論　文　内　容　要　旨

Examining effect of Nurse-led collaborative management using telemonitoring to improve quality of life and prevent rehospitalization in patients with heart failure

（心不全患者の QOL の改善と

再入院予防を目的とする

遠隔モニタリングを用いた

看護師主導型共管理プログラムの効果検証）

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Summary

This dissertation consists of the following three studies.

- **Study 1**: Development of a nurse-led collaborative management program
- **Study 2**: Nurse-led collaborative management using telemonitoring improves quality of life and prevention of rehospitalization in patients with heart failure: A pilot study

　(Additional analysis) Examining a nurse-led collaborative management program to improve clinical and physiological indicators

-**Study 3**: Characteristics of patients with heart failure who are suitable for telemonitoring-enhanced collaborative management: A triangulation approach

Study 1, I developed a nurse-led collaborative management program. Based on the literature review, I operationally defined that collaborative management (CM) as "the patient working collaboratively with health care professionals to identify problems and manage their condition and daily life, using a telemonitoring system with timely care coordination". I hypothesized that CM would promote for patients to take collaborative action to deal with and solve the problems related to exacerbation of HF, therefore reduce rehospitalization and improve QOL.

Study 2 (published in International Heart Journal, 60(6), 1293-1302, 2019 IF　2.226)

The effects of disease management using telemonitoring for patients with heart failure (HF) remain controversial. Hence, we embedded care coordination and enhanced collaborative self-management through interactive communication via a telemonitoring system (collaborative management; CM). This study evaluated whether CM improved psychosocial status and prevented rehospitalization in patients with HF in comparison with self-management education (SM), and usual care (UC).

　　　We randomly allocated 59 patients into 3 groups; UC (n = 19), SM (n = 20), and CM (n = 20). The UC group received one patient education session, and the SM and CM groups participated in disease management programs for 12 months. The CM group received telemonitoring concurrently. All groups were followed up for another 12 months. Data were collected at baseline and at 6, 12, 18, and 24 months.

　　　The primary endpoint was quality of life (QOL). Secondary endpoints included self-efficacy, self-care, and incidence of rehospitalization. The QOL score improved in CM compared to UC at 18 and 24 months (P < 0.05). There were no significant differences among the 3 groups in self-efficacy and self-care. However, compared within each group, only the CM had significant changes in self-efficacy and in self-care (P < 0.01). Rehospitalization rates were high in the UC (11/19; 57.9%) compared with the SM (5/20; 27.8%) and CM

groups (4/20; 20.0%). The readmission-free survival rate differed significantly between the CM and UC groups (P = 0.020). We conclude that CM has the potential to improve psychosocial status in patients with HF and prevent rehospitalization due to HF.

In addition to the published paper, I examined the effects of physiological indicators, which was not included in the published paper, of a nurse-led collaborative management (CM) program were examined, but no change that indicates the effect of the program were observed. There was a limitation in verifying the effect of physiological indicators of the program due to the small sample and high drop rate.

Study 3 This study was a post-hoc analysis of data from the RCT trial described in Study 2, aimed to identify those patients with HF who would benefit most from telemonitoring-enhanced CM to prevent rehospitalization. A triangulation approach was used in which quantitative data were compared with qualitative data. We first extracted the intervention details, patients' clinical outcomes, and the causes and risk factors of rehospitalization from the records of 59 patients. Patients were then categorized into either a group suitable for CM or SM, to prevent rehospitalization. We described the reasons why patients were assigned to a group. As results, among 59 patients, 19 and 36 patients were categorized into the CM-suitable and SM-suitable groups, respectively. Four did not fall under either category. The quantitative findings clarified that CM is effective in patients with stage D HF or an increased cardiothoracic ratio (CTR). Qualitative analysis revealed that CM is appropriate in patients with a narrow threshold of weight gain; moreover, CM can be an educational tool to enhance self-management skills among patients in whom educational intervention alone is ineffective.

As conclusion, CM to prevent rehospitalization for HF is likely to be effective in patients with stage D HF, those with an increased CTR and a rapid increase in weight.

Conclusion In this project, an innovative concept of collaborative management was introduced for disease management of HF. It was shown that re-hospitalization was prevented with a statistically significant difference compared to usual care of HF management, and that patients' QOL was improved. In addition, the analysis also revealed what characteristics of the patients are suitable for this collaborative management.

I believe that the collaborative management program will be effective in improving the QOL by preventing readmission to elderly patients with HF with complex conditions and backgrounds and could be a model for future severe HF care and management.