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Telemedicine improves medication management, patient care

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Internet-based telemedicine systems appear to lead to more appropriate and effective pharmacotherapy, better blood pressure control and an overall reduction in cardiovascular risk compared to conventional, periodic office visits, according to research presented today at the American College of Cardiology's 61st Annual Scientific Session. The Scientific Session, the premier cardiovascular medical meeting, brings cardiovascular professionals together to further advances in the field.

Patients who reported blood pressure readings more frequently via a web-based portal received more timely treatment decisions and medication adjustments from their health care team compared to a control group of hypertensive patients who had routine office visits. These findings have important implications for clinical practice given that – aside from lifestyle changes – antihypertensive medications are the most effective way to help patients lower their blood pressure. As many as 65 million American adults have high blood pressure, and roughly 74 percent take medication for it, according to the Centers for Disease Control and Prevention.

"The ongoing monitoring and reporting of blood pressure levels seems to bring about important changes in physician prescribing habits, which we think ultimately benefit patients," said Val Rakita, MD, internal medicine resident at Temple University Hospital and the study's co-investigator. "Based on our findings, physicians appear to prescribe more blood pressure medications for those patients who continue to have high blood pressure despite the medications they are on. In fact, in one subset

of patients, not only did we find they were prescribed more blood pressure medications, it also actually led to a larger blood pressure reduction compared to all other groups."

In this study, patients from two large medical centers were recruited and randomized to receive either usual care or telemedicine with usual care. Patients in the telemedicine group received counseling on cardiovascular disease risk reduction and were given a home blood pressure cuff and trained on how to use it. They were asked to report their blood pressure, heart rate, weight, steps taken per day, and tobacco use twice weekly for six months. By the end of the six-month intervention, medications prescribed to those in the control group were virtually unchanged, while there was a small, but significant, increase in the number of medications ordered (2.20±1.20 to 2.34±1.15, p=0.004) for patients in the telemedicine group.

Dr. Rakita says that prescribing more medication in the telemedicine group did not signify overtreatment, but was a reflection of more timely decisions to increase and/or adjust medications based on patient self-monitoring and reporting.

Unlike other types of telemedicine, which may include telephone interactions, this study looked at an internet-based system that supported ongoing communication between patients and health care providers.

"This allows for greater convenience for both sides and most likely led to the better results," Dr. Rakita said. "High blood pressure is one of the most important risk factors for cardiovascular disease, which is the number one cause of death in America. Employing an internet-based patient-physician communication system that can help lower blood pressure could make it possible to reduce patients' cardiovascular risk."

This was a secondary analysis of a telemedicine trial of 241 patients with

uncontrolled hypertension (BP≥150/90 mmHg). More than half of study participants (56.8 percent) were taking one or two blood pressure-lowering medications at the start of the study. The initial average blood pressure was 156/89±14/11 among all patients. All patients had baseline and six-month follow-up visits. Monthly reports on blood pressure and treatment guidelines were provided to both the patient and physician in the telemedicine group.

Although there was no significant difference in the decrease in blood pressure between the two groups overall, the primary group of non-diabetic patients using telemedicine was found to have lower blood pressure compared to all other groups. Dr. Rakita said it is reasonable to believe that the use of additional blood pressure medications in the telemedicine group would have translated to an associated drop in blood pressure in these patients had they been followed for a longer period of time.

"The goal of telemedicine is to reduce disease and the burden on the healthcare system in a cost-effective way," he said. "By showing that a relatively low-cost, internet-based telemedicine system can change physicians' prescribing habits and perhaps [lower] blood pressures, this can lead to obvious benefits to patients and the healthcare system."

Provided by American College of Cardiology