



Original Article

Current state of knowledge and information sharing among home healthcare professionals involved in heart failure management



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ABSTRACT

Background: The current state of knowledge related to disease management of heart failure (HF) and information coordination practices provided by non-physician healthcare professionals such as nurses and therapists working at home-visit nursing stations in Japan are not well known.

Methods: A questionnaire survey of healthcare professionals working at home-visit nursing stations was conducted in Kochi Prefecture. Data collected from 151 nurses and therapists were analyzed.

Results: Regarding the basic characteristics of the respondents, the majority were in their 30s and 40s, and approximately 75 % were nurses. In terms of HF knowledge, 53.7 % of respondents said that they “knew” about the New York Heart Association classification. A total of 40.0 % of respondents said that they were “aware of the existence of the HF handbook”, and only 29.3 % of respondents said that they “knew” the classification of HF stages. When they were asked about their level of satisfaction related to all medical information provided by the hospital and hospital wards, no one was “very satisfied”, and the most common response (66.2 %) was “not very satisfied”. In the essential medical information that respondents wanted to obtain from hospitals and hospital wards for managing HF patients at home, “medication at discharge”, “current medical history”, “fluid intake and restrictions”, “symptoms, signs, and response to exacerbation”, and “ideal body weight” were the top five contents.

Conclusion: In the cross-sectional study targeted healthcare professionals working at home-visit nursing stations in Kochi Prefecture, the current state of knowledge related to HF and information coordination practices among healthcare professionals were not fully satisfactory in HF management. It is necessary to increase educational opportunities regarding HF for them and further promote information sharing.

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Introduction

In developed countries, heart failure (HF) is a leading cause of death and hospitalization in adults aged 65 years and older [1]. According to a study by Okura et al., the number of HF patients in Japan is expected to gradually increase from 979,000 in 2005 to 1.3 million in 2030 [2]. Recently, we reported the current situation of clinical characteristics of patients hospitalized for acute decompensated HF in a prospective multicenter community-based cohort study in Kochi Prefecture, Japan, and the median age of the patients at registration was 81 years [3]. Although symptoms such as dyspnea, fatigue, edema, loss of appetite, anxiety,

and depression generally occur in HF patients [4], diagnosis and treatment are further complicated by atypical signs and symptoms, age, cognitive function, polypharmacy, and misidentification of symptoms due to comorbidities [5,6].

To decrease the number of HF patients' hospital readmissions, the Ministry of Health, Labour and Welfare (MHLW) has recommended the provision of home nursing [7,8]. Due to the increased number of HF patients, diagnosis and treatment by specialists and specialized hospitals alone are no longer sufficient to handle the situation. Since HF patients can present with atypical signs and symptoms, they require a multidisciplinary collaborative approach to deal with medication and lifestyle modifications based on the severity of the condition, and collaboration among specialists, specialized hospitals, family doctors, and home healthcare services is absolutely essential. However, the current care situation for HF patients provided by non-physician healthcare professionals such as

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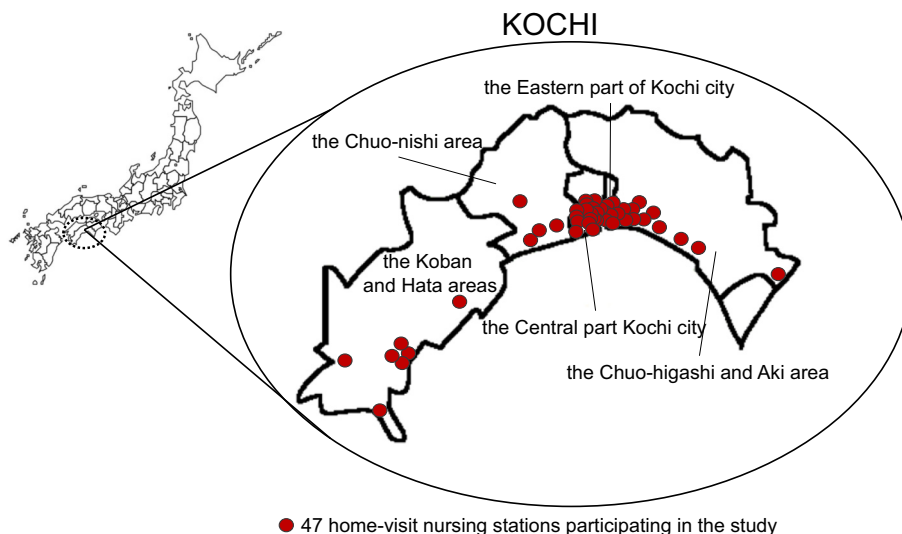


Fig. 1. Research location.

nurses and therapists working at home-visit nursing stations, which serve as hubs for providing home healthcare services, is not well known.

Thus, the present study aimed to investigate the current state of knowledge related to disease management of HF patients and information sharing among healthcare professionals working at home-visit nursing stations in Kochi Prefecture.

Method

This cross-sectional study targeted healthcare professionals working at home-visit nursing stations in Kochi Prefecture. Of the 65 home-visit nursing stations registered with the Kochi Home-visit Nursing Service Association, 47 home-visit nursing stations gave consent to participate in the survey (Fig. 1). There are 11 home-visit nursing stations in the Chuo-higashi and Aki area, 8 stations in the Eastern part of Kochi city, 17 stations in the Central part Kochi city, 4 stations in the Chuo-nishi area, and 7 stations in the Koban and Hata area. The survey targeted healthcare professionals working at home-visit nursing stations. Clerical staff were excluded.

Data were collected by mail between May and June 2019. An overview of the study was explained in writing. Consent for participation in the study was obtained by having respondents tick a checkbox before answering the questionnaire. A questionnaire was created based on the disease management section of the “2017 Guidelines on Diagnosis and Treatment of Acute and Chronic Heart Failure” issued jointly by the Japanese Circulation Society (JCS)/Japanese Heart Failure Society (JHFS) guidelines [9]. The questionnaire was designed with subjective “yes or no” questions and multiple response questions.

Ethical consideration

All respondents were asked to first confirm their informed consent for participation in the study and then answer the questions on the questionnaire survey. The present study was conducted in compliance with the Declaration of Helsinki and in accordance with generally accepted ethical standards. Approval was obtained from the Ethics Committee of the Kochi Medical School (Approval No. 30-172).

Data analysis

Categorical variables are shown as percentages. Comparisons among three groups were analyzed using the chi-squared test, with significance at $p < 0.05$. All analyses were performed using STATA Software version 16.0 for Windows (Stata Corp, College Station, TX, USA).

Results

A total of 262 questionnaires were disseminated, and responses were obtained from 164 respondents (62.6 % response rate). Of those who responded, 12 respondents who had no experience visiting HF patients and one who did not complete the questionnaire were excluded from the analysis. In the end, responses from 151 respondents were analyzed.

Basic characteristics of the respondents

Table 1 shows the basic characteristics of the respondents. The majority were in their 30s and 40s, and approximately 75 % were nurses. Most of the respondents had five or more years of clinical experience, and roughly half of the respondents had one or more years but less than five years of home-visit experience. The basic characteristics according to the locations were not different.

Table 1
Characteristics of the respondents.

n (%)	Years of experience in home-visit of heart failure patients		
	Less than 1 n = 51	1 or more but < 5 n = 72	5 or more n = 28
Age (years)			
20s	2 (3.9)	8 (11.1)	0 (0.0)
30s	20 (39.2)	28 (38.9)	2 (7.1)
40s	16 (31.4)	21 (29.2)	10 (35.7)
50s	8 (15.7)	10 (13.9)	14 (50.0)
60s and older	5 (9.8)	5 (6.9)	2 (7.1)
Sex			
Female	43 (84.3)	58 (80.6)	27 (96.4)
Male	8 (15.7)	14 (19.4)	1 (3.6)
Occupation			
Nurse	34 (66.7)	51 (70.8)	27 (96.4)
Physiotherapist	12 (23.5)	15 (20.8)	1 (3.6)
Occupational therapist	4 (7.8)	5 (6.9)	0 (0.0)
Others	1 (2.0)	1 (1.4)	0 (0.0)
Years of clinical experience			
Less than 1	0 (0.0)	0 (0.0)	0 (0.0)
1 or more but <5	1 (2.0)	9 (12.5)	0 (0.0)
5 or more	50 (98.0)	63 (87.5)	28 (100.0)
Years of home-visit experience			
Less than 1	20 (39.2)	0 (0.0)	0 (0.0)
1 or more but <5	24 (47.1)	50 (69.4)	0 (0.0)
5 or more	7 (13.7)	22 (30.6)	28 (100.0)

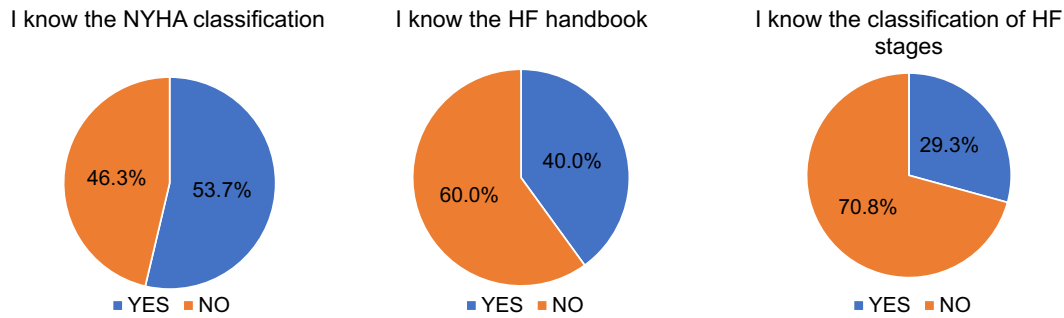


Fig. 2. Knowledge related to HF. HF, heart failure; NYHA, New York Heart Association.

Knowledge related to HF

In terms of HF knowledge of healthcare professionals working at home-visit nursing stations (Fig. 2), about half of the respondents (53.7 %) said that they “knew” about the New York Heart Association (NYHA) classification. A total of 40.0 % of respondents said that they were “aware of the existence of the HF handbook,” whereas 60.0 % did not know about the HF handbook. Furthermore, many respondents (70.8 %) said that they “did not know” the classification of HF stages. There were no differences in those results based on years of experience or locations.

In terms of the effects of oral medications (Table 2), their understanding of diuretic, vasodilator, antihypertensive, and vasopressor agents and of beta-blockers did not differ depending on the years of experience doing home visits of HF patients. However, there was a difference in the understanding of cardiotoxic drugs and pacemakers. When they were asked if they knew the causative diseases of HF, there was a difference depending on the years of experience visiting HF patients. On the other hand, those results among the locations were not different.

Information sharing

When they were asked about their level of satisfaction related to all medical information provided by the hospital and hospital wards (Table 3), no one was “very satisfied”, and the most common response (66.2 %) was “not very satisfied”. In terms of information related to home care of HF patients, 53.4 % said that they “had experienced problems” with hospitals or family doctors.

Table 4 shows essential and problematic information related to collaboration. “Medication at discharge”, at 93.1 %, was the most common essential medical information that respondents wanted to obtain from hospitals and hospital wards for managing HF patients at home, followed by “current medical history”, “fluid intake and restrictions”, “symptoms, signs, and response to exacerbation”, and “ideal body weight”, which

were 80 % or more. “Medication management”, at 57.7 %, was the most common information that caused problems with hospitals or family doctors, followed by “fluid intake and restrictions” at 46.2 %. Specifically, the following comments were described in the questionnaire: ‘Additional medicine was prescribed even though I informed the situation that patient could not take medications.’, ‘I requested a package of oral medicines, but it was not carried out.’, or ‘There was no specific instructions on whether to restrict fluids intake.’

Discussion

This is the first study that targeted healthcare professionals working at home-visit nursing stations in Japan to investigate the current status of HF and HF-related knowledge and current practices of coordinating information about HF patients within the community. Although numerous studies have examined the content and methods of care provided to HF patients in the community, hardly any studies have focused on knowledge and information from the perspective of collaboration with the community.

In Japan, the shortening of hospital stay is being promoted as a medical cost optimization measure. However, elderly patients of 65 years or older make up >70 % of all in-hospital patients [10], and with an increasing proportion of single-person or married-couple households [11], the current situation is such that patients cannot expect to be cared for at home even after hospital discharge. However, since home-visit nursing is a public service, there are usage restrictions, such as the frequency of visits and time allocated for each visit depending on one’s health status and age. Thus, home-visit nurses need to collaborate with other professionals to provide home care assistance. It is therefore crucial that information is shared during home visits.

Knowledge related to HF

Although about half of the respondents knew the NYHA classifications, 60.0 % did not know about the HF handbook. In addition, 70.8 % of respondents did not know the classification of HF stages. NYHA

Table 2 Knowledge related to HF treatment and causative diseases.

n (%)	Years of experience in home-visit nursing of HF patients			p
	Less than 1	1 or more but <5	5 or more	
I know about diuretics.	45 (90.0)	66 (91.7)	27 (96.4)	0.598
I know about vasodilators.	41 (82.0)	66 (91.7)	27 (96.4)	0.095
I know about antihypertensive agents.	45 (90.0)	68 (94.4)	27 (96.4)	0.480
I know about vasopressor agents.	33 (66.0)	54 (76.1)	23 (82.1)	0.250
I know about beta-blockers.	27 (56.3)	44 (62.9)	22 (78.6)	0.146
I know about cardiotoxic drugs.	30 (61.2)	54 (75.0)	25 (89.3)	0.025
I know about pacemakers.	34 (69.4)	61 (84.7)	26 (92.9)	0.023
I know about causative diseases of HF.	27 (55.1)	51 (70.8)	23 (82.1)	0.038

HF, heart failure.

Table 3 Satisfaction with the information and whether or not they had problematic experiences.

	n (%)
Satisfaction with information provided	
Very satisfied	0 (0.0)
Satisfied	39 (28.7)
Not very satisfied	90 (66.2)
Not satisfied at all	7 (5.2)
I have experienced problems related to information	
Yes	78 (53.4)
No	68 (46.6)

Table 4
Essential and problematic information related to collaboration.

	Essential information from hospitals, %	Problematic information with hospitals or family doctors, %
Medication at discharge	93.1	NA
Current medical history	92.4	NA
Fluid intake and restrictions	89.7	46.2
Symptoms, signs, and response to exacerbation	83.5	24.4
Ideal body weight	81.4	NA
Activities of daily living	76.6	19.2
Details of guidance support	76.6	NA
Medication management	75.9	57.7
Weight management and trends	75.9	35.9
Salt intake and restrictions	75.2	38.5
Response to guidance support	71.7	NA
Nutritional management	64.8	16.7
Cognitive function	55.9	3.9
Mental condition (anxiety, depression)	40.7	3.9
Smoking status	36.6	3.9
Alcohol consumption	34.5	5.1
Infection prevention and vaccination	28.3	2.6
Response when travelling	17.9	1.3
Treatment plan	NA	28.2

NA, not available.

class is widely known and used due to the ease of making determinations using the subjective symptoms of HF patients. Meanwhile, the Japanese Heart Failure Society created and issued the HF handbook in 2012. Although it has been seven years since its publication, 60.0% of respondents were not aware of the existence of the HF handbook. The HF handbook contains information about HF knowledge and tips on daily living that HF patients should know. It also includes information on the classification of stages to help patients better deal with HF. This information is needed not only by HF patients and their families, but also by healthcare professionals. It can also be used for patient education.

Many of the triggers for hospital readmission due to exacerbated HF tend to be preventable factors such as lack of compliance with medications and salt and fluid over-intake [12,13]. For this reason, HF patients need to have self-care management to enable them to engage in drug therapy, fluid management, salt restriction, and proper medical consulting behavior. Disease management of HF patients by nurses was reported to improve patients' quality of life and decrease readmission into hospitals [14]. The knowledge of healthcare professionals is imperative so that HF patients can prevent exacerbation of symptoms and encourage them to continue performing proper self-care. In the current study, respondents with longer years of experience in home-visit nursing of HF patients had a better understanding of the effects of oral medications, cardiotoxic drugs, pacemakers, and causative diseases of HF. Since the causes of HF are many and varied, and treatment methods differ depending on the causative diseases and HF status, it is likely that those with more years of experience visiting HF patients had a broader knowledge of HF. However, rather than relying on knowledge acquired by the accumulation of home-visiting experience years, it is important to provide education that promotes understanding of HF from an early stage so that, regardless of the number of years of home-visiting experience, the same level of medical care can be offered by any healthcare professionals who conduct the visits. The spread of the HF handbook seems to be useful in education on knowledge of HF.

Information sharing in community collaboration

Regarding medical information provided by hospitals and hospital wards, 66.2% of respondents were not very satisfied with all the information, and 53.4% of respondents had experienced problems related to information with hospitals or family doctors. As for medical information that respondents found indispensable and wanted from hospitals and

hospital wards, 93.1% said "medication at discharge" and over 80% said "current medical history", "fluid intake and restrictions", "symptoms, signs, and response to exacerbation", and "ideal body weight". When asked about inadequate communication including the content of information about HF management, respondents mentioned information on "medication management" (57.7%), followed by "fluid intake and restrictions" (46.2%). Most of the respondents wanted to know the type of medication prescribed at discharge. However, the fact that over half of the respondents had experienced problems related to medication management indicates that there is a need to communicate and share information, not just writing down the names of the prescribed drugs, but also about what kind of management is needed, including details about what type of guidance was given during the hospitalization.

Monitoring body weight is recommended in the HF guidelines [9]. Although ideal body weight is a crucial piece of information needed for managing HF at home, body weight is greatly influenced by factors such as fluid and salt intakes. For this reason, weight management was listed as one of the most common problems related to information shared with hospitals or family doctors. Kinugasa et al. reported that when general practitioners took over follow-up duties after HF patients were discharged, high priority information was pre-discharge body weight [15]. For this reason, hospital cardiologists and general practitioners both measured body weight during outpatient consultations to assess the exacerbation of HF. Communication failure between physicians and home-visit nurses increased the risk of hospital readmission of high-risk patients [16]. For healthcare professionals involved in home-visit consultations, the exchange of detailed information is indispensable for understanding the patient's medical condition and assessing the timing to seek early consultation. Kinugasa et al. reported that only 34.5% of hospital cardiologists had conducted pre-discharge meetings to share information when referring their patients to home healthcare and home-visit nursing services after hospital discharge [15]. Thus, measures to ensure community collaboration among hospitals, family doctors, and home-visit nursing stations are needed.

Only about 30.0% of regions in Japan have introduced information and communication technology-based personal health record systems [15]. Kochi Prefecture has the second highest rate of aging (35.2%) in Japan [17]. Therefore, we believe that the paper-based HF handbook may be an effective measure for promoting collaboration in the community. The HF handbook allows information to be visualized by having multiple stakeholders such as patients, their families, and healthcare professionals write down information on physical conditions (e.g. daily blood pressure) and details of guidance provided during home visits. Bringing the HF handbook to the outpatient consultation visits ensures that information is definitely shared. When symptoms and signs of exacerbation emerge, it also allows one to check the timing of medical consultation based on whether it is HF or not. Therefore, the authors' group created a Kochi Prefecture version of our own HF handbook after the current study and the handbook has been widely used in Kochi Prefecture.

Limitations

There were several limitations in the present study. First, it was small sample size and the fact that it was a cross-sectional study limited to Kochi Prefecture. Furthermore, the responses to the questionnaire were subjective, and biases of the healthcare professionals may have influenced the responses.

Conclusions

In the cross-sectional study that targeted healthcare professionals working at home-visit nursing stations in Kochi Prefecture, the current state of knowledge related to HF and current information coordination practices among healthcare professionals were not fully satisfactory in HF management. It is necessary to increase educational opportunities

regarding HF for them and to ensure community collaboration among hospitals, family doctors, and healthcare professionals working at home-visit nursing stations to further promote information sharing.

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Declaration of competing interest

The authors have no conflict of interest with a company, organization, or institution to be disclosed.

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