Healthy Heart

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Honorary Editor :
Dr. Anish Chandarana

From the Desk of Hon. Editor:

Friends,

Hypertension has been an age-old topic, but still it creates lot of interest amongst clinicians as new research keeps on getting published every year.

All contemporary guidelines give strong focus on evidences derived from rondomized, controlled and blinded clinical trials. And that also when said evidences are studied as predefined primary end points. As a result, only a very small fraction of available information can be used in making guidelines.

Anyway, knowing and implemeting HT guidelines does help uniformly optimizing care and reduce CVD burden.

ACC/AHA 2017 Guideline for High Blood Pressure in Adults

Authored by Whelton PK, Carey RM, Aronow WS, et al., the original article – ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines – was published in Journal of American College of Cardiology, 2017; November 13.

The 2017 guideline is an update of the "Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure" (JNC 7), published in 2003. The 2017 guideline is a comprehensive guideline incorporating new information from studies regarding blood pressure (BP)-related risk of cardiovascular disease (CVD), ambulatory BP monitoring (ABPM), and home BP monitoring (HBPM).

The following are important points worth remembering to help us clinical decision making.

1. Three most important clinical questions – BP thresholds to initiate antihypertensive drug treatment, BP goals to be achieved by treatment and ideal choice of initial antihypertensive drug/drugs are addressed very well.

2. Clinicians should follow the standards for accurate BP measurement. BP should be categorized as normal, elevated, or stages 1 or 2 hypertension to prevent and treat high BP

Category	BP Values
Normal BP:	<120/<80 mm Hg
Elevated BP:	120-129/<80 mm Hg
stage1 :	130-139 or 80-89 mm Hg
stage 2:	⩾140 or ⩾90 mm Hg

Prior to confirming hypertension, it is important to use an average based on ⩾2 readings obtained on ⩾2 occasions. Out-of-office and self-monitoring of BP measurements, in association with clinical interventions are recommended to confirm the diagnosis of hypertension and for titration of BP-lowering medication. Corresponding BPs based on site/methods are:

Office/Clinic	140/90 mm Hg
HBPM	135/85 mm Hg
Daytime ABPM	135/85 mm Hg
Night-time ABPM	120/70 mm Hg
24-hour ABPM	130/80 mm Hg

Use of ABPM and HBPM : In adults with an untreated Systolic BP (SBP) >130 but <160 mm Hg or Diastolic BP (DBP) >80 but <100 mm Hg, it is reasonable to screen for the presence of white coat hypertension using

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either daytime ABPM or HBPM prior to diagnosis of hypertension. In adults with elevated office BP (120-129/<80) but not meeting the criteria for hypertension, screening for masked hypertension with daytime ABPM or HBPM is reasonable, especially if some target organ damage is present.

3. Lifetime risk of development of HT: For an adult of 45 year of age without hypertension, the 40-year risk for developing hypertension is more than 85-90%. Hypertension has been the leading cause of death and disability-adjusted life-years worldwide.

4. The risk for CVD increases in a log-linear fashion; from SBP levels <115 mm Hg to >180 mm Hg, and from DBP levels <75 mm Hg to >105 mm Hg. A 20 mm Hg rise in SBP and 10 mm Hg rise in DBP are each associated with a doubling in the risk of death from stroke, heart disease, or other vascular disease. In persons ⩾ 30 years of age, higher SBP and DBP are associated with increased risk for CVD, Angina, Myocardial Infarction (MI), Heart Failure (HF), Stroke, Peripheral Arterial Disease (PAD) and Abdominal Aortic Aneurysm (AAA). SBP has consistently been associated with increased CVD risk after adjustment for, or within strata of, SBP; this is not true for DBP.

5. Clinicians would screen for and manage other CVD risk factors in adults with hypertension: Such as Smoking, diabetes, dyslipidemia, excessive weight, low fitness, unhealthy diet, psychosocial stress, and sleep apnea.

6. Basic routine testing for primary hypertension includes Fasting Blood Glucose (FBS), Complete Blood Cell Count (CBC), lipids, basic metabolic panel, Thyroid Stimulating Hormone (TSH), urinalysis, electrocardiogram with optional echocardiogram, uric acid, and urinary albumin-to-creatinine ratio (UACR).

7. Screening for secondary causes of hypertension is necessary for new-onset or uncontrolled hypertension in adults, drug-resistant (⩾ 3 drugs), abrupt onset, age <30 years, excessive/ disproportionate Target Organ Damage (TOD) [cerebral vascular disease, retinopathy, Left Ventricular Hypertrophy (LVH), HF with Reduced Ejection Fraction (HFrEF) and HF with preserved EF (HFpEF), Coronary Artery Disease (CAD), chronic kidney disease (CKD), (PAD), albuminuria] or for onset of diastolic hypertension in older adults or in the presence of unprovoked or excessive hypokalemia.

Screening includes evaluation for relatively common secondary causes like CKD, renovascular disease, primary aldosteronism, obstructive sleep apnea, drug-induced hypertension [nonsteroidal anti-inflammatory drugs (NSAIDs), steroids/ androgens, decongestants, caffeine, monoamine oxidase inhibitors], and alcohol-induced hypertension.

If more specific clinical characteristics are present, screening for uncommon causes of secondary hypertension is indicated (hypothyroidism, hyper-thyroidism pheochromocytoma, Cushing's syndrome, adrenal hyperplasia, aortic coarctation).

8. Nonpharmacologic interventions to reduce BP include: weight reduction for overweight or obese patients with a heart healthy diet, sodium restriction, and potassium supplementation within the diet and increased physical activity during daily living as well as with a structured exercise program. For those who consume alcohol, men should be limited to no more than 2 and women no more than 1 standard alcohol drink(s) per day. The usual impact of each lifestyle change is a 4-5 mm Hg decrease in SBP and 2-4 mm Hg decrease in DBP. DASH diet which is low in sodium, saturated fat, and total fat and high in fruits, vegetables, high and grains helps decrease blood pressure.

9. The benefit of pharmacologic treatment for BP reduction is related to Atherosclerotic CVD (ASCVD) risk. For a given reduction of BP, fewer individuals with high ASCVD risk would need to be treated to prevent a CVD event (lower number needed to treat) such as in elder people, smokers, those with CAD, diabetes, dyslipidemia, and CKD.

Use of antihypertensive medicines is recommended for secondary prevention of recurrent CVD events in patients with clinical CVD and an average SBP ⩾ 130 mm Hg or DBP ⩾ 80 mm Hg, or for primary prevention in adults with no history of CVD but with an estimated 10-year ASCVD risk of ⩾ 10% and SBP ⩾ 130 mm Hg or DBP ⩾ 80 mm Hg.

Use of antihypertensive medicines is also recommended for primary prevention of CVD in adults with no history of CVD and with an estimated 10-year ASCVD risk <10% and a SBP ⩾

140 mm Hg or DBP ⩾90 mm Hg. [We have no cohort-based risk calculators available in India. A broad consensus prevails amongst experts that an Indian patient with hypertension having at least one additional risk factor like smoking, dyslipidemia or family history of premature CAD may be treated with antihypertensive medicine at SBP ⩾130 mm Hg or DBP ⩾80 mm Hg in the absence of clinical CVD].

10. For adults with confirmed hypertension and known CVD or 10-year ASCVD event risk of 10% or higher, a **BP target of <130/80 mm Hg** is recommended. For adults with confirmed hypertension, but without additional markers of increased CVD risk, a BP target of <130/80 mm Hg is recommended as reasonable.

11. Considerations for drug therapy:

Angiotensin-converting enzyme (ACE) inhibitors, angiotensin-receptor blockers (ARBs), and direct renin inhibitors should not be used in combination. ACE inhibitors and ARBs increase the risk of hyperkalemia in CKD and with supplemental K+ or K+-sparing drugs. ACE inhibitors and ARBs should be discontinued during pregnancy.

Beta-blockers are not first-line therapy except in CAD and HFrEF. Abrupt cessation of beta-blockers should be avoided. Bisoprolol and metoprolol succinate are preferred in hypertension with HFrEF and bisoprolol when needed for hypertension in the setting of bronchospastic airway disease.

Beta-blockers with both alpha- and beta-receptor activity such as carvedilol are preferred in HFrEF.

Chlorthalidone (12.5-25 mg) is the preferred diuretic because of long half-life and proven reduction of CVD risk.

Calcium channel blocker (CCB) dihydropyridines cause edema. Non-dihydropyridine CCBs are associated with bradycardia and heart block and should be avoided in HFrEF.

Loop diuretics are preferred in HF and when glomerular filtration rate (GFR) is <30 ml/min. Amiloride and triamterene can be used with thiazides in adults with low serum K+, but should be avoided with GFR <45 ml/min.

Spironolactone or eplerenone is preferred for the treatment of primary aldosteronism and in resistant hypertension.

Alpha-1 blockers are associated with orthostatic hypotension; this drug class may be considered in men with symptoms of benign prostatic hyperplasia

Direct-acting vasodilators are associated with sodium and water retention and must be used with a diuretic and beta-blocker

Central acting alpha-1 agonists should be avoided, and are reserved as last-line due to side effects and the need to avoid sudden discontinuation

12. Initial first-line therapy for stage 1 hypertension includes thiazide diuretics, CCBs, and ACE inhibitors or ARBs. Two first-line drugs of different classes are recommended with stage 2 hypertension and average BP of 20/10 mm Hg above the BP target. Improved adherence can be achieved with once-daily drug dosing, rather than multiple dosing, and with combination therapy rather than administration of the free individual components.

13. Stable CVD or ⩾ 10% 10-year ASCVD risk: BP target of <130/80 mm Hg is recommended. The strategy is to first follow standard treatment guidelines for CAD, HFrEF, previous MI, and stable angina, with the addition of other drugs as needed to further control BP. In HFpEF with symptoms of volume overload, a small dose diuretic should be used to control hypertension, following which ACE inhibitors or ARBs and beta-blockers should be titrated to SBP <130 mm Hg. Treatment of hypertension with an ARB can be useful for prevention of recurrence of atrial fibrillation.

14. Chronic Kidney Disease: BP target of <130/80 mm Hg is recommended. In those with stage 3 or higher CKD or stage 1 or 2 CKD with albuminuria (>300 mg/day), treatment with an ACE inhibitor is reasonable to slow progression of kidney disease. An ARB is reasonable if an ACE inhibitor is not tolerated.

15. Diabetes mellitus (DM):

Antihypertensive drug treatment should be initiated at a BP ⩾130/80 mm Hg with a **treatment goal of <130/80 mm Hg**. In adults with DM and hypertension, all first-line classes of antihypertensive agents (i.e., diuretics, ACE inhibitors, ARBs, and CCBs) are useful and effective. ACE inhibitors or ARBs may be considered in presence of albuminuria.

16. Stroke and cerebral vascular

disease: Treatment issues are complex. Treatment recommendations require recognition of stroke acuity and stroke type. Therapeutic objectives and ideal antihypertensive medicine class have not been fully studied in clinical trials.

In adults with acute intracranial hemorrhage (ICH) and SBP >220 mm Hg, it may be reasonable to use continuous intravenous drug infusion with close BP monitoring to lower SBP. Immediate lowering of SBP to <140 mm Hg from 150-220 mm Hg is not of benefit to reduce death, and may cause harm.

In acute ischemic stroke (AIS), BP should be lowered slowly to <185/110 mm Hg prior to thrombolytic therapy and maintained to <180/105 mm Hg for at least the first 24 hours after initiating drug therapy. Starting or restarting antihypertensive therapy during the hospitalization when patients with ischemic stroke are stable with BP >140/90 mm Hg is reasonable.

In acute ischemic stroke, those who do not undergo reperfusion therapy with thrombolytics or endovascular treatment, if the BP is ⩾220/120 mm Hg, the benefit of lowering BP is not clear, but it is reasonable to consider lowering BP by 15% during the first 24 hours post onset of stroke. However, initiating or restarting treatment when BP is <220/120 mm Hg within the first 48-72 hours post-acute ischemic stroke is not effective.

Secondary prevention following a stroke or transient ischemic attack (TIA) should begin by restarting treatment after the first few days of the index event to reduce recurrence. Treatment with ACE inhibitor or ARB with thiazide diuretic is useful. Those not previously treated for hypertension and who have a BP ⩾ 140/90 mm Hg should begin antihypertensive therapy a few days after the index event. Selection of drugs should be based on comorbidities. A goal of <130/80 mm Hg may be reasonable for those with a stroke, TIA, or lacunar stroke. For those with an ischemic stroke and no previous treatment for hypertension, there is no evidence of treatment benefit if the BP is <140/90 mm Hg.

17. Valvular heart disease:

Asymptomatic aortic stenosis with hypertension should be treated with pharmacotherapy, starting at a low dose, and gradually titrated upward as needed. In patients with chronic aortic insufficiency, treatment of systolic hypertension is reasonable with agents that do not slow the heart rate (e.g., avoid beta-blockers).

18. Aortic disease: Beta-blockers are recommended as the preferred antihypertensive drug class in patients with hypertension and thoracic aortic disease.

19. Age-related issues: Treatment of hypertension is recommended for adults (⩾ 65 years of age), with an average SBP ⩾ 130 mm Hg with SBP treatment goal of <130 mm Hg. For older adults (⩾ 65 years of age) with hypertension and a high burden of comorbidity and/or limited life expectancy; clinical judgment, patient preference, and a team-based approach to assess risk/benefit is reasonable for decisions regarding intensity of BP lowering and choice of antihypertensive drugs. BP lowering is reasonable to prevent cognitive decline and dementia.

20. Preoperative surgical procedures: Beta-blockers should be continued in persons with hypertension undergoing major surgery, as should other antihypertensive drug therapy until surgery. Discontinuation of ACE inhibitors and ARBs perioperatively may be considered. Abrupt preoperative discontinuation of beta-blockers or clonidine may be harmful. For patients with planned elective major surgery and SBP ⩾ 180 mm Hg or DBP ⩾ 110 mm Hg, deferring surgery may be considered. Intraoperative hypertension should be managed with intravenous medication until oral medications can be resumed.

Every adult with hypertension should have a clear, and evidence-based plan of care that ensures the achievement of treatment and self-management goals; effective management of comorbid conditions; timely follow-up with the healthcare team; and adheres to CVD evidence-based guidelines. Effective behavioral and motivational strategies are recommended to promote lifestyle modification.

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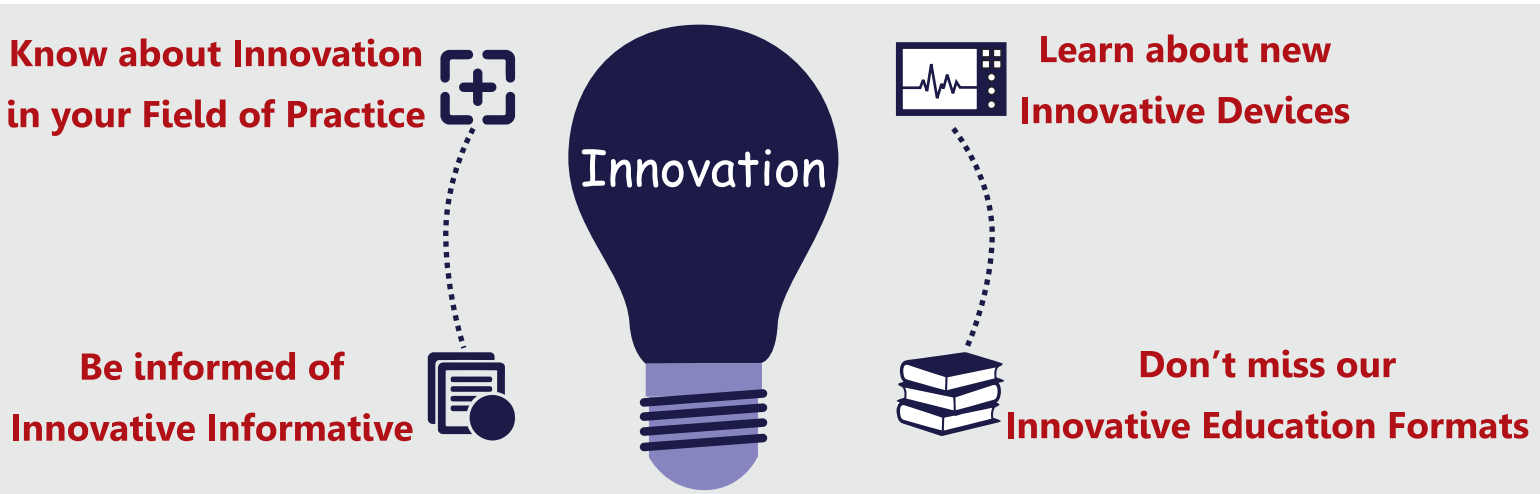

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Basic ECG Learning Course

Course Directors : Dr. Vineet Sankhla / Dr. Ajay Naik / Dr. Vipul Kapoor / Dr. Tejas V. Patel
Date : March 25, 2018 (Sunday)
Duration : 1 day
Number of Seats : 50
Venue : CIMS Auditorium

Programme Overview:

It is important to have a sound knowledge and correct interpretation of 12-lead ECG to help in diagnosis and management of medical patients. This necessiates that not only specialists, but also other healthcare professionals like general practitioners, interns, post graduate students, nurses and paramedical staff should have basic understanding of ECG for timely diagnosis. The Basic ECG course has been designed to provide understanding on basic concepts of 12-lead ECG which will be very useful in treating ischemic and rhythm disorders of heart.

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