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For information call:
Karen Astle (214) 706-1392 or
Bridgette McNeill (214) 706-1135
Julie Del Barto (broadcast): (214) 706-1330

Abstract 21

This is featured as a video news release and podcast.

Study highlights:

- *Study from Massachusetts General Hospital in Boston, comparing remote monitoring to usual care in 150 heart failure patients.*
- *Researchers said all cause and heart failure related hospital readmission rates decreased with the remote monitoring intervention.*
- *Post-study surveys of participating patients revealed a high level of satisfaction.*

American Heart Association meeting report

Remote monitoring improves heart failure patients' health, may reduce hospital readmissions

BALTIMORE, MD, May 1 — A remote monitoring program can improve the condition of heart failure patients who are mobile and may reduce hospital readmissions, according to a pilot study reported at the American Heart Association's 9th Scientific Forum on Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke.

The study, conducted by the Center for Connected Health, a division of Partners HealthCare, included 150 heart failure patients admitted to Massachusetts General Hospital in Boston, Mass. Sixty-eight patients (average age 70) were randomized to receive usual care for heart failure. The remaining 82 patients were offered remote monitoring. Forty-two patients accepted the monitoring program; the remaining 40 patients declined to participate. This study reports the findings in the first three months of follow-up on all patients.

"The goal of our Connected Cardiac Care program for this group of patients is to reduce hospital readmissions, provide timely intervention and help them understand their condition using home telemonitoring," said Ambar Kulshreshtha, M.D., M.P.H., lead author of the study and a research fellow at Harvard Medical School and Massachusetts General Hospital. "Participants showed a trend towards less frequent hospitalization. The group that refused to participate did less well."

Patients in the remote monitoring group experienced lower average hospital readmission rates (31 readmissions per 100 people) compared to patients in usual care (38 readmissions per 100 people) and non-participants (45 readmissions per 100 people). Patients in the remote monitoring group also had fewer heart-failure related readmissions and emergency room visits than usual care and non-participating patients. Researchers said the results show a positive trend but are based on only three months of follow-up and did not reach statistical significance.

"Participating physicians are pleased with the program and consider it a success," Kulshreshtha said. "The Connected Cardiac Care program combines patient self-monitoring of their vital signs and symptoms, with nurse intervention to educate patients, help them understand the link between

their daily life and their disease and, importantly, coordinate care with their physician. Based on these initial data, Connected Cardiac Care is a win-win for our patients and healthcare providers.”

Patients received telemonitoring equipment to monitor vital signs such as heart rate, pulse and blood pressure. They also weighed themselves daily and answered a set of questions about symptoms every day. That information was transmitted through the telemonitoring device to a nurse, who would call weekly or more often if a patient’s vital signs were outside normal parameters. Researchers also monitored patients’ re-hospitalization rates and emergency care use.

“Patients could see the fluctuation in their vitals and realize they hadn’t taken their medications or weren’t eating right or exercising,” Kulshreshtha said. “A weekly call from the nurse reinforces lifestyle management of the patient’s heart failure.”

Post-study surveys of participating patients revealed a high level of satisfaction:

Ninety-five percent of participating patients in the intervention group said the program improved their heart failure control and helped them stay out of the hospital.

All participating patients said the equipment was easy to use.

Ninety-five percent believed they were able to manage their heart failure better and an equal number had overall program satisfaction.

All participants said their health improved and they received adequate interactions with a homecare nurse.

A previous study by the Massachusetts-based group showed a similar program reduced all-cause hospital admissions by 25 percent in participating homebound patients.

The researchers said they plan to expand the program to target 350 ambulatory patients by summer of 2008 and are developing a method to stratify high-risk patients.

This program has the potential to have “a dramatic impact on improving the lives of heart failure patients and reducing hospital admissions,” Kulshreshtha said.

An estimated 5.3 million Americans have heart failure. Hospital discharges for heart failure rose from 400,000 in 1979 to 1.08 million in 2005, an increase of 171 percent. The estimated direct and indirect cost of heart failure in the United States for 2008 is \$34.8 billion, according to the American Heart Association’s *Heart Disease and Stroke Statistics – 2008 Update*.

“More focus is needed on education and actionable intervention in heart failure patients,” Kulshreshtha said. “Connected Cardiac Care creates an interaction between patients, nurses and doctors that allows for timely medication changes based on a complete clinical picture and helps heart failure patients feel empowered.”

Co-authors are: Joseph Kvedar, M.D.; Alice Watson, M.D., M.P.H.; and Regina Nieves, R.N.

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Contact information: Dr. Kulshreshtha can be reached through Gina Cella at (781) 334-4692 or ginacella@comcast.net. (Please do not publish contact information.)

Note: Presentation time is 5 p.m. ET/4 p.m. CT, May 1, 2008.