Which Arterial Hypertension Guideline Should be Followed by Brazilian Physicians?

Comparative Analysis of Brazilian, European and North American Guidelines (JNC VII)

Article Classification: Point of View

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Introduction

New guidelines have recently been published regarding the management of arterial hypertension; the Brazilian Guideline (August/2002), the North American Guideline (May/2003) and the European Guideline (June/2003).\textsuperscript{1,2,3} Although they have been based on the best available evidence to date, considerable difference is found among them, posing the question as to which recommendation would be more correct and, consequently, which one should be adopted by physicians to treat arterial hypertension, especially by those who are not specialists in this area.

Without further details, the differences are basically more pronounced in areas such as diagnosis and classification of arterial hypertension, approach to other cardiovascular risk factors, and selection of initial drug therapy for hypertensive patients. These peculiarities will be discussed in more details below.

Diagnosis and Classification of Arterial Hypertension

Before starting this discussion, we will have a more detailed look at the differences among the classifications proposed by the Brazilian, European and North American Guidelines which are comparatively exhibited on Table I. The first doubt when we analyze the classifications concerns diagnosis: what is “normal” blood pressure?

Semantically speaking, the term “normal” can be understood in different ways, ranging from the statistical definition based on the distribution of a continuous biological variable, such as arterial blood pressure in the population, in which case the term “normal” would mean “the most common/usual”; and also other meanings
such as “the most desired/optimal” - in this setting a “normal” arterial pressure would be one that represents the lowest cardiovascular risk for any given individual.\textsuperscript{4,5} The latter approach seems to be most appropriate to establish the normality criteria and to classify arterial blood pressure.

Bearing this view in mind, and considering the continuous relationship between the level of arterial blood pressure and cardiovascular risk, any definition and classification of hypertension is merely arbitrary.\textsuperscript{4,5,6}

Brazilian and European Guidelines, based on the fact that cardiovascular risk rises proportionally with increases in arterial blood pressure levels above 115/75 mmHg, classify as “optimal” any measurements below 120/80 mmg.\textsuperscript{6} These same levels are named “normal” blood pressure by JNC VII. To this point, except for the use of different terms to define the same blood pressure levels, no significant difference is observed among the consensus.

The controversy and discussions start at this stage. The reason for such a “commotion”, both among physicians and especially in the average population, has been the inclusion of the term “Prehypertension”, encompassing arterial blood pressure ranging between 120-139 mmHg (systolic levels) and 80-89 mmHg (diastolic levels), without including effectively new epidemiological data that could justify the change in the diagnostic classification.

Although the purpose of using these names is to warn both the population and the physicians of the problem concerning hypertension, as emphasized by the coordinator of JNC VII, Dr. Chobanian, the debate that ensued after the introduction of this term was widespread in the international scientific community, since it is not grounded on any scientific evidence.\textsuperscript{7}
Not all patients included in this arterial blood pressure range will develop arterial hypertension; in fact, the vast majority will not, according to Table II, which presents the results of a re-evaluation of data from the Framingham study. For example, a middle-aged adult between 35 and 64 years old is only 17% likely to develop arterial hypertension in the next 4 years if he or she starts with a baseline arterial pressure of 128/84 mmHg.

Following this reasoning, Brazilian and European Guidelines are much more scientifically precise and grounded. Two subdivisions are used within this arterial blood pressure range: “normal” (120-129/80-84 mmHg) and “normal-high/borderline” (130-139/85-89 mmHg), considering that the likelihood of an individual becoming hypertensive between these two groups is completely different; individuals from the “normal-high” group are twice more likely to develop arterial hypertension when compared with individuals from the “normal” group, regardless of age (Table II). In addition to this, even slight variations in blood pressure levels in this range, which were previously regarded as “within normal levels”, may imply different cardiovascular risks (Table III).

Maybe the most appropriate synthesis of confounding terms after the release of JNC VII is the one performed by Dr. Giuseppe Mancia (Coordinator of the European Consensus) who, in a rather ironic way, states that classifying a patient as “prehypertensive” would be the same as calling “pre-sick” a healthy individual, with all the implications from the so-called “iatrogenic” use of the word.
Approach to Other Cardiovascular Risk Factors

Maybe the main difference among the consensus seems to be the little attention paid to the quantification of the global cardiovascular risk in the JNC VII report, which is a step back when compared with the previous version of this report.\textsuperscript{11} The Brazilian and European Guidelines are also more emphatic about the importance of analyzing the patient as a whole.

Considering that the main objective of the treatment of hypertension is to reduce cardiovascular morbidity and mortality, it is not rational to approach a patient based solely on his blood pressure levels.

Other risk factors are implicated not only in the classification of the patient as hypertensive or not, but also in the selection of drug treatment. A diabetic patient with a blood pressure level of 138/84 mmHg does not simply have “normal-high” arterial blood pressure, nor can be classified as “prehypertensive”; on the contrary, due to the substantial increase in cardiovascular risk caused by the association with diabetes, this patient should be considered hypertensive and treated as such, including the administration of drug therapy (Table IV, adapted from IV Brazilian Guidelines on Hypertension).\textsuperscript{1}

Therefore, using this strategy proposed by the Brazilian and European Guidelines, it is understood that there is no predetermined value of arterial blood pressure to classify a patient as normotensive or hypertensive. The decision between initiating drug therapy or only providing instructions in terms of lifestyle changes should be flexible, depending not only on the blood pressure levels per se, but also on these values jointly considered with other cardiovascular risk factors.
Initial Drug Therapy

All consensus dictate the use of a certain drug class in the preferential drug treatment of a hypertensive patient in association with a special condition, particularly when a comorbidity is present, e.g., the administration of beta-blockers in coronary insufficiency or angiotensin-converting enzyme inhibitors in patients with left ventricular dysfunction.

The disagreement is in the selection of the initial drug treatment of the non-complicated hypertensive patient. The North American consensus, based on the results of the ALLHAT study, advises the use of thiazides diuretics as the drug of choice in this type of condition, being as effective as other drug classes in the control of arterial blood pressure, and maybe a little superior in the prevention of some cardiovascular events such as, for example, cerebrovascular accident, not to mention that the cost of antihypertensive treatment based on the use of thiazides is enormously lower when compared with any other drug regimen available.\textsuperscript{12}

In this setting, both Brazilian and European guidelines are more cost-minded regarding the selection of the antihypertensive drug. Since there is substantial evidence that all the main classes of hypotensive drugs, namely, diuretics, beta-blockers, calcium channel blockers, angiotensin-converting enzyme inhibitors and angiotensin II antagonists are effective and safe in the treatment of hypertension, these consensus do not establish a specific orientation regarding the choice of the initial drug treatment, allowing the physician to choose the antihypertensive agent that he is more used to prescribing or that is more readily available to the patient.

Without considering the associated cost problem when this latter approach is chosen, it does not seem reasonable to ignore all the clinical trials available
regarding the benefits of other classes of antihypertensive drugs for the management of hypertensive patients in favor of only one class, since this recommendation is based on the results of a single study which, in fact, is not free from a considerable amount of negative criticism.\textsuperscript{13}

\textbf{Future Perspectives}

Different approaches regarding the same problem are frequent conditions in clinical practice, an issue well represented in this current discussion about the discrepancies among the various consensus about hypertension.

However, since the discussion of a clinical case is a healthy practice and the exchange of ideas ultimately generates new points of view which, if not the most correct, at least they raise some questions about conceptions which were previously unquestionable, therefore contributing to improvements in the medical practice.

Although we should respect the opinions of North American specialists contained in JNC VII, they should not be viewed as dogmatic because, notwithstanding the fact that the scientific knowledge produced in the USA has a great impact in the medical practice, in many circumstances the cultural differences may determine the implementation of more active attitudes (action-oriented) to fight a problem. The objective of JNC VII was definitely not to alarm the population in a nonsensical way, but to stimulate the “prehypertensive” population to adopt healthier lifestyles.

Therefore, the national guidelines elaborated by skilled Brazilian physicians, seem to be the best alternative for the medical community in our country, with the overall purpose of attaining a better management of hypertensive patients.
References


Table I. Classification of Arterial Blood Pressure according to Brazilian, European and North America Guidelines.

<table>
<thead>
<tr>
<th>Brazilian and European Classifications</th>
<th>North American Classification</th>
<th>SBP (mmHg)</th>
<th>DBP (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal</td>
<td>Normal</td>
<td>&lt; 120</td>
<td>&lt; 80</td>
</tr>
<tr>
<td>Normal</td>
<td>Prehypertension</td>
<td>120 - 129</td>
<td>80 – 84</td>
</tr>
<tr>
<td>Normal-High (Borderline)</td>
<td></td>
<td>130 - 139</td>
<td>85 - 89</td>
</tr>
<tr>
<td>Hypertension – Stage 1</td>
<td>Hypertension – Stage 1</td>
<td>140 - 159</td>
<td>90 - 99</td>
</tr>
<tr>
<td>Hypertension - Stage 2</td>
<td>Hypertension - Stage 2</td>
<td>160 - 179</td>
<td>100 - 109</td>
</tr>
<tr>
<td>Hypertension - Stage 3</td>
<td></td>
<td>180</td>
<td>110</td>
</tr>
<tr>
<td>Systolic (Isolated)</td>
<td></td>
<td>140</td>
<td>&lt; 90</td>
</tr>
</tbody>
</table>

SBP = Systolic Blood Pressure; DBP = Diastolic Blood Pressure.
Note: When Systolic and Diastolic Blood Pressures are in different categories, the higher one should be used for classification.
<table>
<thead>
<tr>
<th>Baseline BP (Category)</th>
<th>Rates of Hypertension after 4 years of follow-up (95% CI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35-64 years</td>
</tr>
<tr>
<td>Optimal</td>
<td>5.3 (4.4-6.3)</td>
</tr>
<tr>
<td>Normal</td>
<td>176 (15.2-20.3)</td>
</tr>
<tr>
<td>Normal-High</td>
<td>37.3 (33.3-41.5)</td>
</tr>
</tbody>
</table>

BP = Blood Pressure.

*Rates per 100 individuals. Adjusted for Gender, Age, and Body Mass Index.
<table>
<thead>
<tr>
<th>BP Category</th>
<th>Women Percentage</th>
<th>Relative Risk*</th>
<th>Men Percentage</th>
<th>Relative Risk*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal</td>
<td>1.9%</td>
<td>1.0</td>
<td>5.8%</td>
<td>1.0</td>
</tr>
<tr>
<td>Normal</td>
<td>2.8%</td>
<td>1.5 (0.9-2.5)</td>
<td>7.6%</td>
<td>1.3 (1.0-1.9)</td>
</tr>
<tr>
<td>Normal-High</td>
<td>4.4%</td>
<td>2.5 (1.6-4.1)</td>
<td>10.1%</td>
<td>1.6 (1.1-2.2)</td>
</tr>
<tr>
<td>p</td>
<td>&lt;0.01</td>
<td></td>
<td>&lt;0.001</td>
<td></td>
</tr>
</tbody>
</table>

BP = Blood Pressure.
*Relative Risk adjusted for Age, Body Mass Index, Cholesterol, Diabetes Mellitus and Smoking.
<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Description</th>
<th>Stage 1</th>
<th>Stage 2 and 3</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal / Borderline</td>
<td>Normal / Borderline</td>
<td>LSC</td>
<td>LSC</td>
<td>LSC*</td>
</tr>
<tr>
<td>(130-139/85-89)</td>
<td>(140-159/90-99)</td>
<td>(up to 12 months)</td>
<td>(up to 6 months)</td>
<td>LSC + DT</td>
</tr>
<tr>
<td>Stage 2 and 3</td>
<td>Stage 2 and 3</td>
<td>LSC + DT</td>
<td>LSC + DT</td>
<td>LSC + DT</td>
</tr>
<tr>
<td>(≥160/ ≥100)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LSC = Lifestyle Change; DT = Drug Therapy
* DT if Heart Failure, Chronic Renal Failure, or Diabetes Mellitus
** DT if Multiple Risk Factors