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**Impact of Appropriate Echocardiography Use on Utilization of Cardiac Services and Outcomes in Patients with Heart Failure or Coronary Artery Disease: A Retrospective Cohort Study of the Echo Wisely Randomized Controlled Trial**

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Interventions aimed at reducing low-value care and testing may be effective in changing physician practice. While important, such interventions may also lead to unintended consequences. These include under- or over-utilization of ancillary testing or adverse clinical outcomes. Our objective was to determine the impact of an intervention aimed at reducing the proportion of rarely appropriate transthoracic echocardiography (TTE) on utilization of ancillary services and clinical outcomes for patients with a previous diagnosis of coronary artery disease (CAD) and/or congestive heart failure (HF).

A retrospective cohort of outpatients with CAD and HF was obtained using administrative databases to identify patients with at least one visit to an Ontario-based Cardiologist in a randomized controlled trial (the EchoWISELY Study) between April 30, 2015 and April 30, 2016. Cardiologists were randomized to either receive audit-and-feedback on the appropriate use criteria for TTE or to perform usual practice. The primary outcomes were related to healthcare utilization and included rates of diagnostic and therapeutic testing within 30 days and 1 year of the index visit, and physician visit within 1 year of index visit. The secondary outcomes were adverse clinical events such as hospitalization and death within 1 year of index visit.

The CAD and HF cohort each consisted of 70 physicians, of which 37 were in the control group and 33 were in the intervention group. A total of 4,877 CAD patients and 2,311 HF patients were included in the analysis.

There was no difference between control and intervention groups in the utilization of diagnostic and therapeutic procedures such as cardiac catheterization (20.0% vs 16.7%; P-value 0.41), number of physician visits within 1-year (18.4% vs 18.7%; P-value 0.83), all-cause hospitalization (34.3% vs 31.3%; P-value 0.44) or death (4.1% vs 4.8%; P-value 0.94) in the CAD group.

Similarly, there was no difference between control and intervention groups in the utilization of diagnostic and therapeutic procedures such as cardiac catheterization (20.0% vs 19.4%; P-value 0.38), number of physician visits within 1-year (29.4% vs 29.3%; P-value 0.84), all-cause hospitalization (60.0% vs 53.6%; P-value 0.35) or death (18.2% vs 14.8%; P-value 0.72) in the HF group

This study provided reassurance that despite implementation of an intervention within a larger randomized controlled trial that successfully reduced rarely appropriate TTE, there was no difference in the utilization of ancillary testing or clinical outcomes such as patient visits, hospitalization, or death among patients with CAD or HF.

