

Self-Monitoring Appears Superior for BP Control

BY JENNIE SMITH

FROM THE LANCET

People with hypertension trained to monitor their own blood pressure and adjust their own medication achieve greater control over their disease than do patients whose hypertension is managed through conventional care, according to new research.

The findings, published online in the *Lancet* (doi:10.1016/S0140-6736(10)60964-6), underscore earlier research (*JAMA* 2008;299:2857-67) suggesting that, with appropriate clinical support and feedback—in this case, through telemonitoring of home blood pressure measurements—self-management can be an effective strategy for the reduction of hypertension.

The study's lead author, Dr. Richard J. McManus of the Primary Care Clinical Sciences and Health Economics Unit of the University of Birmingham, England, attributed the results to more changes, often including the addition of medications, to the treatment plans of self-monitoring patients.

For their research, funded by government grants, Dr. McManus and colleagues enrolled 527 men and women with blood pressure higher than 140/90 mm Hg (but less than

200/100 mm Hg) despite treatment with up to two antihypertensive drugs, who were able to participate in a self-monitoring program.

A total of 263 patients were then randomly assigned to self-management and 264 to conventional care under their primary care physicians. Of these, 480 patients (234 self-managed and 246 control) were included in the analysis. Neither investigators nor patients could be blinded to treatment assignment; the treatment group underwent initial training sessions in the use of a sphygmomanometer and in transmitting their readings to the research team using a modem. This group could titrate its medications according to a fixed scheme, and also was able to demand prescriptions according to the results of their self-monitoring, bypassing their general practitioners.

After adjustment for factors including diabetes, chronic kidney disease, and sex, mean systolic blood pressure decreased after six months by a mean of 12.9 mm Hg from baseline in the self-management group and by 9.2 mm Hg in the control group. From baseline to 12 months, mean systolic blood

pressure in the two groups decreased by 17.6 mm Hg and 12.2 mm Hg, respectively.

However, the decrease in mean diastolic blood pressure did not differ as much between the intervention and control groups, with smaller differences from baseline to 6 months (de-

The patients in the self-management group, after 12 months, were using more varied medication than those in the control group, which the investigators saw as an important factor in the results.

creases of 5.2 mm Hg and 3.9 mm Hg) and baseline to 12 months (7.6 mm Hg and 5.0 mm Hg). "This finding might be caused by lack of power," the investigators wrote.

Adverse effects were similar between the groups—except for leg swelling, which was higher in the self-management group, "probably caused by increased use of calcium antagonists" in that group, the researchers wrote.

The self-management group, after 12 months, was using more varied medication than the control group, which the investigators saw as an important factor in the results. Though all of the study sub-

jects were taking only one or two antihypertensive drugs at baseline, by 12 months more participants had been prescribed at least three drugs in the self-monitoring group than in the control group, and were more likely to have been prescribed thiazides and calcium antagonists.

One related issue, not addressed in the study, was cost, as the self-management group received more prescriptions. Dr. McManus and colleagues wrote that they had investigated the cost-effectiveness of the intervention and would report it separately.

Compliance was good in the self-management group, with approximately three-quarters of patients completing at least 90% of the expected number of readings.

When readings were particularly high or low (over 200/100 mm Hg or systolic under 100 mm Hg), as 60% of the self-management group experienced at least once, most contacted the research team, as instructed. Only 3% of the self-monitoring patients had to be contacted by researchers about a high or low reading.

But the study's authors acknowledged that such compli-

ance would be difficult to attain in the hypertension population at large and that a weakness of the study was its paucity of low-income and ethnic minority patients.

"Self-management will not be suitable for all patients," they wrote. "However, even if only 20% of individuals with hypertension self-managed their disorder, this proportion would still represent around 4% of the UK population—i.e., more than 2 million individuals."

In an editorial (doi:10.1016/S0140-6736(10)61050-1) accompanying the study, Dr. Gbenga Ogedegbe of New York University cautioned that until these findings "are replicated by other investigators, especially in low-income, low-literate patients who receive care in low-resource, non-academic settings," it would be premature to advocate self-monitoring strategies for hypertension on a wide scale. ■

Disclosures: Dr. McManus acknowledged having received a consultancy fee from the firm Tplus Medical to advise on telemonitoring services. One of his coauthors on the study acknowledged receiving donations of blood pressure devices from Microlife and BpTRU for research purposes. Dr. Ogedegbe declared no conflicts of interest.

Daytime Sleepiness Linked to Poor Medication Adherence

BY BRUCE JANCIN

FROM THE ANNUAL MEETING OF THE ASSOCIATED PROFESSIONAL SLEEP SOCIETIES

SAN ANTONIO — Poor medication adherence is significantly more common in heart failure patients who have excessive daytime sleepiness, a study shows.

The implication of this finding is that interventions aimed at improving excessive daytime sleepiness may pay dividends in terms of better medication adherence. This would be particularly advantageous in a condition

such as heart failure, in which patients take numerous drugs that are important in controlling the neuroendocrine response to the disease, Barbara Riegel, D.N.Sc., observed.

She presented a study involving a convenience sample of 278 adult outpatients with chronic stage C heart failure who participated in structured in-home in-

terviews by trained research assistants who assessed medication adherence during the previous month.

Participants were also evaluated for excessive daytime sleepiness according to the Epworth Sleepiness Scale. Excessive daytime sleepiness (defined as an Epworth score of 6 or greater) was present in 56.5% of study patients.

In all, 56% of heart failure patients with excessive daytime sleepiness reported often taking their medications more than 2 hours late, compared with 38% of nonsleepy subjects.

Among the subset of heart failure patients with excessive daytime sleepiness who had undergone testing in a sleep laboratory, the majority was found to have sleep-disordered breathing, with an apnea-hypopnea index of

at least 15 events per hour, reported Dr. Riegel, who is with the University of Pennsylvania School of Nursing in Philadelphia.

The most problematic medication adherence issue for the study participants was forgetting to take their medications on schedule.

In all, 56% of the heart failure pa-

tients with excessive daytime sleepiness reported often taking their medications more than 2 hours late, compared with 38% of the subjects who were not sleepy. In addition, 10% of the subjects with excessive daytime sleepiness reported that they skipped consecutive

medication doses, compared with 3% of nonsleepy patients. ■

Disclosures: This study was funded by the National Heart, Lung, and Blood Institute. Dr. Riegel reported having no financial conflicts.

DATA WATCH

Top 10 U.S. Pharmaceutical Products by Sales in 2009 (in billions)

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| Lipitor (atorvastatin) | \$7.5 |
| Nexium (esomeprazole) | \$6.3 |
| Plavix (clopidogrel) | \$5.6 |
| Advair Diskus (fluticasone/salmeterol) | \$4.7 |
| Seroquel (quetiapine) | \$4.2 |
| Abilify (aripiprazole) | \$4.0 |
| Singulair (montelukast) | \$3.7 |
| Actos (pioglitazone) | \$3.4 |
| Enbrel (etanercept) | \$3.3 |
| Epogen (epoetin alfa) | \$3.2 |

Source: IMS Health