노인복지대피센터와 생활지원 적용의 재난대피 홈케어 로봇 활용

Utilizing Home-Care Robots the Disaster Evacuation of the Elderly to Welfare Evacuation Centers and Their Application to Life Support

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ABSTRACT

There are 3,931,822 elderly who receives long-term care at home and 1,704,469 elderly who stay at long-term care facilities in those of 34,610,000 of +65 years old population in Japan; thus, the elderly people who need home care are 2.3 times more than facilities (2016).In the near future, the number of elderly people with a degree of daily life independence and dementia category II or more will increase to 4.7 million (12.8% of the elderly population). Therefore, the use of home-care robots is essential for the disaster evacuation of the overwhelming majority of those elderly who need home care and for of vitals checks to keep family, caregivers, and medical professionals informed to reduce the risk in chronic health conditions in welfare evacuation centers. This also helps to care for the caregivers who are caring for the elderly, and the introduction of home-robots to evacuation centers should receive prompt attention from our care-friendly society.

I. Introduction

Japan has experienced many large natural disasters and is termed a disaster-prone country. The risk of an earthquake within the next 30 years with a seismic intensity of 6 or more is estimated to be 80% for the Pacific coast (Tokai), 60-70% for Tonankai and 50% for Nankai.

Recent survey results show that a higher percentage of respondents expect that a major disaster will occur in the future in the region of the Pacific coast, at a higher percentage than other regions. The mortality rate in massive earthquakes is around 1%, whereas the lifetime death rate from traffic accidents is 0.20% and for aircraft accidents it is 0.002%. Thus, the risk posed by earthquakes is high (Earthquake Research Promotion Headquarters 2010, Cabinet Office).There is particularly a high risk in evacuation to and in being in welfare evacuation centers to elderly who need long-term care; this also includes their high-risk daily living and risks of their health Conditions. Among people aged 65 years or older in Japan, 1 in 7 (prevalence rate 15.0%) have dementia. The total number of dementia patients is currently 4.46 million (2012). This number is predicted to grow to about 7 million (1 in 5) in 2025. The most concerning evacuation is that from home and long-term care facilities to welfare evacuation centers, public institutions, or hospitals.

1.1. Purpose of this Study

In Japan, evacuation centers where disaster victims live long-term can be classified into designated evacuation centers and welfare evacuation centers.
Elderly people who need long-term care are accepted into welfare evacuation centers.

In 2014, 944 municipalities had evacuation centers, and there were 48,014 of them. Among these, 7,647 facilities were designated as welfare evacuation centers (in 791 municipalities, 45% of all municipalities), and a majority of municipalities did not have designated welfare evacuation centers (55%).

In a 2016 review, only 37.2% (2016) facilities were found to be designated as welfare evacuation centers among facilities in a high disaster risk region (Kagawa prefecture).

This study aims to minimize the risk in disaster response at these welfare evacuation centers and to prevent the deterioration of the health of those elderly who need to be evacuated to welfare evacuation

centers where assistance and care are provided by a limited number of staff. We will develop a methodology to promote the utilization of
home-care robots at evacuation centers in new ways to help care for the elderly and reduce the caregivers' burden.

1.2. Research Method

(1) Conduct a nationwide survey and analysis of long-term care facilities in Japan
(2) Develop an evaluation of criteria for evacuation from long-term care facilities (based on local disaster prevention plan) and evacuation from homes, together with an on-site survey

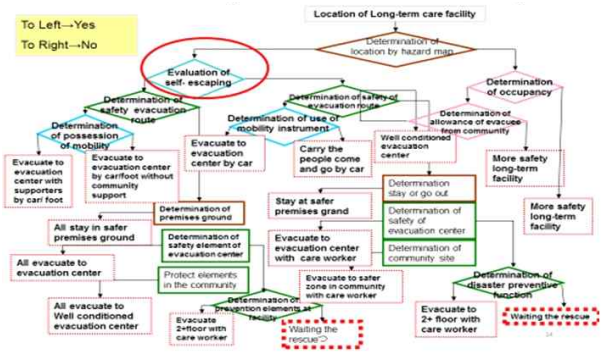
Ⅱ. Survey Results

2.1. Survey Results

The total number of long-term care facilities in Japan (facilities admitting elderly people) is 12,879 (as of 2014). Among these, 7.58% (561 facilities) of the 7,398 facilities have been found to be above a 25- to 30-degree angle of inclination where the danger of sediment-related disasters is high, according to a survey done for disaster prevention of long-term care facilities. In all, 4,076 (55.1%) facilities face narrow streets (less than 4 m wide) where the distance to the evacuation center is long, and thus they have a risk of isolation in a disaster, being difficult of access to emergency vehicles. In a disaster, there would be a shortage of evacuation assistance provided by limited staff. The use of assistance robots should be considered to compensate for care staff shortages.

Long-term care professionals are found to be in shortage throughout Japan. We surveyed long-term care facilities in rural areas and created an evacuation judgment standard chart for early evacuation.

2.2 Evacuation Judgment Standard Chart



▶▶ Fig.1. vacuation Judgment Standard Chart(Land sliding Model)

Ⅲ. Conclusion

There are 3,931,822 elderly who receives long-term care at home and 1,704,469 elderly who stay at long-term care facilities in those of 34,610,000 of +65 years old population in Japan; thus, the elderly people who need home care are 2.3 times more than facilities (2016).In the near future, the number of elderly people with a degree of daily life independence and dementia category II or more will increase to 4.7 million (12.8% of the elderly population). Therefore, the use of home-care robots is essential for the disaster evacuation of the overwhelming majority of those elderly who need home care and for of vitals checks to keep family, caregivers, and medical professionals informed to reduce the risk in chronic health conditions in welfare evacuation centers. This also helps to care for the caregivers who are caring for the elderly, and the introduction of home-robots to evacuation centers should receive prompt attention from our care-friendly society.

▮ References ▮

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