

141 Gender and Heart Sounds in Decompensated Heart Failure *W Frank Peacock, Sean P Collins, Christopher J Lindsell, Alan B Storrow; The Cleveland Clinic: Cleveland, OH, University of Cincinnati: Cincinnati, OH*

Background: The S3 and S4 heart sounds are reported as very specific for the diagnosis of acute decompensated heart failure (ADHF). While many cardiovascular pathologies are affected by gender, its impact on the performance of heart sounds for detecting ADHF has rarely been studied. **Objectives:** We compare the sensitivity and specificity of S3 and S4 heart sounds for ADHF between men and women. **Methods:** A convenience sample of adult patients with suspected ADHF presenting to any of 4 urban emergency departments were prospectively enrolled from September 2003 to June 2004. Demographic, clinical, and laboratory data were collected. The presence of an S3 or S4 was determined by the Audicor system, a validated device that digitally detects heart sounds. Diagnosis of ADHF was by the emergency physician for patients discharged from the ED, or the inpatient physician for hospitalized patients. Comparison of diagnostic test characteristics used the z-ratio; categorical data were compared by chi-square, and continuous data were compared by t-tests. **Results:** Of 370 patients meeting entry criteria, 195 (53%) were female. Mean age was 60 ± 16 years, and mean ages were similar between men and women ($p > 0.1$). Mean B-type natriuretic peptide (BNP) was $697 \pm 1,152$ pg/mL; it was $750 \pm 1,106$ in men and $653 \pm 1,191$ in women. An S3 was detected in 24 (13.7%) men, and in 31 (15.9%) women. An S4 was detected in 26 (14.9%) men and 14 (7.2%) women. In men, the sensitivity and specificity of S3 for ADHF were 30.2% (95% CI 18.7 to 44.5) and 93.4% (95% CI 87.1 to 96.9), respectively. In women, the sensitivity and specificity of the S3 were similar at 36.7% (95% CI 23.8 to 51.7) and 91.1% (95% CI 85.0 to 95.0). The sensitivities of the S4 were similar in men, 15.1% (95% CI 7.2 to 28) and women, 10.2% (95% CI 3.8 to 23.0), but the S4 was more specific for ADHF in women, 93.8% (95% CI 88.3 to 97) than men, 85.2% (95% CI 77.4 to 90.8) ($p = 0.02$). **Conclusions:** The S3 is an insensitive but specific finding in ADHF, irrespective of gender. The S4 performs better in women than men, and is strong evidence for the presence of ADHF.

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