



Special Issue: Current evidence and perspectives for hypertension management in Asia

## Preface—Metabolic aspects of hypertension in Asia

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The Special Issue on Hypertension in Asia in this month's edition of Hypertension Research includes one statement, one editorial, and eight original articles. The first is "Agreement regarding overcoming hypertension in the Asian Hypertension Society Network 2022" by Hoshide et al. [1]. This statement presents the importance of the hypertension network in Asia, taking the opportunity of ISH 2022 being held in Kyoto last autumn, together with the expected explosive increase of hypertensive patients in Asia in the future and the importance of countermeasures against hypertension unique to Asia. This article focuses particularly on three key areas: target blood pressure (BP), sodium restriction, and out-of-office BP measurement.

In the Original Articles, this month there are several works focusing on the association between obesity and metabolic diseases, and hypertension. First, Tan et al. examined the prevalence of hypertension from 2008 to 2018 in the elderly in China [2]. The increase in prevalence of hypertension between 2008 and 2018 was particularly marked in the 65–79 year age group, with the region, body mass index (BMI), and living alone as associated factors, and an increase in mean systolic BP and pulse pressure, which may suggest an increase in the frequency of hypertension probably due to the effects of arterial stiffness in the aged population. Wu et al. examined the relationship between age at menopause and BP in 5429 spontaneously menopausal women [3]. It is well known that later age at menopause is associated with higher BP values, while BMI, waist circumference, waist-to-hip ratio and waist-to-height ratio were shown to be positively

associated with age at menopause and BP. In obese women, BP control that takes age at menopause into account may be useful. Haze et al. examined the association between plasma aldosterone level and visceral fat accumulation in 49 patients with primary aldosteronism and 29 patients with essential hypertension [4]. They showed that echocardiographic indices such as E/e' ratio were more markedly increased in patients with a combination of higher plasma aldosterone level and higher visceral/subcutaneous fat ratio, indicating that visceral fat reduction is organ-protective in patients with primary aldosteronism. Mori et al. showed that the rate of increase in systolic BP over time was higher in patients with metabolic dysfunction-related fatty liver disease and fatty liver [5]. Ishida et al. examined the relationship between serum triglyceride and the incidence of hypertension and found a clear relationship in men but not in women [6]. Focusing on diabetes, Ikeda et al. reported that resting tachycardia was associated with risk of cardiovascular events in type 2 diabetic patients with diabetic retinopathy and no history of cardiovascular disease [7]. Fujii et al. examined risk factors for a rapid annual decline in renal function in subjects with diabetes based on data from the health checkup system [8]. The results showed an association with high systolic BP, poorly controlled diabetes, increased urinary protein excretion, and low blood hemoglobin level.

As the number of hypertensive patients is increasing in Asia, we are reminded that hypertensive patients with metabolic diseases require more careful follow-up to prevent cardiovascular events and organ damage such as impaired renal function. We hope you enjoy this month's Issue on Hypertension in Asia.

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### Compliance with ethical standards

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## References

1. Hoshida S, Yamamoto K, Katsurada K, Yano Y, Nishiyama A, Wang JG, et al. Agreement regarding overcoming hypertension in the Asian Hypertension Society Network 2022. *Hypertens Res.* 2023;46:3–8.
2. Tan S, Liu D, Zhang Y, Li S, Zhang K, Zuo H. Trends in blood pressure and hypertension among older adults and oldest-old in China, 2008–2018. *Hypertens Res.* 2023. <https://doi.org/10.1038/s41440-023-01183-4>.
3. Wu YJ, Jiang CQ, Zhu T, Jin YL, Zhu F, Zhou BJ, et al. Obesity indicators as mediators of the association between age at menopause and blood pressure values. *Hypertens Res.* 2023. <https://doi.org/10.1038/s41440-023-01184-3>.
4. Haze T, Ozawa M, Kawano R, Haruna A, Ohki Y, Suzuki S, et al. Effect of the interaction between the visceral-to-subcutaneous fat ratio and aldosterone on cardiac function in patients with primary aldosteronism. *Hypertens Res.* 2023. <https://doi.org/10.1038/s41440-023-01170-9>.
5. Mori K, Tanaka M, Hosaka I, Mikami T, Endo K, Hanawa N, et al. Metabolic dysfunction-associated fatty liver disease is associated with an increase in systolic blood pressure over time: Linear mixed-effects model analyses. *Hypertens Res.* 2023. <https://doi.org/10.1038/s41440-023-01179-0>.
6. Ishida T, Kondo T, Funakoshi S, Abe M, Satoh A, Kawazoe M, et al. Serum triglyceride levels and incidence of hypertension in a general Japanese population: ISSA-CKD study. *Hypertens Res.* 2023. <https://doi.org/10.1038/s41440-023-01175-4>.
7. Ikeda S, Shinohara K, Enzan N, Matsushima S, Tohyama T, Funakoshi K, et al. Higher resting heart rate is associated with cardiovascular risk in patients with type 2 diabetes mellitus without known cardiovascular disease. *Hypertens Res.* 2023. <https://doi.org/10.1038/s41440-023-01178-1>.
8. Fujii M, Ohno Y, Ikeda A, Godai K, Li Y, Nakamura Y, et al. Current status of the rapid decline in renal function due to diabetes mellitus and its associated factors: Analysis using the National Database of Health Checkups in Japan. *Hypertens Res.* 2023. <https://doi.org/10.1038/s41440-023-01185-2>.