitor or ARB for at least 30 days and after determining that patients remained symptomatic while on one of these treatments.

Ivabradine is recommended in patients who remain symptomatic despite being on guideline-directed therapy including titration to a maximum beta-blocker dosage and with a persistent heart rate of at least 70 beats/min. Importantly, CRT should also be considered in the algorithm in patients with QRS ≥ 130 ms, sinus rhythm who remain symptomatic.

Reference:

Piotr Ponikowski and Adriaan A. Voors* et al. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. European Heart Journal (2016) 37, 2129–2200

Guidelines for the management of atrial fibrillation

Summary by Yves Vandekerckhove and Mattias Duytschaever

The ESC Guidelines on Atrial Fibrillation (AF) were developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS), and replace the 2010 ESC guidelines and 2012 focused update. The following recommendations are essential:

1. A growing number of patients with stroke are diagnosed with "silent" paroxysmal AF. Opportunistic screening for AF is recommended by pulse taking or ECG rhythm strip in patients >65 years of age (Class I, B). Systematic ECG screening maybe considered to detect AF in patients >75 years or those at high risk for stroke (Class IIb, B). It is recommended to interrogate pacemakers and implantable cardioverter-defibrillators (ICDs) on a regular basis for atrial high rate episodes (AHREs). Patients with AHREs (>5–6 min and >180 bpm) should undergo further electrocardiogram (ECG) monitoring to document AF before initiating AF therapy (Class I, B). By accepted convention, an episode lasting at least 30 seconds is diagnostic.

2. In obese patients with AF, weight loss together with management of other risk factors should be considered to reduce AF burden and symptoms (Class IIa, B). Interrogation for clinical signs of obstructive sleep apnea should be considered in all AF patients (Class IIa, B). Obstructive sleep apnea treatment should be optimized to reduce AF recurrences and improve AF treatment results (Class IIa, B).

3. Oral anticoagulation should be considered in patients with a CHA_2DS_2-VASc score of 1 in men and 2 in women (Class IIa, B). When oral anticoagulation is initiated in a patient with AF who is eligible for a novel oral anticoagulants (NOACs) (apixaban, dabigatran, edoxaban, or rivaroxaban) a NOAC is recommended in preference to a Vitamin K antagonist (Class I, A). NOACs are not recommended in patients with mechanical heart valves (Class III, B) or moderate to severe mitral stenosis (Class III, C).

4. Anticoagulation for stroke prevention should be continued indefinitely after apparently successful catheter or surgical ablation of AF in patients at high risk of stroke (Class IIa, C). After surgical occlusion or exclusion of the left atrial appendage, it is recommended to continue anticoagulation in at-risk patients with AF for stroke prevention (Class I, B). Left atrial appendix occlusion may be considered in patients with AF and contra-indications for long-term anticoagulant treatment (Class IIb,B)

5. Anticoagulation with heparin or low molecular weight heparin immediately after an ischemic stroke is not recommended in AF patients (Class III). In patients who suffer a moderate to severe ischemic stroke while on anticoagulation, anticoagulation should be interrupted for 3–12 days based on a multidisciplinary assessment of acute stroke and bleeding risk (Class IIa, C).

6. After an acute coronary syndrome with stent implantation in AF patients at risk of stroke, combination triple therapy with aspirin, clopidogrel, and an OAC should be considered for 1–6 months to prevent recurrent coronary and cerebral ischemic events (Class IIa, C). The duration of combination antithrombotic therapy, especially triple therapy, should be kept to a limited period, balancing the estimated risk of recurrent coronary events and bleeding (Class IIa, B).

7. Dronedarone, flecainide, propafenone, or sotalol are recommended for prevention of recurrent symptomatic AF in patients with normal left ventricular function and without pathological left ventricular hypertrophy (Class I, Level of Evidence A). Amiodarone is recommended for prevention of recurrent symptomatic AF in patients with heart failure (Class I, Level of Evidence B). For acute rhythm control IV flecainide , IV propafenone or IV Vernakalant can be used in patients with recent onset AF and without severe underlying cardiac disease (class I, A).

8. Catheter ablation of AF has developed from a specialized, experimental procedure into a common treatment to prevent recurrent AF. Catheter ablation of symptomatic paroxysmal AF is recommended to improve AF symptoms in patients who have symptomatic recurrences of AF on antiarrhythmic drug therapy and who prefer further rhythm control therapy (Class I, A). Catheter ablation should be considered as first-line therapy to prevent recurrence of AF in selected patients with symptomatic paroxysmal AF as an alternative to antiarrrhythmic drug therapy. (Class IIa, B). Catheter or surgical ablation should be considered in patients with symptomatic persistent or long-standing persistent AF refractory to antiarrhythmic drug therapy to improve symptoms, considering patient choice, benefit, and risk, supported by an AF Heart Team (Class IIa, C)

9. In view of the complexity of the different treatment options in patients with failed rhythm control therapy who still require or demand further rhythm control therapy, the Task Force proposed that decisions involving AF surgery or extensive AF ablation should be based on advice from an AF Heart Team. An AF Heart Team should consist of a cardiologist with expertise in antiarrhythmic drug therapy, an interventional electrophysiologist, and a cardiac surgeon with expertise in appropriate patient selection, techniques, and technologies for interventional or surgical AF ablation.

References

Paulus Kirchhof, Stefano Benussi et al . 2016 ESC Guidelines for the management of atrial fibrillation. doi:10.1093/eurheartj/ehw210

Most important new messages : atrial fibrillation	**Recommendation level**
Diagnosis - oppurtunistic screening for AF is recommended for patients>65years of age, additional ECG monitoring is recommended in patients with atrial high rate episodes.	I B **NEW**
Antithrombotic therapy - For AF patients eligible for oral anticaogulation, a novel oral anticoagulants (NOAC) is recommended in preference to a Vitamin K antagonist (Class I, A). NOACs are not recommended in patients with mechanical heart valves or with moderate to severe mitral stenosis.	I A **NEW** III B/C **NEW**
Rhythm control - For acute rhythm control IV Vernakalant (besides flecainide , propafenone) can be used in patients with recent onset AF and without severe underlying cardiac disease - Catheter ablation should be considered as first-line therapy to prevent recurrence of AF in selected patients with symptomatic paroxysmal AF as an alternative to antiarrrhythmic drug therapy.	I A **NEW** IIa B **NEW**

Guidelines on dyslipidaemias.

Summary by M Claeys, MD, PhD, FESC

The present guidelines represent an evidence-based consensus of the European Task Force including the European Society of Cardiology and the European Atherosclerosis Society (EAS) and replaces the guidelines of 2011. Total cardiovascular risk (CVD) is usually a product of a number of risk factors and prevention of CVD should be adapted to the total CV risk of an individual patients. Patient with documented CVD, with diabetes, with chronic kidney disease and with very high levels of individual risk factors are at very high risk with estimated 10-year risk of fatal CVD <10%. For all other people, the use of a risk estimation system such as SCORE is recommended.

Laboratory lipid parameters

While total cholesterol is mainly used for the calculation of the CV risk by means of the SCORE system, LDL-cholesterol is the preferred primary lipid analysis for screening, diagnosis and management. Triglycerides (TG) adds information on risk and is indicated for diagnosis and choice of treatment. Non-HDL -C is a strong independent risk factor and should be considered as a risk marker, especially in subjects with high TG.

Risk based intervention strategies of dyslipidaemias

Life style intervention (diet, physical activity, no exposure to smoking) are the first step in the management of dyslipidaemias. Initiation of drug treatment follows a graded approach with lower LDL threshold for patient with higher global CV risk: e.g. drug treatment should be considered when LDL- C levels exceed 190mg% in patients with risk score<1 whereas drug treatment is recommended when LDL –C levels exceed 100mg% in patients with risk score >5.

Also the LDL-C target depends on global cardiovascular risk:

In patients at very high CV risk, an LDL-C goal of <70m/dl or a reduction of at least 50% if the baseline LDL-C is between 70 and 135mg/dl is recommended
In patients at high CV risk, an LDL-C goal of <1000m/dl or a reduction of at least 50% if the baseline LDL-C is between 100 and 200mg/dl is recommended.
In subjects at low or moderate risk an LDL-C goal of <115mg% should be considered.

Pharmacological treatment

Statin treatment is the most recommended pharmacological treatment. As the response to statin treatment is variable, up-titration of the dose may be required. If the highest tolerated statin dose does not reach the goal, drug combination with ezetimibe or bile acid sequestrants or cholesterol absorption inhibitors should be considered. In patients at very high risk, with persistent high LDL-C levels despite treatment with maximal tolerated dose (or with statin intolerance) and in combination with ezetimebe, a PCSK9 inhibitor may be considered.

In high risk patients with TG >200mg/dl despite statin treatment, fenofibrate may be considered in combination with statins.

Statins are not recommended in patients with dialysis-dependent chronic kidney disease who are free of CVD. Also statins are not recommended in patients with non-ischemic heart failure or with aortic valvular stenosis in the absence of other indications for their use.

Lipids and liver/muscle enzymes should be monitored 8 (±4) weeks after starting treatment with adjustment of the treatment until within the target range. In case of strongly elevated ALT (≥3x ULN) or CK (≥4xULN), the treatment should be stopped and can be reintroduced cautiously with adjusted therapy (e.g. reduced dose) after normalization of the enzymes.

Familial hypercholesterolemia (FH)

FH is recommended to be suspected in patients with CHD before the age of 55 years for men and 60 years for women, in subjects with relatives with premature CVD, in subjects with relatives having tendon xanthomas, and in subjects with a severely elevated LDL-C (in adults >190mg/dl, in children >140mg/dl) . A definite FH diagnosis requires a > 8 points according to the Dutch lipid clinic network diagnostic criteria. FH patients are recommended to be treated with intense-dose statin, often in combination with ezetimibe. Treatment with a PCSK9 inhibitor should be considered if the target LDL-C is not reached with maximal tolerated statin dose and ezetimibe

References

Alberico L. Catapano*, Ian Graham* et al 2016 ESC Guidelines for the management of dyslipidaemia. doi:10.1093/eurheartj/ehw272.

Most important new messages: Dyslipidaemias	**Recommendation level**
- In patients at very high CV risk, an LDL-C goal of <70 mg/dL, or a reduction of at least 50% if the baseline LDL-C is between 70 and 135 mg/dL is recommended.	**I B** **NEW**
- In patients at high CV risk, an LDL-C goal of <100 mg/dL, or a reduction of at least 50% if the baseline LDL-C is between 100 and 200 mg/dL is recommended.	**I B** **NEW**
- In patients at very high risk, with persistent high LDL-C levels despite treatment with maximal tolerated dose (or with statin intolerance) and in combination with ezetimed, a PCSK9 inhibitor may be considered	**IIb C** **NEW**
- FH is recommended to be suspected in patients with CHD before the age of 55years for men and 60 years for women, in subjects with relatives with premature CVD, in subjects with relatives having tendon xanthomas, and in subjects with a severely elevated LDL-C (in adults >190mg/dl, in children >140mg/dl)	**I A C** **NEW**

Guidelines on cardiovascular disease prevention in clinical practice

Summary by Catherine De Maeyer, MD

The 2016 ESC guidelines replace the older version of 2012 and are developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR).

In these new guidelines, a strategy of risk intervention at the individual level is complemented by public health measures to encourage a healthy lifestyle and to reduce population levels of CV risk factors. A combined strategy is advocated to improve CV health at large, from childhood onwards, with specific actions to improve CV health in individuals at increased risk of CVD or with established CVD.

The new guidelines therefore include specific chapters focusing on a population-based approach, including diet, exercise (including early childhood education and daily physical activity of at least 30 minutes at school), smoking cessation and avoidance of alcohol abuse. Restrictions on electronic cigarettes are mentioned due to uncertainty regarding the safety and the effect.

The importance of behavioral change, using i.e. cognitive-behavioral methods, and of the treatment of psychosocial risk factors (i.e. psychosocial stress, depression and anxiety), thus facilitating behavior change, quality of life and prognosis, is stressed.

Health care professionals play an important role as advocates of this approach and should set an example by following a healthy lifestyle (i.e. not smoking).

When and how to assess risk and prioritize:

Apart from the conventional major CV risk factors included in the risk charts, there are other risk factors that could be relevant for assessing the total CVD risk. These risk modifiers are: socio-economic status, social isolation, or lack of social support; family history of premature CVD; BMI and central obesity; computed tomography coronary calcium score; atherosclerotic plaques determined by carotid artery scanning; ankle-brachial blood pressure index. The generalized use of DNA-based tests for CVD risk assessment is not recommended (IIIb, level B).

Assessment of these risk-modifiers is recommended if it would improve risk classification (that is, when the individual's risk lies close to a decisional threshold, such as a SCORE risk of 5%) and if feasible in daily practice.

Patients surviving cancer after treatment with chemotherapy or radiotherapy are at increased risk for CVD; the increased incidence of CVD being correlated with the (combination of) treatments given and the administered dose. Therefore, cardio-protection in high-risk patients receiving type I chemotherapy (inducing irreversible cardiotoxic effects) should be considered for LV dysfunction prevention (IIa, level B).

Rheumatoid arthritis (RA), and probably also other immune diseases, enhances CV risk independently of traditional risk factors. Therefore, the use of a 1.5 factor risk multiplier for CV risk in RA should be considered, particularly if disease activity is high (IIa, level B).

Relevant groups:

- Some younger people will have high single CV risk factors that, of themselves, warrant intervention, such as a BP lever of 180/110 mmHg or higher, or cholesterol levels >8 mmol/l. The most important group of people under 50 to identify are those with a family history of premature CVD who should be tested for familial hypercholesterolaemia, and treated accordingly.
- Especially in the oldest old, CV risk management is controversial. Thus the recommendations of risk factor control in this patient group should be followed with caution and common sense, discussing with patients the quality of life and life potentially gained. Adverse effects should be monitored closely, and treatment should be reconsidered periodically.
- Several obstetric complications, in particular pre-eclampsia and pregnancy-related hypertension, are associated with higher risk of CVD in later life. In women with a history of these complications, periodic screening for hypertension and DM should be considered (IIa, level B).

- CVD risk varies considerably between immigrant groups: South Asians and sub-Saharan Africans have a higher risk while Chinese and South Americans have a lower risk. Current risk estimation equatations do not provide adequate estimations of CVD risk in ethnic minorities.

The main targets and goals	
Smoking	No exposure to tobacco in any form.
Diet	Low in saturated fat with a focus on wholegrain products, vegetables, fruit and fish.
Physical activity	At least 150 minutes a week of moderate aerobic PA (30 minutes for 5 days/week) or 75 minutes a week of vigorous aerobic PA (15 minutes for 5 days/week) or a combination thereof.
Body weight	BMI 20-25 kg/m^2. Waist circumference <94cm (men) or <80cm (women).
Blood pressure	<140/90 mmHg. *This target can be higher in frail elderly, or lower in most patients with diabetes mellitus (DM) and in some (very) high-risk patients without DM who can tolerate multiple blood pressure lowering drugs.*
Lipids	
- LDL-C is the primary target. *Non-HDL-C is a reasonable and practical alternative target because it does not require fasting. Non-HDL-C secondary targets of <100, <130 and <145 mg/d (<2.6, <3.4 and <3.8 mmol/l) are recommended for very high, high and low to moderate risk subjects, respectively.*	**Very high-risk: <70 mg/dl (< 1.8 mmol/l)**, or a reduction of at least 50% if the baseline is between 70 and 135 mg/dl (1.8 and 3.5 mmol/l). *It should be noted that the evidence for patients with chronic kidney disease (CKD) is less strong.* **High-risk: <100 mg/dl (<2.6 mmol/l),** or a reduction of at least 50% if the baseline is between 100 and 200 mg/dl (2.6 and 5.2 mmol/l). **Low to moderate risk: <115 mg/dl (3.0 mmol/l).**
- HDL-C	No target but >40 mg/dl (> 1.0 mmol/l) in men and >45 mg/dl (>1.2 mmol/l) in women indicate lower risk
- Triglycerides	No target but <150 mg/dl (<1.7 mmol/l) indicates lower risk and higher levels indicate a need to look for other risk factors.
Diabetes	HbA1c <7% (<53 mmol/mol).

References: MF Piepoli, AW Hoes, et al. 2016 European Guidelines on cardiovascular disease prevention in clinical practice. EurHeart J (2016) 37, 2315–2381.

Conclusion

The 2016 guidelines have incorporated new evidence into the management of heart failure, atrial fibrillation and cardiovascular prevention. There were two new compounds that got a class I A indication: Angiotensin-Receptor/Neprilysin Inhibitor (ARNI) in heart failure and Vernakalant in paroxysmal atrial fibrillation. In addition, the previous recommendations on the use of NOAC, ivrabradine, AF ablation and LDL cholesterol targets have been reinforced. The authors hope that this document will enhance implementation of these new ESC guidelines in daily clinical practice.