



Preface-various factors in the management of blood pressure

Masaki Mogi¹ · Satoshi Hoshide² · Kazuomi Kario²

Keywords BP management · Kidney · Stroke · Obesity · Artificial intelligence

Received: 17 December 2023 / Accepted: 26 December 2023 / Published online: 5 March 2024
© The Author(s), under exclusive licence to The Japanese Society of Hypertension 2024

We here summarize the Special Issue—Asian Study including one review, eight articles and one brief report, and the Topical Collection—Digital Hypertension including one review in the March issue of Hypertension Research. These special issues discuss about various factors in the management of blood pressure (BP) in Asia.

First, we introduce two review articles. One is on the systemic hemodynamic atherothrombotic syndrome (SHATS) which induces a vicious cycle of the association between hemodynamic stress and a vascular disease by Ishiyama [1]. And the second is on artificial intelligence (AI) in cardiovascular medicine to provide an overview of the current state of AI research by Makimoto et al. [2]. These reviews demonstrate the new concept and research tools of BP management.

Regarding of the articles, Satoh et al. studied the BP of 27652 hypertensive patients at the initial clinic visit and the subsequent treatment control rate [3]. The major factors contributing to difficulties in the therapeutic management of BP were high BP at the initial visit and inadequate anti-hypertensive treatment that did not effectively use three or more antihypertensive medications. Tsukamoto et al. also reported the BP-lowering effects of the sodium-glucose cotransporter 2 inhibitor in body mass index (BMI) classification. Hypertensive patients with BMI < 29.1 group more likely achieved to target BP rate than that with BMI ≥ 29.1 group [4]. Tokioka et al. also exhibited depressive symptoms could be one of the risk factors for masked hypertension from the comparisons with hypertensive patients

with depression ($n = 393$) and without depression ($n = 1106$) [5]. On the other hand, Liang et al. showed the importance of life-style modification to prevent cardiovascular diseases in children via developing optimal dietary and sleep rhythm patterns [6].

Two original articles on stroke have been exhibited. Lee et al. studied 90 patients with intracerebral hemorrhage focusing on primary aldosteronism (PA) [7]. Comparison of stroke patients between 21 PA patients and 69 non-PA patients, more severe hypertensive arterial lesions such as microbleeds and dilated perivascular spaces were observed in PA patients than in essential hypertensive patients. Moreover, Wu et al. demonstrated that high BP variability within the first 48 h was associated with the development of parenchymal hematoma in patients with atrial fibrillation [8].

Two original articles on kidney have been exhibited. Arafa et al. demonstrated the relationship between renal function and cognitive function in the Suita Study which showed each increment of eGFR by 10 mL/min/1.73m² was associated with 4.8% lower odds of cognitive impairment [9]. Endo et al. demonstrated the risk of a high level of thyroid-stimulating hormone in the development of chronic kidney disease in men [10].

Furthermore, Sakurai et al. studied the prognostic impact of hypertension in 2370 COVID-19 patients, and suggested that in Japanese patients with higher BP, the prognosis of COVID-19 was worse in the group of patients without originally documented hypertension [11].

These feature articles may be of interest to you. We hope you enjoy them.

✉ Masaki Mogi
mmogi@m.ehime-u.ac.jp

¹ Department of Pharmacology, Ehime University Graduate School of Medicine, Toon, Japan

² Division of Cardiovascular Medicine, Jichi Medical University School of Medicine, Tochigi, Japan

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

References

1. Ishiyama Y, Hoshida S, Kario K. Systemic hemodynamic atherothrombotic syndrome: from hypothesis to evidence. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01459-9>.
2. Makimoto H, Kohro T. Adopting artificial intelligence in cardiovascular medicine: a scoping review. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01469-7>.
3. Satoh M, Muroya T, Murakami T, Obara T, Asayama K, Ohkubo T, et al. The impact of clinical inertia on uncontrolled blood pressure in treated hypertension: real-world, longitudinal data from Japan. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01452-2>.
4. Tsukamoto S, Kobayashi K, Toyada M, Hatori N, Kanaoka T, Wakui H, et al. Pretreatment body mass index affects achievement of target blood pressure with sodium-glucose cotransporter 2 inhibitors in patients with type 2 diabetes mellitus and chronic kidney disease. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01464-y>.
5. Tokioka S, Nakaya N, Nakaya K, Kogure M, Hatanaka R, Chiba I, et al. The association between depressive symptoms and masked hypertension in participants with normotension measured at research center. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01484-8>.
6. Liang X, He X, Liu Q, Ren Y, Xu S, Chen L, et al. The impact of dietary and sleep rhythms on blood pressure in children and adolescents: a cross-sectional study. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01493-7>.
7. Lee BC, Tsai HH, Chen ZW, Chang CC, Huang JZ, Chang YY, et al. Aldosteronism is associated with more severe cerebral small vessel disease in hypertensive intracerebral hemorrhage. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01458-w>.
8. Wu MN, Liu YP, Fong YO, Lin YH, Yang IH, Chou PS, et al. The impact of blood pressure variability on the development of parenchymal hematoma in acute cerebral infarction with atrial fibrillation. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01479-5>.
9. Arafa A, Kawachi H, Matsumoto C, Teremoto M, Yasui Y, Kato Y, et al. The association between the estimated glomerular filtration rate and cognitive impairment: the Suita Study. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01476-8>.
10. Endo K, Tanaka M, Sato T, Mori K, Hosaka I, Mikami T, et al. A high level of thyroid-stimulating hormone is a risk factor for the development of chronic kidney disease in men: a 10-year cohort study. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01453-1>.
11. Sakurai K, Chudachi S, Asakura T, Namkoong H, Tanaka H, Azekawa S, et al. Prognostic significance of hypertension history and blood pressure on admission in Japanese patients with coronavirus disease 2019: integrative analysis from the Japan COVID-19 Task Force. *Hypertens Res.* 2024. <https://doi.org/10.1038/s41440-023-01490-w>.