



Impact of the COVID-19 pandemic on physical and psychological activities in elderly patients with hypertension

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Since December 2019, coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has spread across the world and caused a global pandemic and health problem. Notably, the COVID-19 pandemic has also impacted social activity, mainly due to social isolation to avoid the risk of COVID-19 infection, which negatively affects physical activity and mental health worldwide [1, 2]. In particular, isolated elderly people are considered to be more susceptible to this situation, which results in an increased risk of frailty and sarcopenia [3, 4].

In Japan, from February 2020 to September 2021, the government intermittently declared a state of emergency to strongly encourage self-restraint to the Japanese nation, forcing many citizens to restrict their social activity. In addition, previous studies have reported associations between the COVID-19 pandemic and reductions in social and physical activities in elderly Japanese people [5, 6]. However, how the COVID-19 pandemic and accompanying social isolation affect physical activity and mental health has not been fully elucidated, and understanding its relevant factors may be important for maintaining the health status of elderly people.

The present study by Yasunobe et al. [7] examined the changes in exercise habits over a year and the factors associated with the pattern of the temporal change in exercise habits, including the incidence of falls and psychological status, in elderly Japanese patients with hypertension during the COVID-19 pandemic and accompanying

self-restraint. The population used in this current study was derived from their previous study (Cherry study), which was a prospective longitudinal study investigating the incidence and determinants of cognitive impairment in hypertensive elderly patients [8], and the follow-up period was one year (November 2019 to October 2020). The original Cherry study consisted of populations from several Japanese medical institutions, but the population of this current study was derived only from Osaka University Hospital. The authors conducted the same surveys at baseline and the end of the study period and obtained information concerning exercise habits, incidence of falls during the study period, comprehensive geriatric assessment, and muscle strength. Although 209 elderly patients with hypertension were initially enrolled, 190 patients were finally included in the analysis due to participant withdrawal or missing data. Unexpectedly, the COVID-19 pandemic did not affect the exercise habits in this population, and muscle strength, estimated by measurements of hand grip strength, was maintained during the study period. However, when the analyses were focused on the comparison between a population who maintained their exercise habits and a population who lost their exercise habits, the geriatric depression scale score and the incidence of falls were significantly higher only in the female population who lost their exercise habits.

The main finding of this study that the exercise habits and physical strength in elderly patients with hypertension were not affected by the COVID-19 pandemic is inconsistent with the results of the abovementioned previous studies [5, 6], but as described in the Discussion, many participants consciously incorporated low-intensity exercise, such as walking to the store or doing radio exercises, into their daily lives, which might have contributed to their preserved exercise habits and physical strength during the COVID-19 pandemic. On the other hand, the subgroup analysis based on the participants' exercise habits revealed

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that the female population who lost their exercise habits during the pandemic was associated with mental health problems and a higher incidence of falls, suggesting an association between the loss of exercise habits and exacerbated mental health/physical activity. The present study by Yasunobe et al. [7] provided new insights into the impact of the COVID-19 pandemic on physical and psychological activities in elderly hypertensive patients, but the causal relationship between changes in exercise habits and physical and psychological functions is still unclear. Thus, further evidence is necessary to address this issue, which would contribute to preserving the health status of elderly people during the next pandemic.

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

References

- Violant-Holz V, Gallego-Jiménez MG, González-González CS, Muñoz-Violant S, Rodríguez MJ, Sansano-Nadal O, et al. Psychological health and physical activity levels during the COVID-19 pandemic: a systematic review. *Int J Environ Res Public Health*. 2020;17:9419.
- Okuyama J, Seto S, Fukuda Y, Funakoshi S, Amae S, Onobe J, et al. Mental health and physical activity among children and adolescents during the COVID-19 pandemic. *Tohoku J Exp Med*. 2021;253:203–15.
- Sepúlveda-Loyola W, Rodríguez-Sánchez I, Pérez-Rodríguez P, Ganz F, Torralba R, Oliveira DV, et al. Impact of social isolation due to COVID-19 on health in older people: mental and physical effects and recommendations. *J Nutr Health Aging*. 2020;24:938–47.
- Oliveira MR, Sudati IP, Konzen VM, de Campos AC, Wibelinger LM, Correa C, et al. Covid-19 and the impact on the physical activity level of elderly people: a systematic review. *Exp Gerontol*. 2022;159:111675.
- Yamada M, Kimura Y, Ishiyama D, Otobe Y, Suzuki M, Koyama S, et al. The influence of the COVID-19 pandemic on physical activity and new incidence of frailty among initially non-frail older adults in Japan: a follow-up online survey. *J Nutr Health Aging*. 2021;25:751–56.
- Otaki N, Yokoro M, Yano M, Imamura T, Akita M, Tanino N, et al. Social contact impacts physical activity and sedentary behavior among older adults in Japan due to COVID-19. *BMC Geriatr*. 2022;22:491.
- Yasunobe Y, Akasaka H, Yamamoto K, Onishi Y, Minami T, Yoshida S, et al. The relationship between changes in exercise habits and psychosomatic activities in older hypertensive patients during the COVID-19 pandemic. *Hypertens Res*. 2022. <https://doi.org/10.1038/s41440-022-01043-7>.
- Yamamoto K, Akasaka H, Yasunobe Y, Shimizu A, Nomoto K, Nagai K, et al. Clinical characteristics of older adults with hypertension and unrecognized cognitive impairment. *Hypertens Res*. 2022;45:612–19.

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