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研究ノート

Support Provided by Nurses and Welfare Caregivers to Homecare Recipients Requiring Medical Care during Typhoons

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医療的ケアを要する在宅療養者への台風災害発生に備える看護職者および介護士の支援の現状と今後の課題

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Abstract

Aim: The aim of this paper is to clarify the current situation and issues the nurses and welfare caregivers have while providing support to homecare recipients (clients) in medical care required during typhoons.

Methods: A questionnaire survey was conducted on a group of 121 nurses and welfare caregivers employed in Okinawa prefecture.

Results: 62 Valid respondents. Confirmation of the residences of highly urgent care recipients 88.7%, confirmation of the electronic medical devices used by highly urgent care recipients 83.9%, organization of care recipients' medical information in preparation for emergencies 66.1%, and organization of care recipients' lifestyle information in preparation for emergencies 65.5%. Further results include, discussion on where to receive medical consultation when staying at an evacuation center 33.9%, discussion on where to receive consultation on medical devices 33.9%, discussion on how to obtain supplies during the stay at evacuation center, and discussion on the care recipients' patient card (both at 21%).

Conclusion: Implementation rates were high for items related to daily preparations for typhoons, but low for guidance for care recipients and their families. These results indicate the need to investigate and further develop the contents and methods of guidance given to care recipients and their families.

Keywords: medical care, home care recipients, typhoon, support provided by nurses and welfare caregivers

要　旨

目的：医療的ケアを要する在宅療養者への台風災害発生時の看護職および介護士の支援の現状と課題を明らかにする。

方法：沖縄県内に勤務する看護職者および介護士121名を対象に郵送法による質問紙調査を行った。

結果：有効回答数は62枚であった。緊急性の高い利用者の住まいの把握88.7%，緊急性の高い利用者の電源を使用する医療機器の把握83.9%，緊急時に備えた利用者の医療情報の整理66.1%，緊急時に備えた利用者の生活情報の整理65.5%，避難中の病気の相談窓口の話合い33.9%，医療機器に関する相談窓口の話合い33.9%，避難中の物品の入手の話合い21%，患者携帯カードについ

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ての話合い21％の実践率であった。
結論：台風災害発生時への日頃の取り組みに関する項目は実践率が高かったが，利用者・家族への指導の実践率は低かった。利用者・家族への指導内容や方法の検討および実践の必要性が示唆された。

キーワード：医療的ケア　在宅療養者　台風災害　看護職者および介護士が提供する支援

I. Introduction

The Great East Japan Earthquake that occurred on March 11, 2011 was a magnitude 9.0 earthquake with an epicenter off the coast of Sanriku. The earthquake killed 19,475 people and left 2,587 people missing (as of September 1, 2016) (Fire and Disaster Management Agency, 2016). There were reports that the death rate among people with disabilities in the Great East Japan Earthquake was twice that of people without disabilities (Cabinet Office, 2013). In addition, an aftershock of the Great East Japan Earthquake struck on April 7, in the evening. The region served by Tohoku Electric Power suffered a power failure due to this aftershock. One person, who used a home oxygen supply, died during this power failure. The Ministry of Health, Labour and Welfare says that the relationship between the blackout and the cause of death is not clear (Ministry of Health, Labour and Welfare Medical political situation Economic Affairs Division, 2011). However, the Ministry has issued a notification calling for the provision of medical care to home care patients to be carried out as much as possible, in ways that would avoid any problems even in the event of a power failure. Furthermore, home medical care patients feel highly uneasy about rolling blackouts after an earthquake disaster. Ensuring access to a power supply is an issue of life or death for individuals who require home medical care.

Efforts to reduce medical costs have led to a shorter duration of hospitalization and a shift from hospitalization to home medical care. Therefore, ascertaining the following information is crucial to individuals receiving at-home care and their families in the event of a disaster: 1) safely ensuring access to a power supply, 2) when to evacuate, 3) where to evacuate to, and 4) the means of evacuation.

Okinawa Prefecture is located in a place where typhoons pass through with increasing force, resulting with massive damage. Typhoon No. 9 of 2011 hit the main island of Okinawa, causing prolonged rainstorms and power outages. As a result, children who required home medical care were rushed to the hospital and hospital staff struggled to cope with the influx (Kinjo, Matsushita, & Suzuki, 2012). People with disabilities are "individuals who need assistance during a disaster," so in the event of a disaster, arrangements (support) need to be made for them. Therefore, the current study sought to ascertain the current condition and the future issues concerning support provided by nurses and welfare caregivers to individuals who require home medical care in the event of a typhoon.

Ⅱ. Aim

The aim of this paper is to clarify the current situation and issues the nurses and welfare caregivers have while providing support to homecare recipients (clients) in medical care required during typhoons.

Ⅲ. Research methods

1. Research subject

The selection of the subjects of the study was based on introductions of hospitals and facilities that provide home-visit nursing and home-care in Okinawa. The survey was conducted with the consent of the hospital and facility manager.

A group of 121 nurses and welfare caregivers employed in Okinawa.

2. Methods

Anonymous, self-administered questionnaires were sent to the research subjects.

3. Implementation period

November 1, 2014 to January 31, 2015.

4．Questions on the questionnaire

The questionnaire inquired about the current status of the routine response in the event of a disaster, the current status of guidance, given to recipients of at-home care and their families, and the current status of their own disaster preparedness. As the attribute information, gender, age, occupation, workplace, and position were asked in a survey (Table 1).

5．Analysis method

In order to clarify the results, the responses of "Being provided" and "Being provided, but not sufficiently" were calculated in a practice rate as "being provided" while "Greatly needed but not practicing," "Needed but not practicing" and "unnecessary" as "not being provided."

Table 1 ：The questionnaire

Question 1. Please read each item and circle the number that applies to you.

		Yes, I do.	I do, but it is not sufficient.	I do NOT, but much needed.	I do NOT, but needed.	No, I do NOT.
1	I train clients and their families how to correctly convey information on the client's illness or disability, medication, and medical equipment to medical or welfare personnel other than the client's primary physician in the event of an emergency.	1	2	3	4	5
2	I verify whether clients and their families understand the client's illness or disability, treatment, and use of medical equipment.	1	2	3	4	5
3	I train clients and their families on how to ensure that a power supply is available in the event of a disaster.	1	2	3	4	5
4	I understand the illness or disability, treatment, and use of medical equipment by clients with more urgent medical needs and priority clients.	1	2	3	4	5
5	I understand the electrically powered equipment used by clients with more urgent medical needs and priority clients.	1	2	3	4	5
6	I know the address of the clients who need more urgent medical needs and clients who need assistance.	1	2	3	4	5
7	I know who can help clients with more urgent medical needs and clients who need assistance, and where those clients can evacuate to.	1	2	3	4	5
8	I compile information on a client's illness or disability, treatment, and use of medical equipment for immediate use in the event of an emergency.	1	2	3	4	5
9	I compile routine information on clients (extent of ADL, level of assistance needed, need for a power source, etc.) for immediate use in the event of an emergency.	1	2	3	4	5
10	I understand how to ensure that a power supply is available at a shelter (where a client will be staying) in the event of a disaster.	1	2	3	4	5
11	I verify whether clients and their families know what items they must take when evacuating, such as needed medication and daily necessities.	1	2	3	4	5
12	I verify whether clients and their families have prepared a stockpile of needed medication and daily necessities in a given location that the family members are aware of.	1	2	3	4	5
13	I verify whether clients and their family members have agreed upon a route and means of evacuation and shelters to go to in the event of a disaster.	1	2	3	4	5
14	I talk to clients and their families about how to ensure that a power supply is available in the event of a disaster.	1	2	3	4	5
15	I talk with clients and their families about sources of advice regarding the client's illness or disability in the event of a disaster or while staying in a shelter.	1	2	3	4	5

		Yes, I do.	I do, but it is not sufficient.	I do NOT, but much needed.	I do NOT, but needed.	No, I do NOT.
16	I talk with clients and their families about sources of advice regarding medical equipment in the event of a disaster or while staying in a shelter.	1	2	3	4	5
17	I talk with clients and their families about how to obtain needed medication and daily necessities while living in a shelter.	1	2	3	4	5
18	I talk with clients and their families about preparations (the client's patient care card) so that they can explain the client's illness or disability, medication, and medical equipment to medical or welfare personnel other than the client's primary physician.	1	2	3	4	5
19	I verify whether clients and their families can ensure that a power supply is available in the event of a disaster.	1	2	3	4	5
20	I verify whether clients and their families have someone they can rely on (relatives, friends, acquaintances, neighbors, etc.) in the event of an emergency.	1	2	3	4	5
21	I talk with clients and their families about what information they should routinely convey to people they can rely in the event of an emergency regarding the client's illness or disability, treatment, and use of medical equipment.	1	2	3	4	5
22	I know about workplace systems of communication and instructions used during a disaster.	1	2	3	4	5
23	I understand the disaster preparedness manual for my workplace.	1	2	3	4	5
24	I have drafted a manual on ensuring that a power supply is available in the event of a disaster.	1	2	3	4	5
25	I am participating in disaster preparedness drills in the community and workplace.	1	2	3	4	5
26	I know where to seek support and what facilities and organizations (neighborhood associations, volunteer disaster response organizations, volunteers, social welfare agencies, public health centers, etc.) cooperate in the event of a disaster.	1	2	3	4	5
27	I know how to contact facilities and organizations in Q. 26.	1	2	3	4	5
28	I know what information is exchanged by facilities and organizations in Q. 26. I know what information is exchanged by cooperating facilities and organizations in the event of a disaster.	1	2	3	4	5
29	I talk with officials and relevant agencies about ensuring that a power supply is available in the event of a disaster	1	2	3	4	5
30	I am learning how to ensure that a power supply is available for medical equipment in the event of a disaster.	1	2	3	4	5

Question 2. Ask about youself. Please circle the number that applies to you.

1．Gender
①male　②female

2．Age Groups
①under the age of 30　②31-40 years of age　③41-50 years of age
④51-60 years of age　⑤age 60 or over

3．Occupation
①nurses　②public health nurses　③assistant nurses
④welfare caregivers　⑤some other occupation

4．Worked
①hospital　②facility　③visiting nurses' station　④some other site

5．Position
①staff　②mid-level managers　③administrators　④some other position

Ⅳ. Ethical considerations

1. Consent to participation in this study

A study participation request form explained the intent and purposes of this study and indicated that the answers from the questionnaire will be applied to this study, and eventually published. The potential participants would not be penalized if they chose not to participate in this study.

2. Information management

During the period of study, data was carefully handled and managed. At the conclusion of this study, documents containing data were destroyed with a shredder. Data was only used for the purposes of this study. The study participation request form and questionnaire clearly indicated that steps will be taken so the facilities and individuals could not be identified when this study is published.

This research was conducted with the approval of the Ethics Review Committee of Meio University (Approval number: 25-004).

Ⅴ. Results

1. Survey overview

A questionnaire survey was conducted on a group of 121 nurses and welfare caregivers employed in Okinawa prefecture. The completed questionnaires were received from 63 respondents (response rate: 52%). One response had missing information, hence 62 responses were analyzed.

2. Outline of the Target

Of the respondents (N = 62), 87.1% were female and 12.9% were male. When respondents were classified into age groups, 3.2% were under the age of 30, 17.7% were 31-40 years of age, 48.5% were 41-50 years of age, 29% were 51-60 years of age, and 1.6% were age 60 or over. In terms of their occupation, 53.2% of the respondents were nurses, 1.6% was public health nurses, 3.2% were assistant nurses, 27.5% were care Caregivers, and 14.5% were in some other occupation. In terms of where they worked, 40.5% of respondents worked in a facility, 24.1% worked at a visiting nurses' station, 8.0% worked in a hospital, and 27.4% worked at some other site. In terms of their position, 66.1% of respondents were members of staff, 17.7% were mid-level managers, 8.1% were administrators, and 8.1% held some other positions (Table 2).

able 2: Outline of the Target

item	Content	ratio (%)
gender	male	12.9
	female	87.1
age groups	under the age of 30	3.2
	31–40 years of age	17.7
	41–50 years of age	48.5
	51–60 years of age	29.0
	age 60 or over	1.6
occupation	nurses	53.2
	public health nurses	1.6
	assistant nurses	3.2
	welfare caregivers	27.5
	some other occupation	14.5
worked	facility	40.5
	visiting nurses' station	24.1
	hospital	8.0
	some other site	27.4
position	staff	66.1
	mid-level managers	17.7
	administrators	8.1
	some other position	8.1

3. Current status of support

Responses of "Being provided" and "Being provided, but not sufficiently so" were deemed to indicate that a given form of support was being provided, and the rate at which a given form of support was provided was calculated. Results indicated that the forms of support that were provided at a rate >50% were: Ascertaining the residence of individuals who need urgent care (88.7%), ascertaining what electrically powered medical equipment is used by individuals who need urgent care (83.9%), organizing the medical information of care recipients in preparation for emergencies 66.1% , and organizing care recipient lifestyle information in preparation for an emergency (65.5%). Forms of support that were provided at a rate between 25 and 50% were: Confirming that a "go bag" had been prepared (48.4%), discussing evacuation (48.4%), understanding how to ensure access to a power supply at a shelter (41.9%), discussing who to consult about a family member's illness while staying in a shelter 33.9% , and discussing who to consult about medical equipment (33.9%). Forms of support that were provided at a rate <25% were: Discussing how to obtain supplies while staying in a shelter (21%) and discussing the care recipient's patient card (21%) (Table 3).

Table 3: The current condition of support provided by nurses and welfare caregivers to homecare recipients requiring medical care in the event of typhoons

Details	Practice rate (%)
Ascertaining the residence of clients with more urgent medical needs	88.7
Ascertaining the usage of electrically powered medical equipment by clients with more urgent medical needs	83.9
Understanding workplace systems of communication and instructions used during a disaster	82.3
Ascertaining the usage of medical equipment by clients with more urgent medical needs	77.4
Understanding disaster preparedness manuals for the workplace	67.7
Providing training for clients and their families to ensure that a power supply is available	67.1
Ascertaining the extent to which clients and their families understand their current situation	66.1
Compiling medical information on clients in the event of an emergency	66.1
Compiling routine information on clients in the event of an emergency	64.5
Talking with clients and their families about detailed steps to ensure that a power supply is available	62.9
Participating in disaster preparedness drills in the community and the workplace	62.9
Ascertaining the route and means of evacuation for clients with more urgent medical needs	61.3
Talking with the client and his or her family about ensuring that a power supply is available	61.3
Providing training for clients and their families to be able to explain what personnel they need	51.6
Verifying whether clients and their families have someone they can rely on in an emergency	51.6
Verifying that clients and their families have a “go bag” packed	48.4
Verifying that clients and their families have talked about evacuation	48.4
Drafting of a manual on ensuring that a power supply is available	48.4
Verifying where clients and their families have stored medication and daily necessities	46.8
Learning how to ensure a power supply is available in the event of a disaster	46.8
Knowing how to ensure that a power supply is available at a shelter	41.9
Understanding the role of mutual support facilities in the event of a disaster	38.7
Talking with clients and their families about sources of advice regarding the client’s illness while staying at a shelter	33.9
Talking with clients and their families about sources of advice regarding medical equipment while staying at a shelter	33.9
Talking with officials and relevant agencies about ensuring that a power supply is available	32.3
Understanding how to contact mutual support facilities	27.4
Verifying that messages are relayed from clients and their families to reliable parties who can help	24.2
Talking with clients and their families about how to obtain supplies while staying at a shelter	21.0
Talking with clients and their families about the client’s patient care card	21.0
Understanding what information is exchanged with mutual support facilities	16.1

VI. Discussion

Provision of support in preparation for a disaster was divided into 3 categories, “routine preparedness for a typhoon,” “guidance to recipients of at-home care and their families,” and “facility and own personal disaster preparedness.” A large proportion of respondents had answered “routine preparedness for a typhoon.” In contrast, few respondents had given “guidance to recipients of at-home care and their families” and few had engaged in “facility and own personal disaster preparedness.” A large proportion of respondents had engaged in “routine preparedness for a typhoon.” Coping with typhoons is a routine in Okinawa, which is located in a place where typhoons pass through with increasing force. Also, the background of countermeasures to suppress typhoon damage comprises human consciousness, knowledge, and a disaster subculture that has been cultivated in Okinawa over many years (Saito and Nakamura,2018). However, evacuation in the event of a disaster, discussion about the ways to obtain supplies while staying in a shelter, organizing the patient cards, and ensuring that those items were

prepared, were not routine activities.

Discharge instructions for individuals who would be receiving home medical care need to include how to provide care at home, how to operate medical equipment, and responses in the event of an emergency. During a normal visit, nurses and welfare caregivers do not consider the response in the event of a disaster (they tend to use the visit to determine the condition of the care recipient and the state of medical equipment, and to provide care which a single family member would have difficulty providing, such as bathing assistance). Therefore, the nurses and welfare caregivers have understood the condition of individual recipients; however it does not seem to follow with adequate support.

These findings are similar to the results of a study by Kawauchi et al. (2007). They conducted a similar research on the experts at rehabilitation facilities and psychiatric hospitals in Shizuoka prefecture and found out that the practice rate was low on "guidance to recipients of at-home care and their families."

The results were consistent with those from the 2012 survey on natural disaster preparation targeting nurses who worked at nursing care medical facilities in the northern part of the Okinawa Prefecture wherein the author conducted the survey.

Regardless of whether nurses are caring for patients at home or in a facility, nurses can engage in routine preparedness for a typhoon because most Okinawa citizens fully recognize and practice general typhoon measures. However, in a view of the disaster occurring in recent years, it seems that there is a high possibility that current general typhoon measures may not cope well enough. Therefore, nurses and welfare caregivers need to have an awareness of disaster countermeasures, and be provided with further education and guidance.

Nurses and welfare caregivers have ascertained the usage of electrically powered medical equipment by clients with more urgent medical needs. However, they have not fully trained clients and their families in disaster preparedness.

There are presumably 3 reasons for this: 1) Okinawa residents are accustomed to typhoons, hence they have taken steps in order to prepare for a typhoon, such as preparing extra batteries in advance, etc., 2) after the Great East Japan Earthquake, batteries were distributed to those who are using respirators and pulse oximeters based on foot-operated aspirators as well as dry batteries have been popularized. 3) A cooperation with traders of ventilators is established.

During the Great East Japan Earthquake, mortality rate for people with disabilities was twice that of people without disabilities (Cabinet Office Disaster Management, 2013). Goals of the Sendai Disaster Prevention Framework are to reduce the mortality rate from disasters per 100,000 population, and to reduce the number of victims prior to 2030 (Ministry of Foreign Affairs of Japan, 2015). However, in reality the individual nurses and welfare caregivers are not provided with necessary education, and organizational education for them and the customers is necessary to achieve this goal.

In spite of visiting care being an important system that allows individuals to receive care at home with their families, few respondents provided the answers related to mutual support facilities. The personnel standards for a visiting nurses' station in Japan are 2.5 or more full-time nurses. According to a survey conducted by the Ministry of Health, Labor, and Welfare (2014), almost 2/3 of all visiting nurses' stations are operated by small-scale care providers. 18.1% of care providers have 2.5 to 3 nurses and 48.2% have 3 to 5 nurses on staff. In 2002, 2,217,000 people received at-home care, but that number increased to 3,497,000 in 2014 (Ministry of Health, Labour and Welfare Service level improvement office, 2014). A small-scale care provider can closely tailor its care to the individual client. If a large-scale disaster occurs, however, a large number of personnel will be needed to aid clients and help them evacuate, so there are doubts whether individual care providers will be able to cope with that situation. After the Great East Japan Earthquake, the Ministry of Health, Labor, and Welfare issued a directive to medical facilities and visiting nurses' stations regarding steps to deal with rolling blackouts that affected patients who were using medical equipment such as ventilators and oxygen concentrators at home. After consulting with medical equipment manufacturers, medical facilities and visiting nurses' stations were directed to check the following 8 items (Ministry of Health, Labour and Welfare Medical political situation Economic Affairs Division, 2011):

1．Whether or not ventilators had an internal battery, the life of the battery, double-checking that the battery was operational.
2．Preparing external batteries for ventilators and charging those batteries ahead of time.
3．Double-checking that oxygen tanks have been distributed to patients who are using an oxygen concentrator at home.
4．Informing patients who were using a ventilator or oxygen concentrator on the steps they should take during a rolling blackout.
5．Double-checking that alarms function correctly in the event of a disruption in the power supply, e.g. a blackout.
6．Double-checking that patients know how to use portable oxygen tanks.
7．Steps to substitute or lend appropriate medical equipment for use at home in light of the patient's condition.
8．Double-checking the emergency contact system for patients receiving at-home care.

The eight content elements presented by the Ministry of Health, Labor, and Welfare are extremely detailed. These show a lack of preparation for natural disasters among home care patients needing medical care, nurses, and caregivers.

A study found that difficulties at the time were "transportation to the patient's home" and "coordinating the number of visits" (Shoji, 2014). In addition, the same study found that nearby visiting nurses' stations coordinated with one another to commute together to visit patients' homes in the same area and they shared information.

These findings suggest that other facilities that will provide support to a given facility in the event of a disaster should be clearly and regularly indicated.Based on the above, it is necessary to clarify mutual support facilities and mutual support contents from normal times.

Ⅶ. Conclusion

The current state and future issues concerning support provided by nurses and welfare caregivers to individuals who require home medical care in the event of a typhoon were as follows:

1．Nurses and welfare caregivers need to be made aware that they should provide guidance and training to clients and their families.
2．Recipients of at-home care and their families need to receive organized training.
3．Other facilities that will provide support to a given facility in the event of a disaster must be clearly indicated.

Ⅷ. Research limitations

This study suggested that in preparing for typhoon disasters, reviews and practice are required for the relevant disaster guidance content and procedures to be provided to hospital users and families. However, because data numbers were limited to 62, it is difficult to generalize our conclusions. In the future, more data should be collected and conclusions should be reexamined.

Ⅸ. Conflict of Interest

In this study, there were no conflicts of interest to be disclosed.

Ⅹ. Acknowledgment

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