



IMPEDANCE-HF: Device to monitor lung fluid associated with better HF outcomes

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CHICAGO — A novel device to monitor accumulation of fluid in the lungs was associated with improved outcomes in patients with HF, researchers reported at the American College of Cardiology Scientific Session.

In the IMPEDANCE-HF trial, researchers evaluated 256 patients with chronic HF, left ventricular ejection fraction < 35% and acute HF within 12 months of recruitment. They randomly assigned the patients to receive standard care or standard care plus use of the lung impedance monitoring device (Edema Guard Monitor, RS Medical Monitoring).

The primary outcome was hospitalization for acute HF. Secondary outcomes included all-cause hospitalization and mortality. All patients were followed for at least 12 months. Mean follow-up was 48 months in the intervention group and 39 months in the control group ($P = .01$).

According to results presented by **Michael Kleiner Shochat, MD, BSc, PhD**, from Hillel Yaffe Heart Institute, Hadera, Israel, and president of RS Medical Monitoring, at 12 months, the intervention group had 67 hospitalizations for acute HF vs. 158 for the control group ($P < .001$), and the numbers were similar for the entire follow-up period (211 vs. 386; $P < .001$).

During follow-up, the intervention group was at reduced risk for all-cause mortality (HR = 0.52; 95% CI, 0.35-0.78) and death from HF (HR = 0.35; 95% CI, 0.15-0.58) compared with the control group, according to the researchers. Cardiac death was also lower in the intervention group (HR = 0.41; $P < .001$), Kleiner Shochat said during a press conference.



Michael Kleiner Shochat

Compared with controls, the intervention group had fewer hospitalizations (HR = 0.66; $P < .0001$), cardiac hospitalizations (HR = 0.48; $P < .0001$) and HF hospitalizations (HR = 0.35; $P < .0001$) during the study period.

Kleiner Shochat noted that currently, for every 1,000 patients with HF, 250 per year are hospitalized, at a cost of \$3.25 million, but if the data from IMPEDANCE-HF are extrapolated, use of the lung impedance monitoring device would reduce those numbers to 110 per 1,000 patients per

year at a cost of \$1.4 million. When factoring the cost of the device at \$1.2 million for 1,000 patients, the device would result in a savings of \$660,000 per 1,000 patients with HF per year — or \$660 million per 1 million patients with HF, he said.

“Data based on studies which include more than 1,200 patients support the following claims regarding use of the [Edema Guard Monitor] device: It can considerably reduce risk for mortality and hospitalization, and it can considerably lighten the economic burden of the health care system,” Kleiner Shochat said. “I think the success of the treatment is 100% based on the device [providing] information at a very, very early stage, which enables [clinicians] to begin a treatment very early.” —
by Erik Swain

Reference:

Kleiner Shochat M, et al. Late-Breaking Clinical Trials V. Presented at: American College of Cardiology Scientific Session; April 2-4, 2016; Chicago.

[Kleiner Shochat M, et al. *J Am Coll Cardiol*. 2016;doi:10.1016/S0735-1097\(16\)31279-7.](https://doi.org/10.1016/S0735-1097(16)31279-7)

Disclosure: RS Medical Monitoring supplied the devices used in the study. Kleiner Shochat reports co-founding and serving on the board of directors of RS Medical Monitoring.

Editor's Note: This article was updated on April 15, 2016 to reflect minor changes in the data.

PERSPECTIVE



**Mary Norine
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The patient selection involved those who were hospitalized in the past year; they were not coming right out of a hospital. Because of that, there are no data on 30-day readmission rates. The economic impact of monitoring devices has been studied in terms of decrease in 30-day readmission, while these results are based on overall decrease in hospital days. However, as with any type of monitoring technology, it depends on what you do with the data. It was hard to tell from the abstract what was done with the data and who was responsible for adjusting medications.

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Disclosures: Walsh reports no relevant financial disclosures.