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〈報　告〉

Actual Conditions of COVID-19 Infection Control in Nursing Homes

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Abstract

This study aimed to clarify the actual conditions of COVID-19 infection control in Japan's nursing homes (NH). An anonymous self-administered questionnaire survey was conducted among 500 facility managers from 500 randomly selected NH. Of the 66 returned questionnaires, 64 had valid responses (12.8%). Medical qualifications were not observed in 56.3% of the respondents. Additionally, the responses "There is a manual available to detect and manage a resident with suspected COVID-19," "Training on COVID-19 measures for staff," and "Staff training participation rate" accounted for 81.3%, 67.2%, and 67.1%, respectively. However, 64.1% answered "There is a countermeasure for staff who cannot participate in infectious disease control training." "Infection control specialists" were few, and the "Infection control status" varied between facilities. Establishing a system that facilitates access to support from infection control specialists and training infection control personnel in NH is necessary.

Key words: Nursing Homes, COVID-19 Infection Control

Introduction

Geriatric welfare facilities reported 1310 cases of COVID-19 in Japan[1]. Also, many COVID-19 cases in NH have been reported in the United States[2]. While some are severe, most of these cases and its disease onset are mild to moderate. Elderly people aged above 60-years old and those with comorbidities are at a higher risk of developing a severe disease when infected with COVID-19[3]. In fact, many COVID-19-related deaths in NH have been reported[2,4]. Asymptomatic subclinical infection can occur even after resolving SARS-CoV-2 infection; sub-clinically infected individuals carry SARS-CoV-2, and they serve as a source of infection[5]. Considering that COVID-19 is transmitted from infected and subclinically-infected poeple several days before the disease onset, the infection unknowingly spreads from presymptomatic-facility staff or asymptomatic-infected residents to other residents[6]. In addition, daily care often forces staff to be in close contact with residents, and it is difficult to require hygienic behavior from residents with cognitive decline. Due to the aforementioned factors, the implementation of infection control measures in NH is considered difficult.

In this study, we aimed to determine the actual situation of COVID-19 infection control in NH in the Kanto Region, where the number of COVID-19 cases in Japan is high. Through this assessment, suggestions for effective control methods will be provided.

Material and methods

Design

This research is a cross-sectional study, which conducts an anonymous self-administered questionnaire survey.

Setting and participants

The target research facilities were determined through the Elderly Welfare Facility Information Posting Page on the homepages of 47 prefectures nationwide; this page is linked to the Welfare and Medical Service Network System[7]. We randomly selected 500 facilities from 2631 facilities listed in the NH list of the abovementioned prefectures. Our participants were composed of 500 facility managers, each from the 500 research facilities.

Table 1　Sample characteristics (N=64)

Characteristics	Mean±SD (Range)	n (%)
Qualification		
Physician		0 (0.0)
Nurse		18 (28.1)
Certified care worker		10 (15.6)
Others		36 (56.3)
Years of work experience	21.8±9.5 (2–41)	
Years of experience as a facility manager	5.7±4.7 (1–21)	
Living room type		
Completely private room type		30 (46.9)
Mixed type of private room/multi-bedroom		29 (45.3)
Completely multi-bedroom type		5 (7.8)
Facility daily capacity		
Number of residents	105.6±32.8 (47–216)	
Number of daycare users	16.8±17.0 (0–60)	
Number of regularly employed nurses and care workers		
Number of nurses	5.9±2.7 (2–18)	
Number of certified care workers	33.5±12.3 (10–84)	
Number of long-term care staff who do not have a certified care workers	15.3±8.9 (2–59)	
Employs foreign nurses and care workers		35 (54.7)
Number of foreign nurses and care workers	2.1±2.6 (0–10)	

SD: standard deviation

Date collection

From September 1 to December 31 in 2021, we conducted an anonymous self-administered questionnaire survey via mail.

Survey item

The questionnaire has 65 survey items, comprising the basic attributes (8 items) and COVID-19 infection control items (57 items). The COVID-19 infection control items were developed according to the World Health Organization's COVID-19 Infection Prevention and Control Preparedness Checklist for Long-Term Care Facilities[8] and the infection control issues related to COVID-19 countermeasures, noticed by two certified infection control nurses during the cluster response in the destination countries. To ensure the content validity of the questionnaire, we examined it with two infection control specialists. We also conducted a pretest together with five facility managers to examine the surface validity of the questionnaire items.

Analysis

All items were summarized by descriptive statistics. Percentages were calculated for nominal and ordinal variables; means and standard deviations for continuous variables. SPSS for Windows (version 21.0) was used for the statistical analysis.

Ethical considerations

The questionnaires were anonymously answered, and the return of answered questionnaires indicated participants' consent to participate. The ethics committee of our university approved this study (Approval Number: Jun kan Rin No.2021-29).

Results

Out of 500 participants, only 66 returned the questionnaires (response rate 13.2%). Among them, 64 (without defects) had valid responses (12.8%). The basic attributes are as shown in **Table 1**.

We found that all participants (64 [100%]) reported "There is an infection control manual," whereas 52 (81.3%) claimed "There is a manual available to detect and manage a resident with suspected COVID-19." Moreover, 54 (84.4%) participants answered "Ensure processes are available to detect and manage a resident with suspected COVID-19," and 37 participants answered "Establish a flexible shift schedule to cover enough staff to care for residents with suspected or confirmed COVID-19." We also found 29 (45.3%) participants who reported that their facilities "Develop and maintain a contact list of healthcare facilities where suspected cases can be referred for emergency," but only few "Ensure that guidelines on IPC for safe management of deceased residents in the context of COVID-19 are available" (9 [14.1%]) (**Table 2**).

Regarding health management, all 64 participants

Table 2 Organization and planning (N=64)

Characteristics	Mean±SD (Range)	n (%)
Assign a COVID-19 preparedness planning team		64 (100)
Annual frequency of meetings on infection control	13.6±12.1 (4–52)	
Assign a staff in charge of IPC		63 (98.4)
Number of staff in charge of IPC	4.9±4.8 (0–18)	
There is an infection control manual		64 (100)
There is a manual available to detect and manage a resident with suspected COVID-19		52 (81.3)
Ensure processes are available to detect and manage a resident with suspected COVID-19		54 (84.4)
Establish a flexible shift schedule to cover enough staff to care for residents with suspected or confirmed COVID-19		37 (57.8)
Develop a surge capacity plan for extra staff, personal protective equipment and consumables required for IPC		64 (100)
Develop and implement a screening and documentation process for all persons entering the facility		57 (89.1)
There are infection prevention measures in shared spaces		59 (92.2)
Establish criteria to discharge residents from isolation		59 (92.2)
Secure space in the facility to isolate residents suspected of COVID-19		49 (76.6)
Ensure that guidelines on IPC for safe management of deceased residents in the context of COVID-19 are available		9 (14.1)
There are rules for infectious disease control regarding the acceptance of short-term residents		59 (92.2)
Develop and maintain a contact list of healthcare facilities where suspected cases can be referred for emergency		29 (45.3)
Prepare a communications plan for what events will trigger communication with residents and their families in an event of a COVID-19 outbreak		54 (84.4)
Ensure emergency contact name, addresses, and telephone numbers for residents' family is up to date		51 (79.7)

IPC: infection prevention and control; SD: standard deviation

(100%) answered that their facilities "Assess all staff and residents daily for symptoms suggestive of COVID-19," and 57 (89.1%) claimed that they "Keep a record of all people who enter the facility for contact tracing." Regarding infection prevention measures, "Ensure good ventilation" and "Cleaning staff should clean and disinfect the environment at least daily, focusing on frequently touched surfaces" were the most common (100%). The least common was "Reduce the number of shared items between residents" (6 [9.4%]) (Table 3).

Regarding education on COVID-19 measures, "Training on COVID-19 measures for staff" was implemented in 43 (67.2%) facilities. The participation rate of the training was 67.1±28.9 (range: 10-100), and 41 participants (64.1%) reported "There is a countermeasure for staff who cannot participate in infectious disease control training." Additionally, 31 (48.4%) "Ensure opportunities for staff to share concerns and worries regularly," Meanwhile, "Advice on coping with stress and staying healthy" was only implemented by 23 (35.9%) facilities, lower than other items (Table 4).

Discussion

In this study, approximately 20% of the facilities could not make a manual on COVID-19 and only 14.1% answered "Ensure that guidelines on IPC for safe management of deceased residents in the context of COVID-19 are available." NH's physicians, nurses, and infection control specialists is understaffed. Therefore, preparing a manual for COVID-19 according to the structural aspects of the facility and the characteristic of the user is difficult. Consequently, creating an environment where all facilities can easily consult with infection control specialists for manual preparation is necessary so that all facilities can prepare a manual on COVID-19.

Most NH are not prepared for a SARS-CoV-2 pandemic[9]. In this study, approximately 20% of the facilities did not confirm the feasibility of COVID-19 countermeasures in their own facilities. When an infectious disease occurs, a prompt response may not be possible. Therefore, the feasibility of COVID-19 infection control from normal times should be confirmed, and a system that allows easy consultation with infection control specialists should be established. NH also experienced per-

Table 3 Measures to protect a safe working environment and management of goods (*N*=64)

Characteristics	Mean±SD (Range)	n (%)
Assess all residents daily for symptoms suggestive of COVID-19		64 (100)
Assess all staff daily for symptoms suggestive of COVID-19		64 (100)
Keep a record of all people who enter the facility for contact tracing		57 (89.1)
Ensure good ventilation		64 (100)
Cleaning staff should clean and disinfect the environment at least daily, focusing on frequently touched surfaces		64 (100)
Ensure that all gatherings in crowded or close-contact places are minimized or cancelled		59 (92.2)
Ensure adequate supplies of PPE and other hygiene/cleaning items		64 (100)
Ensure hand hygiene materials are available in every resident room and all other care and common areas		63 (98.4)
Ensure informative posters are placed around the facility on hand hygiene and transmission-based precautions		58 (90.6)
Ensure that all resident personal equipment and belongings are labelled		59 (92.2)
Clean and disinfect shared items after every use between residents		60 (93.8)
Ensure dedicated equipment for the care of isolated residents		56 (87.5)
Reduce the number of shared items between residents		6 (9.4)
The facility's infection control manual contains instructions on how to handle contaminated linen		54 (84.4)
Instructed to wear PPE when disposing of contaminated linens		63 (98.4)
The facility's infectious disease control manual includes instructions on how to dispose of infectious waste		61 (95.3)
Instructed to wear PPE when disposing infectious wastes		62 (96.9)
Implement infectious disease countermeasures in staff break rooms		61 (95.3)
Implement infectious disease control in staff changing rooms		53 (82.8)
Implement infectious disease control in smoking areas		47 (73.4)
Take measures against infectious diseases in the nap room		40 (62.5)
Frequent contact surface cleaning frequency	1.98±0.97 (1–5)	
Toilet cleaning frequency	1.54±0.58 (1–3)	

PPE: personal protective equipment; SD: standard deviation

Table 4 Education and training about COVID-19 (*N*=64)

Characteristics	Mean±SD (Range)	n (%)
Training on COVID-19 measures for the staff		43 (67.2)
Annual frequency of training	3.1±2.98 (0–12)	
Staff training participation rate	67.1±28.9 (10–100)	
Educate staff on what to do if they are diagnosed or suspected of having COVID-19		56 (87.5)
Educate staff members on what to do if they are diagnosed or suspected of having COVID-19		52 (81.3)
There is a countermeasure for staff who cannot participate in infectious disease control training		41 (64.1)
Educate them to wash their uniforms on every shift		41 (64.1)
Have daily communication between administers, IPC focal point, and the staff		55 (85.9)
Ensure opportunities for the staff to share concerns and worries regularly		31 (48.4)
Advice on coping with stress and staying healthy		23 (35.9)
Ensure COVID-19 information is visible for residents's family		29 (45.3)
Ensure COVID-19 information is visible for visitors		41 (64.1)
Provide COVID-19 information for residents		37 (57.8)
Encourage and support residents to communicate with their family using methods of telecommunications, when visits are not allowed or limited		61 (95.3)

IPC: infection prevention and control; SD: standard deviation

sonnel shortage due to the spread COVID-19 infection[4,10]. In this study, approximately 50% of the respondents established a flexible shift schedule to cover enough staff to care for residents with suspected or confirmed COVID-19 during the COVID-19 outbreak. Creating a work plan for business continuity according

to the facility's characteristics is necessary. 9.4% of the respondents chose "reduce the number of shared items among residents." NH have no additional long-term care fee for infection prevention measures, and the introduction of disposable products puts pressure on the financial side, making the purchase of medical equipment and goods for infection prevention measures difficult. Therefore, additional infection control measures in facilities need to be considered.

67.2% of the respondents answered that their facilities conducted "Training on COVID-19 measures for the staff." However, only 41 (64.1%) answered that they had measures for employees who cannot participate in the infectious disease control training. COVID-19 is an emerging infectious disease, and education on COVID-19 countermeasures is challenging in NH considering the few specialists in infectious disease countermeasures. In addition, the staff have different occupations with different backgrounds on education on infectious diseases; hence, the status of understanding and implementation of infectious disease countermeasures were different between occupations[11]. Support for infectious disease control education by infection control specialists, training of infection control education personnel at facilities, and methods for dealing with staff who could not participate remain as issues.

The NH staff have been physically and mentally burdened during the course COVID-19 pandemic, which led to burnout[12]. In this study, "Advice on coping with stress and staying healthy" was 35.9%, which tended to be lower than other items. Although mental health care for employees in NH with few infection control specialists is difficult to implement, a support system for mental health care should still be established and maintained.

Limitations

The response rate for this survey was low, which have resulted in response bias. Many respondents were non-medical professionals, which may affect the validity of their responses. Furthermore, the survey items did not include experience in accepting or clustering COVID-19 patients; thus, cannot be generalized. However, we believe that the survey results clarified the actual situation and practical problems of infection control regarding COVID-19 in NH.

Conclusions

The preparation of a manual on COVID-19 and the implementation status of infection-prevention education and mental health care were varied. This variation will affect the effectiveness of implementing COVID-19 measures and may lead to infection of users and the staff. Establishing a system to easily receive the support of infection control specialists in NH and developing human resources for infection control in NH remain a challenge.

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特別養護老人ホームにおける COVID-19 感染管理の実態

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要　　旨

本研究の目的は特別養護老人ホーム（特養）における Coronavirus Disease 2019（COVID-19）に関する感染管理の実態を明らかにすることである．

日本の関東地方にある特養から無作為に抽出した 500 施設の施設責任者 1 名を対象とし，2021 年 9 月～12 月に自記式質問紙調査を行った．

64 名（12.8%）の回答を分析対象とした．医師・看護師・介護福祉士の資格を持っていない者が多かった（56.3%）．「COVID-19 に関するマニュアルがあり」が 81.3%．「COVID-19 感染症対策に関する職員教育を行った」が 67.2%，職員の研修参加率は 67.1% であったが，「研修に参加できない職員への対応方法があり」が 64.1% であった．気軽に感染管理の専門家の支援を受けられる体制の整備および特養における感染管理の人材育成が課題となった．感染管理に関する教育プログラムの開発が必要と考えられる．

Key words：特別養護老人ホーム，COVID-19 感染管理

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