



Spotlight on Special Topics

CARDIOBRA: A NOVEL WEARABLE IMPROVING PATIENT EXERCISE TOLERANCE AND SATISFACTION DURING STRESS ECHOCARDIOGRAPHY

Poster Contributions

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Background: Exercise stress echocardiography is recommended for premenopausal women at intermediate risk undergoing evaluation for ischemic heart disease. Duration of exercise directly correlates with cardiovascular mortality. Inability to exercise to target heart rate significantly reduces test sensitivity for detection of ischemia. It is estimated that 95% of women in the United States exercise with breast support due to chest discomfort related to breast motion. We hypothesized that a breast support garment with embedded electrodes (CardioBra®) used by patients while undergoing exercise stress testing can improve exercise duration and patient satisfaction.

Methods: Forty-five patients identified as females (bra size range 34B to 44DD) in a single-center academic Cardiology practice with clinical indications for treadmill stress echocardiography were prospectively enrolled between 2019 and 2020 to assess effects of CardioBra®. Each participant filled standardized surveys based on the patient-driven quality metrics.

Results: A total of 93% (43/45) of females reported their preference to undergo stress testing using a CardioBra® support garment in the future. There were 40% (18/45) of female patients indicating that the use of a bra during procedure allowed for an extended duration of stress test, potentially improving prognostic value of the exercise test. Patients reported improvement in willingness to exercise at maximum exercise capacity (87%; 39/45). Self-reported improvement in the level of comfort with the bra in place during exercise as compared to without, degree of modesty/embarrassment, likelihood for returning for testing was 91% (41/45), 71% (32/45) and 93% (42/45), respectively. In 62% (28/45) of cases patients indicated that would choose a clinical practice for stress testing in the future based on the availability of such support garment.

Conclusion: In this single-subject case series, the use of the CardioBra® improved patient-reported exercise capacity and optimized overall experience with the exercise ECG in females undergoing stress echocardiography.