

PERSPECTIVES IN HYPERTENSION

Onco-Hypertension

AKIRA NISHIYAMA

Dept. of Pharmacology, Faculty of Medicine, Kagawa University, Kagawa, Japan



The number of hypertensive patients is increasing in modern society, concurrent with the rising prevalence of cancer due to population aging. Moreover, as cancer prognosis improves and the number of survivors grows, many elderly cancer patients also suffer from hypertension. Additionally, newer biologics such as vascular endothelial growth factor (VEGF) inhibitors can elevate blood pressure, further contributing to the rise in hypertensive cancer patients. Despite the significant increase in cardiovascular events among cancer survivors with hypertension, there are currently no guidelines for managing blood pressure in this population. Furthermore, recent findings suggest that hypertension itself may predispose individuals to various cancers. Hence, we propose the establishment of a new scientific field termed "Onco-Hypertension" to address this gap and have undertaken various initiatives in this regard.

Historically, hypertension and cancer have not been thoroughly investigated together in large-scale clinical studies used to develop hypertension treatment guidelines, with cancer patients typically excluded from such research. However, the cardiovascular risk faced by cancer survivors with hypertension has escalated significantly, and hypertension itself is now recognized as a risk factor for various cancers. Consequently, the Japanese Society of Hypertension established the Onco-Hypertension Working Group to pioneer research in this novel academic discipline. This group aims to elucidate the mechanisms underlying the elevation of blood pressure by cancer drugs and the pathophysiological links between hypertension and cancer development, ultimately developing new diagnostic and therapeutic approaches. By leveraging interdisciplinary expertise, the group endeavors to formulate guidelines for managing blood pressure in cancer patients.¹

Untreated high blood pressure has been associated with an increased risk of developing several cancers, including thyroid, esophageal, colorectal, liver, and kidney cancers. However, the mechanisms underlying the link between hypertension and cancer remain poorly understood, and conducting large-scale clinical trials to assess the efficacy of antihypertensive treatment in reducing cancer incidence poses ethical challenges. Despite inconsistent data suggesting a potential association between antihypertensive medications and cancer risk, our recent review article has summarized existing evidence on this topic.² Moving forward, research within the Onco-Hypertension framework aims to clarify the precise relationship and mechanisms linking blood pressure and cancer through comprehensive analyses of patient samples and animal studies using state-of-the-art technology.¹

For many cancer types, cardiovascular disease poses a greater threat to survival than cancer itself. Approximately 20% of cancer survivors have hypertension, making it the most common comorbidity in this population. Elevated blood pressure has been shown to increase the risk of heart failure and other cardiovascular events in Japanese patients with a history of breast, colorectal, or gastric cancer.³ Given the high prevalence of hypertension among cancer survivors and its association with cardiovascular events, effective blood pressure control is essential for mitigating cardiovascular disease and reducing mortality in this vulnerable population.

Certain anticancer drugs, such as VEGF inhibitors and calcineurin inhibitors, are known to elevate blood pressure through distinct mechanisms. Conversely, immune checkpoint inhibitors, despite

their widespread use, have been shown not to significantly increase short-term hypertension risk in cancer patients.⁴ Future research under the Onco-Hypertension framework aims to identify blood pressure fluctuations induced by various anticancer drugs and elucidate their underlying mechanisms to tailor individualized treatment strategies effectively.

Recently, the American Heart Association proposed guidelines on "Cancer Therapy-Related Hypertension," underscoring the importance of this emerging area of research.⁵ In the future, it will be necessary to develop "Onco-Blood Pressure (BP)" activities in collaboration with researchers and medical professionals in all areas of the world, including hypotension that occurs during the active treatment phase of cancer.

References

1. Kidoguchi S, et al: New Concept of Onco-Hypertension and Future Perspectives. *Hypertension* 77: 16-27, 2021
2. Kidoguchi S, et al: Antihypertensive Drugs and Cancer Risk. *Am J Hypertens* 35(9): 767-783, 2022
3. Kaneko H, et al: Blood pressure classification using the 2017 acc/aha guideline and heart failure in patients with cancer. *J Clin Oncol* 41(5): 980-990, 2023
4. Minegishi S, et al: Immune checkpoint inhibitors do not increase short-term risk of hypertension in cancer patients: a systematic literature review and meta-analysis. *Hypertension* 79(11): 2611-2621, 2022
5. Cohen JB, et al: Cancer therapy-related hypertension: a scientific statement from the American Heart Association. *Hypertension* 80(3): e46-e57, 2023

Akira Nishiyama – nishiyama.akira@kagawa-u.ac.jp

Advert from an ISH Corporate member

a:care

HELP YOUR PATIENTS STICK TO THEIR TREATMENT

Please scan the QR code below to find out how



GLO2288483

