

Updates in Cardiology Guidelines

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What are the updates???

- 2019
 - **Atrial Fibrillation**
- 2018
 - **Blood Cholesterol**
 - **Bradycardia and Cardiac Conduction Delay**
- 2017
 - **Heart Failure**

Atrial fibrillation

- 2019 AHA/ACC/HRS Focused Update of the 2014 Guideline for Management of Patients with Atrial Fibrillation

Who to anticoagulate?

- For patients in atrial fibrillation(non-valvular) and elevated CHA₂DS₂-VASc score ≥ 2 in men or ≥ 3 in women oral anticoagulation is recommended.

Selection of Anticoagulant Regimen

- Newer Oral AntiCoagulants are recommended over warfarin except in patients with moderate to severe mitral stenosis or a prosthetic heart valve (COR I, LOE A).
- Edoxaban has been added to the list of nonvitamin K oral anticoagulants (NOACs [apixaban, dabigatran, and rivaroxaban]) that can be used for stroke prevention (Class of Recommendation [COR] I, Level of Evidence [LOE] B-R).

Selection of Anticoagulant Regimen

- The decision to use an anticoagulant should not be influenced by whether the AF is paroxysmal or persistent (COR I, LOE B).
- Renal and hepatic function should be tested before initiation of a NOAC and at least annually thereafter (COR I, LOE B-NR).

Selection of Anticoagulant Regimen

- In AF patients with a CHA₂DS₂-VASc score ≥ 2 in men or ≥ 3 in women and a creatinine clearance < 15 ml/min (end stage renal disease) or who are on dialysis, it is reasonable to use warfarin or apixaban for oral anticoagulation (COR IIb, LOE B-NR).

What about reversal doc?

- Idarucizumab is recommended for the reversal of dabigatran in the event of a life-threatening bleed or urgent procedure (COR I, LOE B-NR).
- Andexanet alfa (recombinant factor Xa) can be useful for the reversal of rivaroxaban and apixaban in the event of life-threatening bleeding (COR IIa, LOE B-NR).

About the left atrial appendage...

- Percutaneous LAAO should be considered for those AF patients at an increased risk of stroke who have contraindications to long-term anticoagulation and who are at high risk of thromboembolic events(Class IIB)
- New clinical trial data and FDA approval of the Watchman device necessitated this recommendation.

Not all “burning” is bad!

- Catheter ablation of AF is reasonable in symptomatic AF patients with HF and reduced LVEF(Class IIB)
- New evidence, including data on **improved mortality rate**, have been published for AF catheter ablation compared with medical therapy in patients with HF.

High risk patients

- In at-risk AF patients who have undergone coronary artery stenting, double therapy with clopidogrel and low-dose rivaroxaban (15 mg daily) or dabigatran (150 twice daily) is reasonable to reduce the risk of bleeding as compared to triple therapy (COR IIa, B-R).

Device Detection of AF and Atrial Flutter

- In patients with cryptogenic stroke in whom long-term external ambulatory monitoring is inconclusive implantation of a cardiac monitor is reasonable to detect silent AF.

Weight Loss

- Weight loss and risk factor modification is recommended for overweight/obese patients with AF(Class I)

Blood cholesterol

- 2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/
/ NLA/PCNA Guideline on the Management of Blood Cholesterol

All about the lifestyle!

- **In all individuals, emphasize a heart-healthy lifestyle across the life course.**

A healthy lifestyle reduces atherosclerotic cardiovascular disease (ASCVD) risk at all ages. In younger individuals, healthy lifestyle can reduce development of risk factors and is the foundation of ASCVD risk reduction.

In young adults 20 to 39 years of age, an assessment of lifetime risk facilitates the clinician–patient risk discussion and emphasizes intensive lifestyle efforts. In all age groups, lifestyle therapy is the primary intervention for metabolic syndrome.

Statins

- In patients with clinical ASCVD, reduce low-density lipoprotein cholesterol (LDL-C) with high-intensity statin therapy or maximally tolerated statin therapy.
- The more LDL-C is reduced on statin therapy, the greater will be subsequent risk reduction.
- Use a maximally tolerated statin to lower LDL-C levels by $\geq 50\%$.

Statins not enough?

- In very high-risk ASCVD, use a LDL-C threshold of 70 mg/dL to consider addition of nonstatins to statin therapy
- Very high-risk includes a history of multiple major ASCVD events or 1 major ASCVD event and multiple high-risk conditions
- In very high-risk ASCVD patients, it is reasonable to add ezetimibe to maximally tolerated statin therapy when the LDL-C level remains ≥ 70 mg/dL
- In patients at very high risk whose LDL-C level remains ≥ 70 mg/dL on maximally tolerated statin and ezetimibe therapy, adding a **PCSK9 inhibitor is reasonable**.

Primary hypercholesterolemia

- In patients with severe primary hypercholesterolemia (LDL-C level ≥ 190) mg/dL begin high-intensity statin therapy without calculating 10-year ASCVD risk.

If the LDL-C level remains ≥ 100 mg/dL, adding ezetimibe is reasonable

If the LDL-C level on statin plus ezetimibe remains ≥ 100 mg/dL & the patient has multiple factors that increase subsequent risk of ASCVD events, a PCSK9 inhibitor may be considered

How good are non statins?

- Ezetimibe is the most commonly used nonstatin agent. It lowers LDL-C levels by 13% to 20% and has a low incidence of side effects
- The addition of a PCSK9 inhibitor to a statin regimen has been shown to further reduce LDL-C levels by 43% to 64%.

What about Diabetics?

- **In patients 40 to 75 years of age with diabetes mellitus and LDL-C ≥ 70 mg/dL (≥ 1.8 mmol/L), start moderate-intensity statin therapy without calculating 10-year ASCVD risk.**

In patients with diabetes mellitus at higher risk, especially those with multiple risk factors or those 50 to 75 years of age, it is reasonable to use a high-intensity statin to reduce the LDL-C level by $\geq 50\%$.

And everyone else...

- In adults 40 to 75 years of age without diabetes mellitus and with LDL-C levels ≥ 70 mg/dL, at a 10-year ASCVD risk of $\geq 7.5\%$, start a moderate-intensity statin if a discussion of treatment options favors statin therapy.

Risk-enhancing factors favor statin therapy.

If risk status is uncertain, consider using coronary artery calcium (CAC) to improve specificity (> 100). If statins are indicated, reduce LDL-C levels by $\geq 30\%$, and if 10-year risk is $\geq 20\%$, reduce LDL-C levels by $\geq 50\%$.

Risk-enhancing factors

- family history of premature ASCVD;
- persistently elevated LDL-C levels ≥ 160 mg/dL;
- metabolic syndrome;
- chronic kidney disease;
- history of preeclampsia or premature menopause (age < 40 yrs)
- chronic inflammatory disorders (e.g., rheumatoid arthritis, psoriasis, or chronic HIV);
- high-risk ethnic groups (e.g., South Asian);
- persistent elevations of triglycerides ≥ 175 mg/dL;

Risk-enhancing factors

- apolipoprotein B ≥ 130 mg/dL
- high-sensitivity C-reactive protein ≥ 2.0 mg/L
- ankle-brachial index < 0.9 and 1
- lipoprotein (a) ≥ 50 mg/dL or 125 nmol/L, especially at higher values of lipoprotein (a).

Risk-enhancing factors may favor statin therapy in patients at 10-year risk of 5-7.5% (borderline risk)

Care for some Calcium ?

- In adults 40 to 75 years of age without diabetes mellitus and with LDL-C levels ≥ 70 mg/dL- 189 mg/dL, at a 10-year ASCVD risk of $\geq 7.5\%$ to 19.9%, if a decision about statin therapy is uncertain, consider measuring CAC
- If CAC is zero, treatment with statin therapy may be withheld or delayed, except in cigarette smokers, those with diabetes mellitus, and those with a strong family history of premature ASCVD
- A CAC score of 1 to 99 favors statin therapy, especially in those ≥ 55 years of age
For any patient, if the CAC score is ≥ 100 Agatston units or ≥ 75 th percentile, statin therapy is indicated unless otherwise deferred by the outcome of clinician-patient risk discussion

Adherence and response

- Assess adherence and percentage response to LDL-C–lowering medications and lifestyle changes with repeat lipid measurement 4 to 12 weeks after statin initiation or dose adjustment, repeated every 3 to 12 months as needed.
- Define responses to lifestyle and statin therapy by percentage reductions in LDL-C levels compared with baseline.
- In ASCVD patients at very high-risk, triggers for adding nonstatin drug therapy are defined by threshold LDL-C levels ≥ 70 mg/dL on maximal statin therapy.

Bradycardia and Cardiac Conduction Delay

- 2018 ACC/AHA/HRS Guideline on the Evaluation and Management of Patients With Bradycardia and Cardiac Conduction Delay

Sinus node

- Sinus node dysfunction (SND) is most often related to age-dependent progressive fibrosis of the sinus nodal tissue and surrounding atrial myocardium, and will therefore result in an array of different bradycardia or pause-related syndromes.

Sleep apnea and conduction

- Both sleep disorders of breathing and nocturnal bradycardias are relatively common, and treatment of sleep apnea not only reduces the frequency of these arrhythmias but also may offer cardiovascular benefits
- The presence of nocturnal bradycardias should prompt consideration for screening for sleep apnea, beginning with solicitation of suspicious symptoms
- However, nocturnal bradycardia is not in itself an indication for permanent pacing

Bundle Branch

- The presence of left bundle branch block on electrocardiogram markedly increases the likelihood of underlying structural heart disease and of diagnosing left ventricular systolic dysfunction.
- Echocardiography is usually the most appropriate initial screening test for structural heart disease, including left ventricular systolic dysfunction.

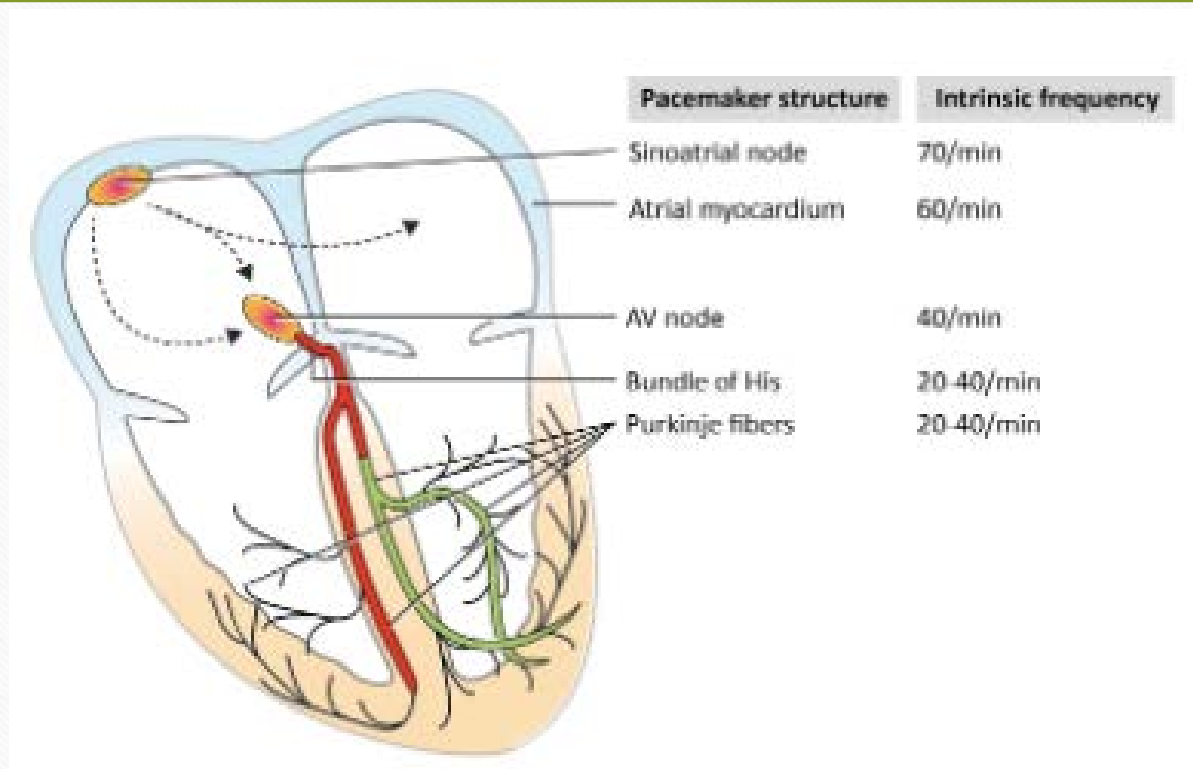
What are the numbers?

- In sinus node dysfunction, there is no established minimum heart rate or pause duration where permanent pacing is recommended.
- Establishing temporal correlation between symptoms and bradycardia is important when determining whether permanent pacing is needed.

Symptoms or no symptoms?

- In patients with acquired second-degree Mobitz type II atrioventricular block, high-grade atrioventricular block, or third-degree atrioventricular block not caused by reversible or physiologic causes, permanent pacing is recommended regardless of symptoms
- For all other types of atrioventricular block, in the absence of conditions associated with progressive atrioventricular conduction abnormalities, permanent pacing should generally be considered only in the presence of symptoms that correlate with atrioventricular block

Conduction system



Post procedure

- **Because conduction system abnormalities are common after transcatheter aortic valve replacement, recommendations on postprocedure surveillance and pacemaker implantation are made in this guideline.**

Heart Failure

- **2017 ACC/AHA/HFSA Focused Update of the 2013 ACCF/AHA Guideline for the Management of Heart Failure**

Biomarkers

COR	LOE	Recommendation	Comment/ Rationale
I	A	In patients presenting with dyspnea, measurement of natriuretic peptide biomarkers is useful to support a diagnosis or exclusion of HF.	MODIFIED: 2013 acute and chronic recommendations have been combined into a diagnosis section.

Keep in mind..

- BNP vs NT pro-BNP
- Impact of age gender and obesity,
- Renal failure
- Effects of medications- Most notably sacubitril valsartan

Biomarkers

COR	LOE	Recommendations	Comment/ Rationale
IIa	B-NR	During a hospitalization for HF, a predischarge natriuretic peptide level can be useful to establish a postdischarge prognosis.	NEW: Current recommendation reflects new observational studies.
IIb	B-NR	In patients with chronic HF, measurement of other clinically available tests, such as biomarkers of myocardial injury or fibrosis, may be considered for additive risk stratification.	MODIFIED: 2013 recommendations have been combined into prognosis section, resulting in LOE change from A to B-NR.

“Old-new” updates in pills

COR	LOE	Recommendations	Comment/ Rationale
I	ACE-I: A	The clinical strategy of inhibition of the renin-angiotensin system with ACE inhibitors (Level of Evidence: A), <u>OR</u> ARBs (Level of Evidence: A), <u>OR</u> ARNI (Level of Evidence: B-R) in conjunction with evidence-based beta blockers, and aldosterone antagonists in selected patients, is recommended for patients with chronic HF _r EF to reduce morbidity and mortality.	NEW: New clinical trial data prompted clarification and important updates.
	ARB: A		
	ARNI: B-R		

Watch out for...

COR	LOE	Recommendations	Comment/ Rationale
III: Harm	B-R	ARNI should not be administered concomitantly with ACE inhibitors or within 36 hours of the last dose of an ACE inhibitor.	NEW: Available evidence demonstrates a potential signal of harm for a concomitant use of ACE inhibitors and ARNI.
III: Harm	C-EO	ARNI should not be administered to patients with a history of angioedema.	NEW: New clinical trial data.

The funny pills

COR	LOE	Recommendations	Comment/ Rationale
IIa	B-R	Ivabradine can be beneficial to reduce HF hospitalization for patients with symptomatic (NYHA class II-III) stable chronic HFrEF (LVEF \leq 35%) who are receiving GDEM*, including a beta blocker at maximum tolerated dose, and who are in sinus rhythm with a heart rate of 70 bpm or greater at rest.	NEW: New clinical trial data.

Preserved ejection fraction

COR	LOE	Recommendations	Comment/ Rationale
I	B	Systolic and diastolic blood pressure should be controlled in patients with HFpEF in accordance with published clinical practice guidelines to prevent morbidity	2013 recommendation remains current.
I	C	Diuretics should be used for relief of symptoms due to volume overload in patients with HFpEF.	2013 recommendation remains current.

COR	LOE	Recommendations	Comment/ Rationale
IIa	C	Coronary revascularization is reasonable in patients with CAD in whom symptoms (angina) or demonstrable myocardial ischemia is judged to be having an adverse effect on symptomatic HF \neq EF despite GDMT.	2013 recommendation remains current.
IIa	C	Management of AF according to published clinical practice guidelines in patients with HF \neq EF is reasonable to improve symptomatic HF.	2013 recommendation remains current.
IIa	C	The use of beta-blocking agents, ACE inhibitors, and ARBs in patients with hypertension is reasonable to control blood pressure in patients with HF \neq EF.	2013 recommendation remains current.

Anemia in heart failure

COR	LOE	Recommendations	Comment/ Rationale
Ib	B-R	In patients with NYHA class II and III HF and iron deficiency (ferritin <100 ng/mL or 100 to 300 ng/mL if transferrin saturation is <20%), intravenous iron replacement might be reasonable to improve functional status and QoL.	NEW: New evidence consistent with therapeutic benefit.
III: No Benefit	B-R	In patients with HF and anemia, erythropoietin-stimulating agents should not be used to improve morbidity and mortality.	NEW: Current recommendation reflects new evidence - absence of therapeutic benefit.

Goal BP

- In patients at increased risk, stage A HF, the optimal blood pressure in those with hypertension should be less than 130/80 mm Hg.
- Patients with HF_rEF and hypertension should be prescribed GDMT titrated to attain systolic blood pressure less than 130 mm Hg.

Sleep apnea

- In patients with NYHA class II–IV HF and suspicion of sleep disordered breathing or excessive daytime sleepiness, a formal sleep assessment is reasonable.
- In patients with cardiovascular disease and obstructive sleep apnea, CPAP may be reasonable to improve sleep quality and daytime sleepiness.
- In patients with NYHA class II–IV HF r EF and central sleep apnea, adaptive servo-ventilation causes **harm**.

Thank you!

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