



Letter to the Editor

Unprecedented crisis—Heart failure hospitalizations in current or future Japan



For the two past decades, we were able to achieve better prognosis than ever before in patients with cardiovascular diseases, owing to the advent of guideline-based medicine and device therapy. Conversely, the increase in cardiovascular disease survivors and the aging of society have resulted in an increase in the number of heart failure (HF) patients in developed countries, including Japan. Particularly in Japan, a greater increase in HF patients is expected to occur by 2025, by which time the baby boom generation will be ≥ 75 years old [1]. Under these circumstances, treatment of HF is of central importance. Above all, the prevention of hospitalization for HF related to worsening patient prognosis and high healthcare costs is becoming not only a medical but also a social issue. However, the estimated HF hospitalization rate in the future has not yet been predicted. Herein, we estimate the future HF hospitalization in Japan according to national data.

The Japanese Ministry of Health, Labour and Welfare has reported that, in 2017, the estimated number of patients hospitalized due to HF in Japan was 34,300 *per day* [2]. We

estimated future trends in Japan on the basis of trends of HF hospitalization between 2002 and 2017 [2] as well as future population trends on the basis of data from the National Institute of Population and Social Security Research [3]. The estimated number of HF patient hospitalizations in the future in Japan, after adjusting for age and sex, is shown in Fig. 1. Using the number of patients in 2017 as a reference, we estimated the HF change rate as 1.06, 1.14, 1.18, 1.20, 1.22, 1.10, 0.95, 0.87, 0.84, and 0.83 folds in the years 2020, 2025, 2030, 2035, 2040, 2045, 2050, 2055, 2060, and 2065, respectively. We also estimated the future number of HF patients ≥ 65 years hospitalized with dementia as a comorbidity according to the previous report [4]. In future Japan, the number of patients with dementia who require HF-related hospitalizations is estimated to be between 6000 and 10,000 *per day* (Fig. 1). Furthermore, we estimated a time-dependent gradual increase in the prevalence of dementia in hospitalized HF patients (Fig. 1).

We conducted a future estimate of HF-related hospitalizations in Japan. We based our study on national disclosed data. Our results showed that a greater requirement for HF-related hospitalization is estimated to occur from 2020 to 2045, with a peak in 2040. Notably, from 2030, we expect a substantial number of HF patients requiring hospitalization to present with dementia

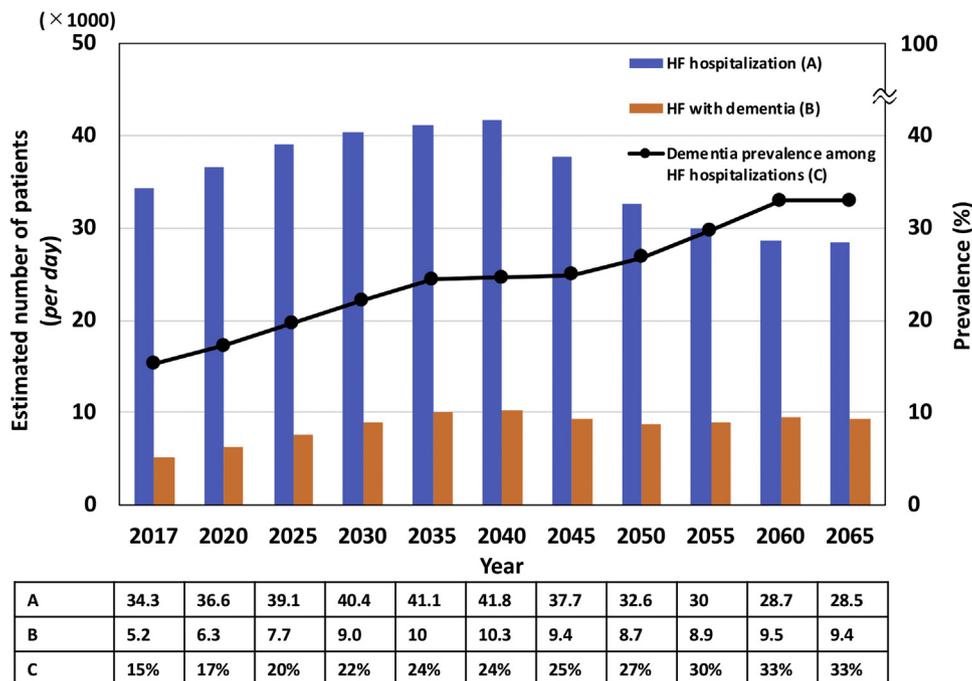


Fig. 1. Estimated number of HF patient hospitalizations and patients presenting with dementia as a comorbidity, dementia prevalence among HF hospitalizations in current or future Japan. HF, heart failure.

as a comorbidity. Henceforth, we expect a gradual increase in the ratio of patients presenting with dementia as a comorbidity in HF hospitalizations in Japan.

As previously anticipated, our study predicted a future increase in HF-related hospitalizations in Japan. Specifically, during the next two decades, from 2025 onward, an increase in HF hospitalizations by approximately 15–20%, when compared to that in 2017, is expected. We considered the following solutions for this issue: (1) primary prevention against HF through lifestyle modification, such as diet and regular exercise, education, and medication to reduce the burden of risk factors, (2) appropriate use of guideline-based medicine and HF device therapy in clinical practice, and (3) organizing community medicine measures for HF. In Okayama prefecture, community medicine is promoted by the Okayama Prefectural Government and tertiary centers, which play an important role in HF treatment. More precisely, to share patient information of HF patients undergoing treatment among medical institutions, medical collaboration with a specific notebook, and plan for community medicine are measures used in clinical practice [5]. A comprehensive solution involving the administration should be developed in order to prevent HF hospitalizations.

Surprisingly, this study suggests the possibility that from the year 2025 more than one-fifth of HF patients hospitalized will also present with dementia. Therefore, cooperation among cardiologists, dementia experts, and mental healthcare professionals will become an essential element in HF management. Additionally, medical staff should share patient and disease status with the patient's family and confirm the advanced care planning even in the early stages of HF.

This study has several limitations. First, although we performed the study using national data based on the ICD-10 code, we obtained no detailed information about HF. Second, this study was conducted on the basis of previous data trends of HF hospitalizations between 2002 and 2017. It is possible that there will be changes in this estimate in practice. Third, dementia prevalence as a comorbidity of HF hospitalizations might be underestimated, because we extracted the reference data on dementia prevalence from the whole population and not the hospitalized. Finally, future medical advances that benefit HF patients may alter the estimate.

In conclusion, we estimate an increase in hospitalizations of HF patients presenting with dementia as a comorbidity. This increase is expected to occur soon in Japan. To overcome this unprecedented crisis, cooperation not only within medical institutions but also with community medicine agents, including the local government, is necessary.

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Conflict of interest

None declared.

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