SCIENCE-IN-BRIEF
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TURNING SCIENCE INTO ACTION

Clinical Outcomes of Telehealth in Patients with Coronary Artery Disease and Heart Failure During the COVID-19 Pandemic

The following is a synopsis of "Clinical Outcomes of Telehealth in Patients with Coronary Artery Disease and Heart Failure During the COVID-19 Pandemic" published in January 2023 in *The American Journal of Cardiology*.

What is already known on this topic?

The COVID-19 pandemic altered medical practice and health care delivery, which led to the rapid adoption of telehealth.[1] Prior to the onset of the COVID-19 pandemic, early findings suggested potential benefits of telehealth included increased access to care, patient satisfaction, cost savings, and mitigation of further COVID-19 infections.[2] Telehealth is the continuation of long-distance health care, education, and administration while telemedicine is specific to remote clinical services which patients are referred to via telehealth. Patients with cardiovascular disease (CVD) were more vulnerable to COVID-19 infections.[3] Despite these promising early findings, there is uncertainty from providers and patients on using telehealth, which may stem from the level of evidence evaluating its impact on clinical outcomes.[4, 5]

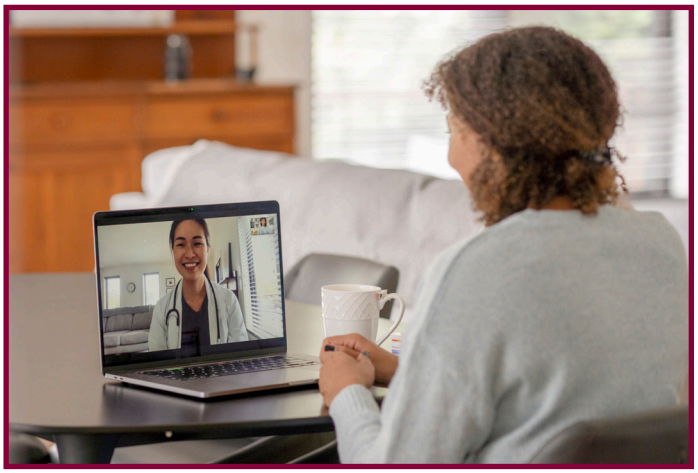
What is added by this article?

This study adds to the current knowledge base by providing evidence on the use of telehealth by way of telephone encounter as a type of telehealth into ambulatory cardiology clinics that used a hybrid model of care. In this study, researchers sought to investigate the clinical outcomes of patients with coronary artery disease and/or heart failure who were evaluated in cardiology clinics through telehealth visits during the first 6 months of the COVID-19 pandemic. The secondary objective of the study was to assess whether telehealth use adversely affected clinical outcomes for patients with advanced age (75 years or older). The retrospective observational cohort study included adult patients, 18 years of age or older, with documented diagnoses of coronary artery disease and/or heart failure who were seen by cardiologists at three Kaiser Permanente Southern California clinics during March 2019 to August 2019 (pre-pandemic) and March 2020 to August 2020 (pandemic). The study used a multivariable logistic regression model to examine cardiology patients with coronary artery disease and/or heart failure after telehealth was implemented and sustained during the early phase of the COVID-19 pandemic. The study examined cardiovascular outcome events (i.e., hypertension, diabetes, stroke, ER visit, hospitalization) in association with patient characteristics, diagnoses, and demographics.

Patient eligibility was identified by electronic health records using International Classification of Diseases, 10th Edition diagnosis codes to determine visit type and diagnoses. Patients were excluded from the study if they were seen solely for device checks; were on hemodialysis, pregnant, enrolled in hospice, or had tested positive for COVID-19 within 6 months of their

index visit; or if the encounter lasted less than 10 minutes. To address the potential differences in outcomes that may have been due to a shift in telehealth use, patients using telehealth in 2020 were divided into two 3-month sub-groups: telehealth sub-group 1 (from March 1 to May 31) and sub-group 2 (June 1 to August 31) and compared with corresponding 2019 pre-pandemic subgroups; 2019 was when patients were exclusively seen in person.

After applying all exclusion criteria, 7,557 patient encounters from March 2019 to August 2019 and 6,485 patient encounters during March 2020 to August 2020 were included in the final analysis. Outcome comparisons for the three study cohorts showed no increase in overall cardiovascular outcome events, including all emergency department and urgent care visits and hospitalizations, between the telehealth and pre-pandemic periods. Hospitalization rates were significantly lower in the first and second group of patients using telehealth as compared to the pre-pandemic cohorts who were seen exclusively in person. Patients who were using telehealth were less likely than those patients in the pre-pandemic time period to have a cardiovascular event outcome event which includes all emergency department and urgent care visits and hospitalizations (adjusted odds ratio [aOR] 0.78, 95%, CI 0.67 to 0.90, $p = 0.001$).



For all study patients, the group using telehealth was less likely than those not using telehealth to have outcome events, and Black patients in particular had a higher cardiovascular outcome event likelihood (aOR 0.70, 95% CI 1.09 to 2.15, $p = 0.013$). Patients aged 75 years and older were seen in telehealth periods mostly by telephone; telephone visits made up of 78% of all visits in the first telehealth subgroup and 55.4% of visits in the second telehealth subgroup. When applying the same comparisons on patients with advanced age to assess whether telehealth use adversely affected clinical outcomes for this group, the results of the analysis were the same as in those younger than 75. There was no increase in outcome event rates in both telehealth subgroups compared to the pre-pandemic subgroups. Even after extending the analysis to 6 months after index visits, findings were similar to the 3-month analysis.

The study is different from previous reports in that the researchers focused on clinical outcomes in a high-risk sub-specialty patient group associated with telehealth use. The patient population was drawn from a large community-based integrated care health system that serves a diverse population.

What are the implications of these findings?

This study is unique in that it analyzed clinical outcomes of a high-risk cardiology patient group after telehealth was adopted for a sustained period of 6 months during the early phase of the COVID-19 pandemic. The study demonstrated that incorporating telehealth is clinically acceptable with no excess cardiovascular outcome events within 3 or 6 months after index visit.

The fact that a similar volume of patients was seen in both telehealth and pre-pandemic groups supports the potential benefit of telehealth in maintaining care access and reducing health care disparities in people at higher risk of cardiovascular outcome events.

Additional clinical studies analyzing the use of different telehealth modalities will be important since many do not have the technical skills or access to a device to use the telehealth platforms offered. Patient subgroups can potentially increase their access to care if telehealth is incentivized. This study also highlights the remaining challenge for telehealth—to devise evidence-based metrics to triage the appropriate patient demographics, disease diagnoses, and clinic visit types for telehealth care.

Resources

Telehealth Interventions to Improve Chronic Disease
Telehealth Interventions to Improve Chronic Disease | CDC

Telemedicine and Telehealth
Telemedicine and Telehealth | HealthIT

Telehealth
Telehealth | American Heart Association

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Citation

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