MEDINFO 2007
HISA Ltd Australia
© 2007 The authors. All rights reserved.

Videophonic System for Cancerous Patients Receiving Chemotherapy at Home

Mona Laila[a], Vincent Rialle[a,b], Lydie Nicolas[c] , Catherine Duguay[c], Alain Franco[a,c]

[a] *Laboratoire TIMC-IMAG UMR CNRS 5525e, Université Joseph Fourier, Grenoble, France*
[b] *Département d'informatique Médicale, Centre Hospitalier Universitaire de Grenoble, Grenoble, France*
[c] *Pôle de Médicine Aiguë et Communautaire, Centre Hospitalier Universitaire de Grenoble, Grenoble, France*

Abstract

Videophonic systems have been used for several homecare applications in various medical specialties including oncology. The purpose of this poster is to describe the methodology and the materials of a controlled non randomized study; concerning the evaluation of the feasibility and the utility of a videophonic system used for following-up cancerous patients receiving chemotherapy at home. The study aims to show the patient and patient's family acceptability of videophony and their satisfaction, the clinical effects of using videophone on the patients' physical, functional and mental state, on their quality of life, and on the quality of healthcare provided at home. We use standard measurements (SF36, ADL index, index of Karnofisky, POS) and personal questionnaires (for the acceptability and satisfaction) prepared in the Medical Home care (MHC) service at the Grenoble university hospital.

Keywords:

videophone, satisfaction, acceptability, home healthcare, oncology, chemotherapy

Introduction

With the increase of social, medical and economic needs of dependent people (old, sick, disabled), and with the growth of health resources consumption, the Telemedicine Applications (telemonitoring, telesupport, teleconsultation) favor a medicalized maintenance at home. This one allows: preserving the patients and patients' carers quality of life, saving patient and hospital staff time, and eventually reducing health costs [1- 3]. Several studies evaluated the feasibility, the utility and the effectiveness of technology for providing and sharing various and necessary oncological expertises. However, no study evaluated the use of videophony for the delivery of home healthcare in oncology. The goal of our study is to evaluate the feasibility and the utility of a videophonic system used for following-up cancerous patients receiving chemotherapy at home. This study is carried out in the MHC service at the Grenoble university hospital. It is one of the MCC* (Medical Care Continuity) project clinical experimentations.

Materials and methods

Population:

The study concerns adult cancerous patients hospitalized at home * http://www.eten-mcc.org. The patients are selected according to the following criteria: having cancer and receiving chemotherapy, older than 18 years, life expectancy more than 12 weeks, stable vital state (vital parameters), specialized medical care provided at home, patient and general practitioner consent.

Videophonic system:

A videophonic system (Fig. 1) is used to link the patient at home with the hospital staff. The communication is established between tow stations: one is installed at the hospital/ call centre (central station) and the other one is installed at the patient's home (patient station). Each station is equipped with a videophonic kit composed of a Personal Computer, remotely operated camera, modem, microphone, loudspeaker, and keyboard. The central station enables to remotely control some elements of the patient station: the camera (move, rotation, zooms), the sound heard by the patient. The patient uses a remote control with unique button, having three functions: receiving a call, sending a call, and finishing a communication. The phone works independently of the videophonic apparatus so in case of problem with the videophone, the phone is still working.

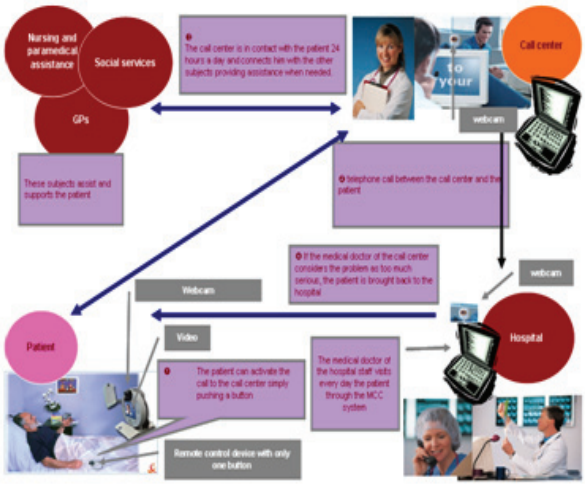

*Figure 1 - MCC videophonic system**

Clinical evaluation

Specific tools are used to evaluate each of the following items:

- Patient and patient's family satisfaction and acceptability of videophone: evaluated using three questionnaires for the patient and three others for the family. These questionnaires wear prepared for the study, by the healthcare team of MHC service at the Grenoble University Hospital.
- Patient functional state evaluated using functional
- capacity index of KARNOFSKY[4].
- Patient independence in daily activities evaluated using
- the index of KATZ ADL (Activity Daily Living)[5].
- Patient's anxiety and depression evaluated by the Hospital Anxiety and Depression Scale (HAD) [6].
- Patient quality of life evaluated using the SF36 scale [7].
- Life and care qualities evaluated using the POS
- (Palliative patient Outcome Scale)[8].

A controlled non-randomized method is used in the clinical evaluation. The comparison is realized between two groups of patients receiving home healthcare: the first one is the telemedicine group which benefit from the videophonic equipment, and the second one is the control group which does not have a videophonic system at home. The same evaluation tools are used for the two groups, except the evaluation of patient and patient's family acceptability and satisfaction; which are evaluated only in the telemedicine group. The Questionnaires and the scales are filled in three times during the study, every 4 - 6 weeks (at the beginning, at the middle and at the end).

Discussion

The use of telemedicine in usual practice at health institutions is still very limited. Following reasons can justify this limitation: patients and healthcare providers reject of telemedicine, non covering of telemedicine activities costs by health insurance systems, and lack of relevant research methodologies which provide proof of its efficiency and its utility [9]. To get a valuable and efficient telemedicine evaluation, it is necessary to consider the following items: diagnostic test reliability, clinical effects, patient and healthcare provider satisfaction, patient quality of life and economic analysis [10]. Until now the studies related to the videophonic application in oncology were interested in: radiotherapy, teleconsultation, multidisciplinary meeting, e-learning, and professional update [11 -15]. Few studies considered the clinical effects of using technology on cancerous patient quality of life and on their physical and mental state. No experience has been done to evaluate the videophone utility for following-up patients receiving a chemotherapy treatment at home. This study evaluates patient acceptability and satisfaction, videophone effects on the patient functional state and quality of life, and quality of healthcare provided at home. It is in progressing so there are no results yet.

Conclusion

Videophone applications favour medicalized maintenance at home, but there is still a lack of proofs which confirm the benefits of using technology to provide homecare for cancerous patients. Therefore, new clinical researches, like this study, are still necessary in this field.

References

[1] Nakamura, K., T. Takano, and C. Akao, The effectiveness of videophones in home healthcare for the elderly. Med Care, 1999. 37(2): p. 117-25.

[2] Clemensen, J., S.B. Larsen, and N. Ejskjaer, Telemedical treatment at home of diabetic foot ulcers. J Telemed Telecare, 2005. 11 Suppl 2: p. S14-6.

[3] Nicolas, L., et al., [Videophone assistance and home hospitalization: the ViSaDom program]. Press Med, 2005. 34(15): p. 1059-64.

[4] http://users.aol.com/bpradines/Karnofsky.html

[5] http://www.npcrc.org/usr_doc/adhoc/functionalstatus/Katz%20Index%20of%20Independence%20in%20Activities%20of%20Daily%20Living.pdf.

[6] http:// black.book.users.btopenworld.com/id138.htm: Dr Cave's Black Book…Hospital Anxiety and Depression (HAD) scale.

[7] http://www.swin.edu.au/victims/resources/assessment/health/sf-36-questionnaire.html

[8] http://www.kcl.ac.uk/schools/medicine/depts/palliative/qa/posug.html.

[9] Huis in 't Veld, M.H., et al., A systematic review of the methodology of telemedicine evaluation in patients with

postural and movement disorders. J Telemed Telecare, 2006. 12(6): p. 289-97.
[10] Whited, J.D., The quality of telemedicine research. J Telemed Telecare, 2006. 12(6): p. 271-3.
[11] De Mello, A.N., et al., Development of a pilot telemedicine network for paediatric oncology inBrazil. J Telemed Telecare, 2005. 11 Suppl 2: p. S16-8.
[12] Norum, J. and M.S. Jordhoy, A university oncology department and a remote palliative care unit linked together by emailvideo conferencing. J Telemed Telecare, 2006. 12(2): p. 92-6.
[13] Kristensen, I., et al., [Distance pediatric radiotherapy. Telemedicine a good tool to be used for discussions, exchange of experiences and competence]. Lakartidningen, 2006. 103(15-16): p. 1188-90.
[14] Norum, J., et al., Telemedicine in radiotherapy: a study exploring remote treatment planning, supervision and economics J Telemed Telecare, 2005. 11(5): p. 245-50.
[15] Huh, S.J., et al., An integrated service digital network (ISDN)-based international telecommunication between Samsung Medical Center and Hokkaid University using telecommunication helped radiotherapy planninand information system (THERAPIS). Radiother Oncol, 2000. 56(1): p.121-3.