KEYWORDS CHEMOTHERAPY ● INFORMATION TECHNOLOGY ● SELF-CARE ● CANCER CARE

MANAGING CHEMOTHERAPY SYMPTOMS VIA MOBILE PHONES

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AUTHOR **Principal author Roma Maguire, MSc, BN, RGN,** is research fellow, Cancer Care Research Centre, Department of Nursing and Midwifery, University of Stirling. For a list of all authors, see nursingtimes.net.

ABSTRACT **Maguire, R. et al** (2008) Managing chemotherapy symptoms via mobile phones. ***Nursing Times;*** 104: 22, 28–29.

This study aimed to test the procedures and technical systems in using an advanced symptom management system (ASyMS©) in home monitoring and symptom management of patients receiving chemotherapy. Patients believed the system improved symptom management and felt reassured they were being monitored at home. Nurses found the system beneficial in managing symptoms and promoting interventions. The ASyMS© system has the potential to improve management of symptoms in those with cancer receiving chemotherapy.

IMPLICATIONS FOR PRACTICE

- **This system provides patients with access to evidence-based, tailored self-care information and advice, which may promote the management of symptoms by enhancing their knowledge, empowerment and control.**
- **For healthcare professionals, the alerting system may promote the initiation of timely interventions and access to an electronic patient record, containing accurate and up-to-date information on patients' symptoms.**
- **In terms of integrating IT and healthcare, the results highlight the potential of such a system to provide an extremely rich pool of symptom information, which can be collected easily and effectively in an electronic format.**

Changes to the delivery of cancer services (Scottish Executive, 2005) mean that patients frequently receive chemotherapy as outpatients and need to manage most side-effects at home without direct support from healthcare professionals. Practitioners caring for these patients have fewer opportunities to assess and monitor symptoms and so are less able to offer guidance on self-care strategies.

The results of a feasibility study conducted by some of the authors of this article (Kearney et al, 2006), highlighted the practicability and acceptability for both patients and healthcare professionals of using a handheld computer-based tool in symptom assessment and management of chemotherapy-related toxicity. This current study builds on this preliminary work.

AIM

This pilot study aimed to test all aspects of a large, multicentre, randomised, controlled trial of a mobile phone-based advanced symptom management system (ASyMS©). This included obtaining both patient and nurse perceptions of using the system.

METHOD

This pilot study was a randomised, controlled trial of ASyMS against standard symptom management. Ten female patients were recruited from two centres. The 10 patients, who had breast, lung or colorectal cancer, were starting a new course of chemotherapy treatment and were deemed physically and psychologically fit to participate. Ethical approval was granted from both sites and all patients gave written informed consent.

A purposive sample of nurses involved in using the ASyMS system took part to identify their expected and actual perceptions of using it. A total of four nurses agreed to participate.

Data collection took place between January and February 2006. Four patients were randomised to receive the study intervention and six to the control group.

Six chemotherapy-related symptoms were selected for investigation: nausea; vomiting; mucositis; hand-foot syndrome; diarrhoea and fatigue. Patient and nurse perceptions were evaluated using a combination of semi-structured questionnaires and interviews developed by the research team at the start and end of the study.

A team of nurses at the two sites provided patients with training on how to use the ASyMS system. Patients were asked to complete an electronic copy of the symptom questionnaire on their mobile phone, take their temperature and include this, and send this 'real time' symptom information to the study server, twice a day for 14 days.

A risk model was developed and incorporated into the study software, which was used to alert healthcare professionals based at the clinical site of any incoming readings that raised concern.

Patients in the control group received standard care, provided according to local treatment guidelines and protocols. They were also asked to complete a paper copy of the electronic symptom questionnaire at baseline and at their pre-cycle 2 assessment. For full details see nursingtimes.net.

MAIN RESULTS

Patients' perceptions

Pre-study perception questionnaire: Patients (n=3) felt the ASyMS system would help in symptom management and perceived they would feel comfortable using the handset to report chemotherapy symptoms. Two out of three thought the system would improve communication with nurses and doctors.

Post-study perception questionnaire: All patients (n=4) felt they had received adequate training, with most (n=3) feeling very comfortable in using the handset. Most

accessed the self-care advice (n=3), with two reporting they did this every time they completed a symptom report. All found the ASyMS system helpful in monitoring and management of symptoms and that it assisted them in communicating with nurses and doctors.

No patients found the system interrupted their daily routine and all were satisfied with the care they received as a result. Most described their overall experience of the study as rewarding, valuable, educational and interesting.

Post-study patient interviews: These were conducted at the end of the study with three patients who had received the intervention. A number of common themes were identified. As in the perception questionnaires, no patients reported any issues in relation to training and felt it was adequate.

The patients found the system reassuring and felt it helped them in managing symptoms. In relation to the self-care advice, one talked about how she had used it to assist in symptom management.

However, not all patients used this facility, with one stating she only used the symptom reporting part of the system.

Healthcare professionals' perceptions

Pre-study perception questionnaire: Nurses (n=2) felt the system would be helpful in monitoring patients' symptoms and would enable them to be managed better.

Post-study perception questionnaire: One nurse completed the post-study questionnaire. Overall, she felt she had received adequate training in relation to the system. She felt it was helpful in managing symptoms, and improved communication between patients and nurses.

Post-study interviews: Four nurses were interviewed about their experiences throughout the study. All participants thought the training was adequate. However, the cascade of this to other staff involved in the project appeared to be problematic.

When asked about the alerting system, nurses described it as too sensitive and too responsive to minor symptoms. They appeared to be positive about the website as they could see symptoms developing and it provided them with information on patients' conditions before contacting them.

Nurses' perceptions on the overall experience of the study appeared to be positive. The potential benefits to patients in rural areas and for those suffering from severe toxicities were mentioned.

A number of small changes were made to the system on the basis of the results from the pilot phase – for details see nursingtimes.net.

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DISCUSSION

Both patient and nurse perceptions of using the ASyMS system in the remote monitoring of chemotherapy-related toxicity are positive, with both groups acknowledging the system's potential benefits in improving symptom management of patients receiving chemotherapy.

Patients felt they had received adequate training in using the handset and experienced no problems in its use. Furthermore, no patients stated they had any problems in viewing or completing the symptom questionnaire or that it had interrupted their daily routine. This is likely to have been due to the simple design of the questionnaire and patients' perceptions of the study's relevance to their needs.

Patients felt the ASyMS system had contributed to the management of symptoms and facilitated communication between themselves and healthcare professionals at the hospital. Patients felt reassured and relaxed knowing their symptoms were being monitored at home.

Those healthcare professionals involved, despite some being sceptical at the start of the study, could see the potential benefits of using the system in early detection and management of chemotherapy-related toxicity. They viewed content of the symptom questionnaire and self-care advice as adequate in relation to the sample of study participants. Furthermore, they experienced no problems in accessing patients' symptom reports on the secure website and felt it displayed all the relevant clinical information they required.

Overall, perceptions of using the ASyMS system included preventing hospital admissions, seeing patients getting better, being able to reassure them and being able to view patterns of emerging toxicities with 'real time' symptom information.

Study limitations

A significant number of both pre- and post-perception questionnaires were not completed by nurses involved in the project. Only two completed the pre-study questionnaire and one completed the post-study questionnaire, despite a total of four nurses consenting to participate.

The opinions of those participants who did not respond may differ from those reported in this article. Furthermore, no data was collected on participants who declined the study, which may have informed subsequent recruitment procedures.

CONCLUSION

The ASyMS system has the potential to improve the management of symptoms in patients with breast, lung and colorectal cancer receiving chemotherapy. This tool allows patients to collect symptom information and send it to their clinical site, allowing healthcare professionals to monitor their condition in the community. Following the outcomes of the study, a full randomised controlled trial is under way. ■

● This work was first published in *Clinical Effectiveness in Nursing* (Maguire et al, 2006). This article is based on the pilot reported in the original publication.

REFERENCES

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