

to the patients and their family members, improving the self-care ability as well as their QOL (quality of life) during treatment. However, a previous study⁵ indicated that nurses' work, such as the allocation of outpatient nurses, becomes even more complicated with this system. Healthcare providers feel the demand, but under current conditions, they feel physically and financially restricted in setting up the infrastructure necessary for such systems. To operate such a system, it is necessary to set up a hardware facility as well as to increase the number of nurses.

In the USA, 65% of cancer patients receive radiation therapy.⁶ During the course of their treatment, oncology nurses specializing in the different types of cancer work with the patients from before starting treatment to after the completion of treatment for follow-up. This new system of treatment environment allows patients and their families to consult a healthcare professional whenever they want to, thus providing more of a sense of relief, and leading to patients receiving better treatment and continuing their treatment for as long as needed. It is necessary to focus on follow-up systems for cancer outpatient treatment, a necessity that will only continue to increase in the future.

Prevention of leaks of transmitted information and recorded contents, securing safety, and measures to prevent tampering

As indicated in the overview regarding data transport in this system shown in Figure 3, the patients' information is input and then viewed at another location via the Internet. This allows the viewing of existing information and input of new information from both the patient's home and at the facility, increasing the ease, functionality and usability of the system. However, using the Internet carries the risk of leaks of private information, unauthorized access, and tampering. This necessitates securing confidentiality of the information, securing the safety, and implementation of measures to prevent tampering.

This system handles patients' personal information and medical records. To prevent leaks of personalized data and unauthorized access, the users are restricted through user authorizations of user name and password when a healthcare professional logs into the system on the hospital side.

Contrarily, in the system in the patient's home, a menu-selection screen is displayed when the patient's ID and password are entered in the login screen. Patient ID and password are provided to individual patients by the

medical facility. To use the system at the patient's home, the authorization is classified according to 3 levels: outpatients and their family members, home healthcare providers and nurses, and attending physicians. The rights to view and input medical information are restricted according to the level of authorization. System software is managed at the medical facility side in case the software used is changed in the future to facilitate uniform management.

Conclusions

This telesupport system for outpatients receiving treatment provides mental and physical support to patients and their families. As the users can use both e-mail and virtual interviews allowing direct conversations in real-time, this system allows them to consult with healthcare staffs about the hospital, schedules, treatments, and the patients' diseases. Moreover, this system helps patients, and their families, understand areas requiring extra caution in everyday life, as well as their physical condition, leading to improved self-care. This telesupport system allows physicians and medical staffs to provide more personalized follow-up care during and even after the outpatient treatment period.

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