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Impact of Recent Hypertension Guidelines on Clinical Practice

NK Soni, VB Jindal

The movement towards evidence-based healthcare has been gaining ground quickly over the past few years, motivated by clinicians, and management concerned about quality, consistency and costs. Clinical Practice Guidelines, based on standard best practice, have been shown to be capable of supporting improvements in quality and consistency in healthcare. Many have been developed, though the process is time as well as resource-consuming. Many have been disseminated, though largely in the relatively difficult to use format of narrative text. As yet they have not had a major impact on medical practice, but their importance is growing.

- To describe appropriate care based on the best available scientific evidence and broad consensus;
- To reduce inappropriate variation in practice;
- To provide a more rational basis for referral;
- To provide a focus for continuing education;
- To promote efficient use of resources;
- To Act as focus for quality control, including audit;
- To highlight shortcomings of existing literature and suggest appropriate future research.

HYPERTENSION AND RECENT GUIDELINES

Hypertension is a major contributor to cardiovascular morbidity and mortality in India and worldwide. In view of our special geographical and climatic conditions, ethnic background, dietary habits, literacy levels and socio- economic variables, there could be some areas where significant differences need to be addressed. About one third of adult in most communities in developed or developing world have hypertension. Most patients with hypertension have other risk factors as well. Despite well-established approaches to diagnosis and treatment, the success of treating hypertension has been limited. In most of the communities fewer than half of hypertensive patients have adequately controlled BP.

There are several important guidelines with new editions recently for managing hypertension as

The 2013 ESH/ESC Guideline for management of arterial hypertension

2014 Evidence Based Guideline for the management of high BP in Adults- JNC 8 Report

Indian Guideline on hypertension III 2013

Clinical Practice Guideline for management of hypertension in the community A consensus Statement by ASH and ISH 2013

NICE Guideline for Hypertension in Adults 2011

Hypertension Canada Guidelines 2015

Guideline for diagnosis and management of hypertension in adult by Heart Foundation of Australia 2016

We have taken three to be reviewed i.e. JNC 8 from US published in JAMA in Dec 2013,IGH 3 from India published in JAPI Feb 2013 and NICE guideline from UK with updates in 2011 most commonly used as reference for clinical practice in India.

WHAT IS NEW IN JNC 8

The 2014 Evidence-Based Guidelines for the Management of High Blood Pressure in Adults, was developed by panel members appointed to the Eighth Joint National Committee (JNC 8) and was endorsed by the American Academy of Family Physicians.

Firstly, the definitions of hypertension and pre-hypertension, which were well-defined in JNC 7 has not been addressed in JNC 8. Secondly, similar treatment goals have been defined for all hypertensive population and no distinction between uncomplicated hypertension and hypertension with comorbid conditions like diabetes or chronic kidney disease (CKD) has been made. Another difference was the choice of initial drug in patients without compelling indications. In contrast to JNC 7 where thiazides were recommended to be the initial choice in patients without compelling indications, no such recommendation has been made in JNC 8.

In all JNC 8 made nine recommendations. These recommendations were categorized from grades A to E and Grade N depending upon the strength of the recommendations. Grade A means "strongly recommended," Grade B means "moderately recommended," Grade C means "weakly recommended," Grade D means "recommendation against" and Grade E means "expert opinion" (i.e., there is insufficient evidence or evidence is unclear or conflicting, but this is what the committee recommends). Grade N means "no recommendation for or against."

First five of the nine recommendations dealt with the question of threshold BP at which treatment should be started and the target BP, which is required to be achieved with treatment.

Recommendation 1 (Grade A recommendation) states that in the general population aged ≥60 years, initiate pharmacologic treatment if BP is ≥150/90 mmHg and treat to a goal BP of <150/90 mmHg.

Recommendation 2 states that in the general population <60 years, initiate pharmacologic treatment to lower BP at diastolic blood pressure (DBP) ≥90 mmHg and treat to a goal DBP <90 mmHg (For ages 30-59 years Grade A recommendation; for ages 18-29 years Grade E recommendation).

Recommendation 3 (Grade E) states that in the general population <60 years, pharmacologic treatment should be initiated if systolic blood pressure (SBP) is ≥140 mmHg and treat to a goal SBP <140 mmHg. In the population aged ≥18 years with CKD or diabetes, treatment should be initiated if BP is ≥140/90 and treat to goal BP of <140/90 mmHg (recommendations 4 and 5, Grade E).

Recommendation 6-8 addressed the issue of choice of the drug to be given to hypertensive patients. As per recommendation 6 (Grade B recommendation), in the general nonblack population, including those with diabetes, initial antihypertensive treatment should include a thiazide-type diuretic, calcium channel blocker (CCB), angiotensin-converting enzyme inhibitor (ACEI), or angiotensin receptor blocker (ARB). In the general black population, including those with diabetes, initial antihypertensive treatment should include a thiazide-type diuretic or CCB (recommendation 7, for general black population: Grade B recommendation; for black patients with diabetes: Grade C recommendation). As per recommendation 8 (Grade B recommendation), in all patients aged ≥18 years with CKD, regardless of race or diabetic status, initial (or add-on) antihypertensive treatment should include an ACEI or ARB to improve kidney outcomes.

Recommendation 9 (Grade E recommendation) addressed the broader issue of the treatment plan in a hypertensive patient according to which the main objective of hypertension treatment is to attain and maintain goal BP. As per this recommendation if goal BP is not reached within a month of treatment, the dose of the initial drug should be increased or a second drug from one of the classes in recommendation 6 should be added. The clinician should continue to assess BP and adjust the treatment regimen until goal BP is reached. If goal BP cannot be reached with 2 drugs, third drug from the list provided should be added and titrated. Recommendation says that an ACEI and an ARB should not be used together in the same patient. If goal BP is not reached using only the drugs in recommendation 6 because of a contraindication or the need to use more than 3 drugs to reach goal BP; antihypertensive drugs from other classes can be used. Referral to a hypertension specialist may be indicated for patients in whom goal BP cannot be attained using the above strategy or for the management of complicated patients for whom additional clinical consultation is needed.

As is clear from discussion, JNC 8 guidelines are evidence based, more simplified with clear-cut thresholds and target ranges, and will surely be handy at the hands of clinicians in managing hypertensive patients.

WHAT IS NEW IN INDIAN GUIDELINES ON HYPERTENSION - III

In consonance with the first and second guidelines, a revised format was evolved by the Core committee which was then reviewed by 300 physicians and specialists from across the country whose inputs have been incorporated. Like the previous guidelines, this document has also been studied, reviewed, and endorsed by the Cardiological Society of India (CSI), Hypertension Society of India (HSI), Indian College of Physicians (ICP), Indian Society of Nephrology (ISN), Research Society for Study of Diabetes in India (RSSDI) and Indian Academy of Diabetes (IAD).

The health related toxic effects of mercury are recognized world over and mercury sphygmomanometers are being replaced by aneroid and digital sphygmomanometers. We intend to emphasize that the change is inevitable and Indian physicians should also move towards using these devices and wean off the use of mercury sphygmomanometers.

For follow up of the patients, while in 2nd Indian guidelines use of home monitoring of blood pressure was discouraged. However with availability of better devices and newer data showing its usefulness for follow up of these patients, this is now encouraged.

The new epidemiological data that is now available in the last five years has been included and reflects the increasing prevalence and poor levels of control of hypertension in India.

The value of beta-blockers as first line agents in hypertension has receded and these are now recommended as agents for use only in young hypertensive with specific indications. For routine patients these are no longer recommended as first line agents.

Diuretics are now considered at par with of ACEI's or ARB's and calcium channel blockers and not as preferred agents as in previous guidelines. Chlorthalidone is now available and shown to be better than Hydrochlorothiazide and its usage is to be preferred.

When blood pressure is high by more than 20/10 mm of Hg systolic and diastolic it is now recommended to start with a combination of drugs. Monotherapy is not going to be effective in achieving target blood pressure.

Certain combinations have been shown to be better than others in recent trials. Specially ACEI's/ARB's in combination with CCB's forms a good combination.

Treatment of hypertension even in octogenarians (more than 80 years) has been shown to be beneficial (newer data) and has been recommended.

At the time of 2nd guidelines, it was felt that "lower the better policy" for target blood pressure was preferred.

However it has been realized now that a J shaped curve does exist specially for non revascularised coronary artery disease patients and caution has been advocated in trying to lower blood pressure to low target levels specially in these patients.

Chronic kidney disease is now recognized as a common comorbidity and has been explained. Awareness and diagnosis of this entity will help recognize the high risk hypertensive individuals.

Approach to Hypertension and Kidney Disease has been revamped and KDIGO Clinical Practice Guidelines for management of Blood Pressure in Kidney Disease have been included.

The term HFnEF (Heart Failure with normal Ejection Fraction) needs to be recognized by physicians and has been mentioned and explained for use in clinical practice. HFnEF is common among elderly hypertensive individuals and is diagnosed on the basis of symptoms of dyspnea, raised BNP levels and diastolic dysfunction on echo with normal ejection fraction.

Orthostatic Hypotension and its clinical implications have been included.

A new form of non-pharmacological, interventional sympathetic denervation therapy has become recently available and is being evaluated. Its place in treatment of these patients will evolve over a period of time.

WHAT NEW IN NICE GUIDELINE

NICE guidelines change how high blood pressure is diagnosed and treated

In one of the biggest changes to NICE's previous guidance, published in 2006, the new 2011 guideline recommends that a diagnosis of primary hypertension should be confirmed using 24-hour ambulatory blood pressure monitoring (ABPM) as gold standard rather than be based solely on measurements of blood pressure taken in the clinic. Furthermore the implementation of ABPM in diagnosis would be cost saving for the NHS.

The Guideline also gives a framework for use of home blood pressure monitoring (HBPM). For the first time this change empowers patients to become more involved in the monitoring and care of their hypertension.

The NICE guideline also recommends changing the priority of medicines used to treat hypertension in people over the age of 55, focusing upon calcium channel blockers, based on evidence of event reduction and importantly, cost-effectiveness. Thiazide-like diuretics represent an alternative for those with heart failure or the very elderly who are intolerant of calcium channel blockers. In addition, the evidence around the choice of thiazide-like diuretics suggests that chlortalidone or indapamide may be more effective than bendroflumethiazide. For the first time, the Guideline offers advice on treating hypertension in the very elderly (people aged over 80). New cost-effectiveness analysis shows that the cost of treating hypertension is now cheaper than doing nothing.

In this guideline the following definitions are used.

Stage 1 hypertension Clinic blood pressure is 140/90 mmHg or higher and subsequent ambulatory blood pressure monitoring (ABPM) daytime average or home blood pressure monitoring (HBPM) average blood pressure is 135/85 mmHg or higher.

Stage 2 hypertension Clinic blood pressure is 160/100 mmHg or higher and subsequent ABPM daytime average or HBPM average blood pressure is 150/95 mmHg or high.

Severe hypertension Clinic systolic blood pressure is 180 mmHg or higher or clinic diastolic blood pressure is 110 mmHg or higher.

Measuring blood pressure Because automated devices may not measure blood pressure accurately if there is pulse irregularity (for example, due to atrial fibrillation), palpate the radial or brachial pulse before measuring blood pressure. If pulse irregularity is present, measure blood pressure manually using direct auscultation over the brachial artery.

When measuring blood pressure in the clinic or in the home, standardise the environment and provide a relaxed, temperate setting, with the person quiet and seated, and their arm outstretched and supported.

Diagnosing hypertension When considering a diagnosis of hypertension, measure blood pressure in both arms. If the difference in readings between arms is more than 20 mmHg, repeat the measurements.If the difference in readings between arms remains more than 20 mmHg on the second measurement, measure subsequent blood pressures in the arm with the higher reading.

If blood pressure measured in the clinic is 140/90 mmHg or higher:Take a second measurement during the consultation.If the second measurement is substantially different from the first, take a third measurement.Record the lower of the last two measurements as the clinic blood pressure.

If the clinic blood pressure is 140/90 mmHg or higher, offer ambulatory blood pressure monitoring (ABPM) to confirm the diagnosis of hypertension.

If a person is unable to tolerate ABPM, home blood pressure monitoring (HBPM) is a suitable alternative to confirm the diagnosis of hypertension.

If the person has severe hypertension, consider starting antihypertensive drug treatment immediately, without waiting for the results of ABPM or HBPM.

If hypertension is not diagnosed but there is evidence of target organ damage such as left ventricular hypertrophy, albuminuria or proteinuria, consider carrying out investigations for alternative causes of the target organ damage.

If hypertension is not diagnosed, measure the person's clinic blood pressure at least every 5 years subsequently, and consider measuring it more frequently if the person's clinic blood pressure is close to 140/90 mmHg.

When using ABPM to confirm a diagnosis of hypertension, ensure that at least two measurements per hour are taken during the person's usual waking hours (for example, between 08:00 and 22:00).Use the average value of at least 14 measurements taken during the person's usual waking hours to confirm a diagnosis of hypertension.

When using HBPM to confirm a diagnosis of hypertension, ensure that:for each blood pressure recording, two consecutive measurements are taken, at least 1 minute apart and with the person seated and blood pressure is recorded twice daily, ideally in the morning and evening and blood pressure recording continues for at least 4 days, ideally for 7 days.Discard the measurements taken on the first day and use the average value of all the remaining measurements to confirm a diagnosis of hypertension.

Assessing cardiovascular risk and target organ damage For all people with hypertension offer to test for the presence of protein in the urine by sending a urine sample for estimation of the albumin:creatinine ratio and test for haematuria using a reagent strip take a blood sample to measure plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate, serum total cholesterol and HDL cholesterol, examine the fundi for the presence of hypertensive retinopathy, arrange for a 12-lead electrocardiograph to be performed.

Monitoring treatment and blood pressure targets Use clinic blood pressure measurements to monitor the response to antihypertensive treatment with lifestyle modifications or drugs.

Aim for a target clinic blood pressure below 140/90 mmHg in people aged under 80 years with treated hypertension.

Aim for a target clinic blood pressure below 150/90 mmHg in people aged 80 years and over, with treated hypertension.

For people identified as having a 'white-coat effect', consider ABPM or HBPM as an adjunct to clinic blood pressure measurements to monitor the response to antihypertensive treatment with lifestyle modification or drugs.

When using ABPM or HBPM to monitor response to treatment (for example, in people identified as having a 'white coat effect' and people who choose to monitor their blood pressure at home), aim for a target average blood pressure during the person's usual waking hours of:

below 135/85 mmHg for people aged under 80 years

below 145/85 mmHg for people aged 80 years and over.

Choosing antihypertensive drug treatment

Step 1 treatment

Offer people aged under 55 years step 1 antihypertensive treatment with an angiotensin-converting enzyme (ACE) inhibitor or a low-cost angiotensin-II receptor blocker (ARB). If an ACE inhibitor is prescribed and is not tolerated (for example, because of cough), offer a low-cost ARB Do not combine an ACE inhibitor with an ARB to treat hypertension

Offer step 1 antihypertensive treatment with a calcium-channel blocker (CCB) to people aged over 55 years and to black people of African or Caribbean family origin of any age. If a CCB is not suitable, for example because of oedema or intolerance, or if there is evidence of heart failure or a high risk of heart failure, offer a thiazide-like diuretic If diuretic treatment is to be initiated or changed, offer a thiazide-like diuretic, such as chlortalidone (12.5–25.0 mg once daily) or indapamide (1.5 mg modified-release once daily or 2.5 mg once daily) in preference to a conventional thiazide diuretic such as bendroflumethiazide or hydrochlorothiazide. For people who are already having treatment with bendroflumethiazide or hydrochlorothiazide and whose blood pressure is stable and well controlled, continue treatment with the bendroflumethiazide or hydrochlorothiazide

Step 2 treatment

If blood pressure is not controlled by step 1 treatment, offer step 2 treatment with a CCB in combination with either an ACE inhibitor or an ARB. If a CCB is not suitable for step 2 treatment, for example because of oedema or intolerance, or if there is evidence of heart failure or a high risk of heart failure, offer a thiazide-like diuretic.For black people of African or Caribbean family origin, consider an ARB in preference to an ACE inhibitor, in combination with a CCB.

Step 3 treatment

Before considering step 3 treatment, review medication to ensure step 2 treatment is at optimal or best tolerated doses. If treatment with three drugs is required, the combination of ACE inhibitor or angiotensin II receptor blocker, calcium-channel blocker and thiazide-like diuretic should be used.

Step 4 treatment

Regard clinic blood pressure that remains higher than 140/90 mmHg after treatment with the optimal or best tolerated doses of an ACE inhibitor or an ARB plus a CCB plus a diuretic as resistant hypertension, and consider adding a fourth antihypertensive drug and/or seeking expert advice.

For treatment of resistant hypertension at step 4: Consider further diuretic therapy with low-dose spironolactone (25 mg once daily) if the blood potassium level is 4.5 mmol/l or lower. Use particular caution in people with a reduced estimated glomerular filtration rate because they have an increased risk of hyperkalemia. Consider higher-dose thiazide-like diuretic treatment if the blood potassium level is higher than 4.5 mmol/l.

When using further diuretic therapy for resistant hypertension at step 4, monitor blood sodium and potassium and renal function within 1 month and repeat as required thereafter. If further diuretic therapy for resistant hypertension at step 4 is not tolerated, or is

contraindicated or ineffective, consider an alpha- or beta-blocker. If blood pressure remains uncontrolled with the optimal or maximum tolerated doses of four drugs, seek expert advice if it has not yet been obtained.

CONCLUSION

The aim of clinical guidelines is to improve quality of care by translating new research findings into practice. There is evidence that the following characteristics contribute to their use: inclusion of specific recommendations, sufficient supporting evidence, a clear structure and an attractive lay out. These guideline are almost covering all aspect of hypertension management including Epidemiology, Racial difference, Definition and classification, Diagnostic tools and method of Examination, Goal of Treatment, Patient Education, Non Pharmacological Treatment and drug Treatment to have wide impact on all aspect of Hypertension Management. Guidelines provide an essential bridge in communicating up-to-date information from clinical trials to clinicians in comprehensive form so that they can provide the best form of treatment for patients. Disparities in the recommendations do exist in various Guidelines we have to choose one of them for our Practice.

The primary aim of these guidelines is to offer balanced information to guide clinicians, rather than rigid rules that would constrain their judgment about the management of individual adult patients, who will differ in their personal, medical, social, economic, ethnic and clinical characteristics. To promote their implementation, guidelines could be used as a template for local protocols, clinical pathways and inter professional agreements."

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