Ensuring Adequate Decongestion

How would you ensure that a Heart Failure patient is decongested and ready to be sent home? At least 50% of patients admitted for decompensated Heart Failure are discharged from the hospital after losing little or no weight. While keeping the length of stay as short as possible is important, medical professionals today feel that inadequate decongestion has played an important role in driving up Heart Failure readmissions. Unfortunately, it isn’t always easy to assess a particular patient’s volume status accurately. "Many patients get edema in their legs, but some hide it in their bellies or if they are stuck in bed in the hospital it can accumulate in their sacrum; it just isn’t always easy to see," says Dan Bensimhon, MD, Medical Director of the Advanced Heart Failure and Mechanical Circulatory Support Program at Cone Health System in Greensboro, NC.

ReDS™ - Triage Support Tool

The ReDS™ system allows providers, including cardiologists, hospitalists and mid-levels, to quickly and accurately measure the degree of a patient’s congestion in just 90 seconds, optimizing care while keeping patient hospital stays as short as possible.

“It can create a win-win for the patient and the hospital,” says William T. Abraham, MD, FACP, FACC, Director of the Division of Cardiovascular Medicine at Ohio State University. “Patients get targeted care and providers have an objective measure of when lung congestion has been removed.”

Using the ReDS™ system after discharge can also keep patients from being readmitted. Recent data has shown an 87% reduction in Heart Failure readmission rates for patients treated with a ReDS™ system for three months post-discharge versus those who were treated with usual care alone.

Additionally, the ReDS™ system can be a useful tool to help evaluate patients with cardio-renal syndrome. “If patients aren’t responding well to diuretics and the creatinine is going up, the ReDS™ system can help assess whether the issue is a lack of excess volume or true cardio-renal syndrome, requiring a change in therapy,” says Dr. Bensimhon. “It can be a very important data point and it often helps us decide who needs more invasive assessment and who doesn’t.”

2 O. Amir, et al., Evaluation of remote dielectric sensing (ReDS) technology-guided therapy for decreasing heart failure rehospitalizations, Int J Cardiol (2017), http://dx.doi.org/10.1016/j.ijcard.2017.02.120
ReDS™ - Striving to Lead a New Standard of Care in Heart Failure

The ReDS™ system measures lung fluid in Heart Failure patients. It is intended for the measurement of lung fluid in patients living with Heart Failure, patients taking diuretic medication or patients recovering from a coronary artery disease-related event. Adapted for medical use from the military’s ‘see-through-wall’ technology, ReDS™ is a miniature radar system employing low-power electromagnetic energy that provides accurate lung fluid measurements in just 90 seconds, using a noninvasive vest worn by the patient.

Technology Validation

ReDS™ medical radar technology has been validated in several bench, pre-clinical and clinical studies. When comparing the accuracy of ReDS™ technology to that of CT-assessed lung fluid quantification, based on commercially available software, the combined intra-class correlation between modalities is 0.94 (385 Data points). The bench test performed on a phantom model showed a correlation of 0.99. The pre-clinical study resulted in a correlation of 0.89 [0.86-0.93] over 294 points. The clinical study included 31 patients and demonstrated a correlation of 0.9 [0.8-0.95].

O. Amir et al., Validation of remote dielectric sensing (ReDS™) technology for quantification of lung fluid status: Comparison to high resolution chest computed tomography in patients with and without acute heart failure, International Journal of Cardiology 221 (2016) 841–846

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