

Nurse telemanagement improved outcomes and reduced cost of care more than home nurse visits in chronic heart failure

Benatar D, Bondmass M, Ghitelman J, Avitall B. **Outcomes of chronic heart failure.** Arch Intern Med. 2003;163:347-52.

QUESTION

In patients with chronic heart failure (HF), is home health care provided by nurse telemanagement better than home nurse visits for HF outcomes?

DESIGN

Randomized {allocation concealed*}†, {unblinded}‡,* controlled trial with 12-month follow-up.

SETTING

2 medical centers in Chicago, Illinois, USA.

PATIENTS

216 patients (mean age 63 y, 63% women, 86% African American) with ≥ 1 of the following: HF determined by radiographic evidence of pulmonary congestion, New York Heart Association functional classification III or IV, symptoms of dyspnea and edema responding to diuresis, and echocardiographic evidence suggestive of HF. Exclusion criteria included unstable angina, renal failure, severe dementia or psychiatric disorder, end-stage heart failure, and anticipated survival < 6 months. Follow-up was 100% at 3 months.

INTERVENTION

Patients were allocated to home health care by nurse telemanagement ($n = 108$) or home

nurse visit ($n = 108$) for 3 months after hospital discharge. Patients allocated to home health care by nurse telemanagement used transtelephonic home monitoring devices to measure their weight, blood pressure, heart rate, and oxygen saturation level; these data were transmitted daily to a secure Internet site. These patients received care by telephone from an advanced-practice nurse who worked collaboratively with a cardiologist. Patients allocated to home nurse visits received 9 to 12 home visits, which focused on assessment, diet, symptom recognition, and compliance with medication.

MAIN OUTCOME MEASURES

Hospital readmissions for HF and length of stay, HF hospitalization charges, and quality of life.

MAIN RESULTS

Analysis was by intention to treat. After 3 months, patients who received nurse telemanagement had fewer readmissions for HF (13 vs 24, $P \leq 0.001$) and shorter length of stay (49.5 vs 105.0 d, $P \leq 0.001$) than those who received home nurse visits. Nurse telemanagement was associated with fewer cumulative HF readmissions than home nurse visits at 6 months (38 vs 63, $P \leq 0.05$), but not at 12 months (75 vs 103, $P = 0.12$).

Nurse telemanagement was associated with lower costs than home nurse visits at 3 months (hospitalization charges \$65 023 vs \$177 365, $P \leq 0.02$) and 6 months (cumulative readmission charges \$223 638 vs \$500 343, $P < 0.03$), but not at 12 months (cumulative readmission charges \$541 378 vs \$677 710, $P \leq 0.16$). Quality of life improved for both groups with no difference between groups after the intervention.

CONCLUSION

In patients with chronic heart failure, home health care provided by nurse telemanagement reduced heart failure readmissions, length of stay, and cost of care more than home nurse visits.

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*See Glossary.

†Information provided by author.

COMMENTARY

Congestive HF is prevalent and often has poor outcomes (1). Interventions that improve the outcomes for persons with this disorder would be welcome.

In the study by Benatar and colleagues, does the telemanagement program do more good than harm? Maybe not. Although the program improved some outcomes, such as HF readmissions, it did not enhance health status. Furthermore, its effects on some other global measures of health outcome (e.g., total readmissions and all-cause mortality) were not reported. Also, possible adverse effects of the intensive monitoring, such as aggressive diuresis that could lead to electrolyte disturbances, arrhythmias, drug-drug interactions, or renal failure, were not reported. Thus, the overall balance of benefit and harm for this intervention remains unclear.

The telemanagement intervention seems to have been a composite of several maneuvers, including frequent electronic monitoring, nurse case management according to guidelines, and consultation with cardiologists. Unfortunately, whether all these elements are necessary to achieve beneficial effects is unknown and this composite maneuver was not described in sufficient detail to allow easy replication. This intervention

may offer hope for future patients with HF, but at present is not ready for widespread implementation.

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Reference

1. Poses RM, Smith WR, McClish DK, et al. Physicians' survival predictions for patients with acute congestive heart failure. Arch Intern Med. 1997;157:1001-7.

AUTHOR'S RESPONSE

The study was restricted to evaluating outcomes between nurse home care visits and nurse telemanagement. Nurses were given guidelines by physicians relating to changing the drugs and drug dosing, and the patients' clinic visits were not altered. We feel the telemanagement intervention should replace the vital sign monitoring currently done by nurses providing home care for patients with chronic HF.

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