

Review

The Novelty of the 2015 Guidelines of the Taiwan Society of Cardiology and the Taiwan Hypertension Society for the Management of Hypertension

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Guidelines · Hypertension · High blood pressure

Abstract

The prevalence rate of hypertension in Asian countries grows faster than in other parts of the world, where stroke exceeds coronary heart disease in causing morbidities and mortalities. The optimal management of hypertension is therefore an especially important task in Asia. In a transparent and rigorous guideline development process, the most updated information available on the management of hypertension was summarized in the 2015 Taiwan Society of Cardiology (TSOC)/Taiwan Hypertension Society (TSH) hypertension guideline. In contradiction with the ESH/ESH joint hypertension guidelines and the 2014 Joint National Committee (JNC) report, this updated guideline suggests some different blood pressure (BP) targets. In brief, the BP target is 150/90 mm Hg for very elderly patients (≥ 80 years), 130/80 mm Hg for patients with diabetes, coronary heart disease, proteinuric chronic kidney disease or those receiving antithrombotics for stroke prevention, and 140/90 mm Hg for all the other hypertension patients with or without the aforementioned comorbidities. To facilitate the adherence to the guideline, the following was proposed: mnemonics for lifestyle modifications: S-ABCDE (Sodium restriction, Alcohol limitation, Body weight reduction, Cigarette smoking cessation, Diet adaptation, and Exercise adoption), treatment algorithm: PROCEED (Previous experience, Risk factors, Organ damage, Contraindications or unfavorable conditions, Expert's or doctor's judgment, Expenses or cost, and Delivery and compliance issue), and medication adjustment algorithm: AT GOALS (Adherence, Timing of administration, Greater doses, Other

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classes of drugs, Alternative combination or single-pill combination, and Lifestyle modification + Laboratory tests). In particular, the effort of translating the concept of central BP into clinical practice may stand out from all other hypertension guidelines. In summary, our guidelines may deliver useful information and guidance to clinicians in managing hypertensive patients, including the approach to a more accurate diagnosis, treatment and adjustment algorithm, and evidence-based recommendations.

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Brief Summary of the TSOC/THS 2015 Hypertension Guideline

Following the 2010 Taiwan Society of Cardiology (TSOC) guideline for the management of hypertension [1], the executive committee of the Taiwan Society of Cardiology and the Taiwan Hypertension Society (THS), based on new data from clinical trials, post hoc analyses, meta-analyses, and guidelines from other international societies [2, 3], decided to publish an updated 2015 hypertension guideline to provide clinicians with up-to-date evidence-based practice guidance for the management of hypertension [4]. In contrast to the 2010 guideline and guidelines issued by other societies, the new and unique aspects of this updated version of the Taiwan hypertension guideline are presented in this brief review.

The Prevalence and Control Rate of Hypertension in Taiwan

In the 2002 Taiwanese Survey on Hypertension, Hyperglycemia, and Hyperlipidemia (TwSHHH), the nationwide prevalence rates of hypertension [defined by systolic blood pressure (BP) 140 mm Hg or diastolic BP 90 mm Hg] were 25% in men and 18% in women, and that rate increased to 47% among individuals aged 60 years [5]. However, the control rate in patients aged 19 years was only 21.0% in men and 28.5% in women [5]. Since the implementation of the National Health Insurance system in 1995, the control rate of hypertension has improved to as high as approximately 50% for women in the northern Taiwan [1].

It has been well recognized that the death rate attributable to stroke is higher than that due to coronary heart disease (CHD) in eastern Asia [6]. Considering the finding that hypertension is the most important risk factor for stroke [7], and the impact of hypertension on stroke and CHD is higher in Asians than Caucasians [8], the importance of optimal management for hypertension in Asian countries to prevent cardiovascular disease, especially stroke, could not be overemphasized, and therefore an updated local hypertension guideline is urgently needed.

Comparison with Guidelines of Other Societies

In order to maintain the transparency of the developmental process of the present guideline, all the discussions and presentations within the consensus meetings were recorded and can be freely accessed online (TSOC APP). To achieve a better clarity of the guideline suggestions, similar methodologies to those developed by the American College of Cardiology (ACC) and the American Heart Association (AHA) were adopted, and all suggestions are presented with the corresponding class of recommendation (COR) and level of evidence (LOE).

Table 1. Comparison of the 2013 ESH/ESC hypertension guidelines, the 2014 JNC report, and the 2015 TSOC/THS hypertension guideline

	2013 ESH/ESC	2014 JNC report	2015 TSOC/THS
Diagnosis flow chart	–	–	+
Treatment flow chart	–	+	+
Lifestyle modification	+	–	+
BP	+	+	+
	Universally <140/90 mm Hg	<140/90 mm Hg (<150/90 for age >60)	<140/90 mm Hg (or <130/80 for special patient groups ^a)
Treatment in special conditions	+	–	+
Treatment of associated risk factors	+	–	–
Standards of IOM			
Transparency	?	?	+ ^b
Conflict of interests	Full disclosure	Full disclosure	Full disclosure
Group compositions (advisory board members)	n = 55	n = 51	n = 53
Systemic review	+ ^c	+ ^d	+ ^e
Strength of recommendation	+	+	+
Articulation	+	?	+
External review	+	+	+
Updating	+	+	+
Appropriateness for Asians	?	?	+

Adapted from the 2015 TSOC/TSH hypertension guideline [4] with permission. ESC = European Society of Cardiology; ESH = European Society of Hypertension; IOM = Institute of Medicine.

^a Patients with diabetes, CHD or proteinuric chronic kidney disease. ^b All presentations can be viewed online (<http://tw.i519.org/tsoc>). ^c Randomized controlled trials, meta-analyses, and cohort studies. ^d Only randomized controlled trials. ^e Randomized controlled trials, meta-analyses, nonrandomized trials, subgroup analyses, post hoc analyses, retrospective studies, cohort studies, registration studies, and small studies, especially focused on available data for Asians.

Table 1 summarizes the similarities and differences between the 2013 ESH/ESC hypertension guidelines [3], the 2014 Joint National Committee (JNC) report [2], and the 2015 TSOC/TSH hypertension guideline [4]. BP targets are the major differences among these guidelines, with details provided in table 2. In brief, the BP target is 150/90 mm Hg for very elderly patients (≥80 years), 130/80 mm Hg for patients with diabetes, CHD, proteinuric chronic kidney disease, or those receiving antithrombotics for stroke prevention, and 140/90 mm Hg for all the other hypertension patients with aforementioned conditions. Evidence supporting such recommendations was provided in detail throughout the guideline [4].

What Is New in the 2015 TSOC/THS Hypertension Guideline?

With evidence revolution, the 2015 hypertension guideline makes some changes in some recommendations and gives additional suggestions in comparison with the 2010 guidelines (table 3). The new guideline provides a correct BP measurement process and a diagnostic algorithm that highlights the importance of home BP monitoring and ambulatory BP monitoring. It also modifies the suggestions for lifestyle modification, which could be easily associated with by the mnemonics (S-ABCDE: Sodium restriction, Alcohol limitation, Body weight reduction, Cigarette smoking cessation, Diet adaptation, and Exercise adoption). Moreover,

Table 2. BP targets

Categories	BP targets, mm Hg	COR	LOE
Primary prevention	<140/90	IIa	B
Secondary prevention			
Diabetes	<130/80	I	B
CHD	<130/80	I	B
Stroke	<140/90	I	A
CKD	<140/90	I	A
CKD with proteinuria	<130/80	IIb	C
Very elderly patients (age ≥80 years)	<150/90	IIa	B
Patients receiving antithrombotics for stroke prevention	<130/80	I	B

Adapted from the 2015 TSOC/TSH hypertension guideline [4] with permission. CKD = Chronic kidney disease.

Table 3. Comparison of the 2010 TSOC hypertension guidelines and the 2015 TSOC/THS hypertension guideline

	2010 TSOC	2015 TSOC/THS
COR	–	+
LOE	–	+
Standards of IOM	–	+
Table for correct BP measurement	–	+
BP variability	–	+
Diagnostic algorithm	–	+
Treatment algorithm	+	+
Adjustment algorithm	–	+
BP targets, mm Hg		
<130/80	Diabetes, CHD and CHD equivalents, CKD, stroke	Diabetes, CHD, proteinuric CKD, antithrombotic therapy
<140/90	Primary prevention	Primary prevention, CKD, stroke
<150/90	Very elderly (>80 years)	Very elderly (>80 years)
Lifestyle modification		
S-ABCDE	+	+
S	Salt restriction <6.0 g/day	Sodium restriction 2.0–4.0 g/day
Body weight reduction	BMI 18.5–24.9	BMI 22.5–25.0
Exercise adoption (aerobic)	30 min/day, at least 5 days/week	40 min/day, at least 3–4 days/week
List of recommended drugs	+	+
List of recommended combinations	+	–
Figure for ‘Rule of 10’	–	+
Figure for ‘Rule of 5’	–	+
Nonpharmacological therapy	–	+
Renal nerve denervation	–	+
Perioperative management	–	+

Adapted from the 2015 TSOC/TSH hypertension guideline [4] with permission. CKD = Chronic kidney disease; IOM = Institute of Medicine.

in addition to the treatment algorithm, PROCEED (Previous experience, Risk factors, Organ damage, Contraindications or unfavorable conditions, Expert’s or doctor’s judgment, Expenses or cost, and Delivery and compliance issue), and a novel adjustment algorithm, AT GOALS, were proposed to guide the process of medication change (fig. 1).

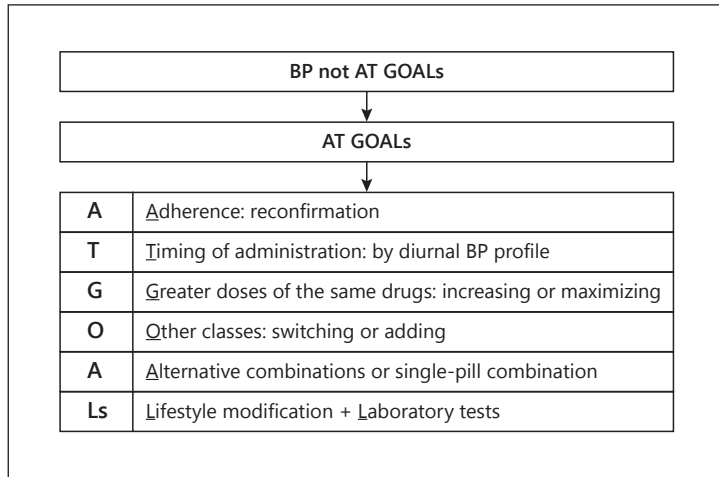


Fig. 1. Adjustment algorithm adapted from the 2015 TSOC/TSH hypertension guidelines [4] with permission.

What Is Unique in the 2015 TSOC/THS Hypertension Guideline?

In this updated guideline, the effort of translating the concept of central BP into clinical practice may stand out from all other hypertension guidelines.

With sustained hypertension, the central organs – the heart, brain and kidneys – are exposed to the pulsatile damage. All the traditional ways of measuring BP, including office BP measurement, home BPM, and ambulatory BPM, use the recordings from brachial arteries, which may be very different from central BP measured in the ascending aorta or carotid arteries, where these central organs are directly exposed to. This well-ascertained phenomenon, the BP amplification from the central aorta to peripheral arteries [9], has raised considerable research interest in the prognostic and diagnostic value of central BP [10]. During hemodynamic changes or after pharmacological interventions, such individual discrepancies between central BP and peripheral BP may be highly variable and cannot be ignored [11]. In this regard, BP measurements in the peripheral arteries may not be a good surrogate for their central counterpart [12]. Using an outcome-driven approach to examine the discriminatory ability of central BP for long-term cardiovascular outcomes [13], an operational threshold for central BP, 130/90 mm Hg, has been derived and validated in two independent Taiwanese cohorts [14, 15]. This central BP cutoff value has a greater discriminatory power for long-term events [13] and may have a higher sensitivity and a more negative predictive value than peripheral BP in the diagnosis of hypertension [16], subsequently rendering the application of central BP in clinical practice a more cost-effective approach [17].

In the 2015 TSOC/THS hypertension guideline, the measurement of central BP with a cutoff value of 130/90 mm Hg is recommended when a diagnosis of hypertension is clinically suspected but cannot be established by current conventional BP criteria (COR: IIb; LOE: B).

Conclusion

In a transparent and rigorous guideline development process, the most updated information available in the management of hypertension was summarized in 2015 TSOC/TSH hypertension guideline. This guideline may deliver useful information and guidance to clinicians in managing hypertensive patients, especially in Asian countries, including the approach to a more accurate diagnosis, treatment and adjustment algorithm, and evidence-based recommendations.

Disclosure Statement

The authors have no conflicts of interest to declare.

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