Using a Home Automated Telemanagement (HAT) System: Experiences and Perceptions of Patients with Inflammatory Bowel Disease

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Abstract: The aim of this study was to evaluate the experiences and perceptions of patients with inflammatory bowel disease (IBD) who participated in an interactive, patient-centered computerized disease management program using the Home Automated Telemanagement (HAT) system. We conducted and analyzed qualitative exit interviews with 23 participants who used the system for six months. The HAT system was well accepted, increased patients' awareness about the disease and facilitated greater control of their IBD symptoms.

Background: Inflammatory bowel disease (IBD) is a chronic inflammatory condition of the intestines and affects approximately 1.4 million people in the United States. [1] Disease symptoms, including abdominal pain, diarrhea, and weight loss, often negatively impact patients' health-related quality of life.

Although there are effective medications available to induce and maintain remission, poor adherence to treatment plans is a challenging problem. Studies have suggested that improved monitoring of symptoms by the patient resulted in quicker treatment of relapses, shorter duration of relapses, and reduced utilization of healthcare resources.

The Home Automated Telemanagement (HAT) system was designed to help patients follow their self-care plans, help health care providers monitor their patients' self-management process according to current clinical guidelines, and provide continuous education to patients about their chronic disease. [2]

System Development: The HAT system consists of a patient unit, a decision support server, and a web-based clinician portal. The patient unit included a laptop computer and an electronic weight scale. The scale is connected to the laptop computer via a serial port. The software on the laptop has a keyboard driven interface and can be operated using just three keys. Subjects were required to complete weekly self-testing for six months. Data regarding symptoms, medication usage, and side effects were collected in a symptom diary. An education module informed and tested participants about IBD. Results from the self-testing session were then automatically transmitted to the HAT server. Computerized decision support alerted the provider if pre-defined clinical conditions were detected.

Methods: We conducted semi-structured exit interviews with 23 patients who had participated in the IBD HAT system pilot program. Qualitative analysis was performed on the data using the Framework Analysis technique.

Results: Patient comments were grouped into three topics: (1) the Content of the system components, (2) the Interface between the system and the user, and (3) the Process of using the system. These three topics were discussed in relation to the different components of the system including the symptom diary, the educational module, and the weight scale. According to the participants, the greatest benefit of the HAT system stemmed from the Process of using the system. The system empowered patients, giving them greater control over their IBD via regular monitoring by both their provider and themselves. This increased sense of control resulted in improved satisfaction and outcomes.

Conclusions: The IBD HAT system was well accepted and considered easy to use by the study participants. They felt empowered and in better control of their disease while using it. Despite the positive feedback, there were certain characteristics that participants would recommend changing or adding and these will be considered for future iterations. We believe the HAT system has the potential to improve healthcare outcomes, but further evaluation is needed.

References

1. Loftus EV. Clinical epidemiology of inflammatory bowel disease: incidence, prevalence, and environmental influences. Gastroenterology 2004;126:1504–17.
2. Finkelstein J, Khare R, Vora D. Home Automated Telemanagement (HAT) system to facilitate self care of patients with chronic diseases. Journal of Systemics, Cybernetics and Informatics 2003;1(8):1-5.