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## Correlation of limb bioimpedance to echocardiographic indicators of congestion in patients with heart failure

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**Introduction:** The treatment of heart failure (HF) in the United States is estimated to exceed \$30 billion each year and is anticipated to increase to a staggering \$70 billion by the year 2030. The cost of the condition makes the management of HF one of the leading challenges for Medicare in the years to come. Traditional methods to detect impending congestion such as body weight and physical examination findings are often non-specific and lack sensitivity making them inadequate to recognize fluid overload and prevent decompensation. It has been suggested that bioimpedance spectroscopy (BIS) can be used as a surrogate marker for detecting fluid overload and therefore, serve as an adjunct to clinical exam findings.

**Methods:** This study examines the relationship between a BIS device and echocardiographic parameters associated with volume overload with same day measurements in 8 patients with NYHA Class II/III HF. Each patient was followed 3 times a week for 4 weeks within the hospital outpatient setting. At each visit BIS measures, signs and symptoms, weight and echocardiographic findings were all recorded.

**Results:** Correlations of BIS measurements with echo parameters were performed. The leg impedance measurement correlated strongly with echo findings; inferior vena cava (IVC) size ( $p < 0.0001$ ), right atrial pressure (RAP) ( $p < 0.0001$ ), and pulmonary artery systolic pressure (PAS) measurements ( $p < 0.0001$ ).

**Conclusions:** Preliminary findings demonstrated excellent correlations with BIS measurements and IVC size, right atrial pressure and pulmonary artery systolic pressure measurements which suggest a possible alternative method to detect fluid overload despite the small sample size. Trending a patient's impedance using the SOZO device at home or the practitioner's office may assist clinicians in providing more accurate, individualized HF care.

### Biography

Andrew Accardi is a critical care specialist in Encinitas, California and is affiliated with Scripps La Jolla Hospitals. He received his medical degree from New York Medical College and has been in practice between 11-20 years. He is one of 18 doctors at Scripps La Jolla Hospitals who specialize in Critical Care Medicine

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