THE RATIO OF LEFT VENTRICULAR END SYSTOLIC VOLUME INDEX AND QRS DURATION IS A POTENT PREDICTOR OF RESPONSE IN PATIENTS WITH A LBBB UNDERGOING CARDIAC RESYNCHRONIZATION THERAPY

Poster Contributions
Hall C
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Background: CRT benefits those patients with advanced heart failure with LV conduction delay as measured by QRS duration (QRSd). An increase in QRSd, however, may result from a combination of electrical delay and mass effect from LV dilation. This balance may be variable such that patients with a small LV and a broad QRS complex may have greater electrical delay whereas those with a narrower QRS and a large ventricle more mass effect. Therefore, we tested the hypothesis that patients with a smaller ratio of LV size (indexed to body surface area) to QRSd would derive superior response to CRT.

Methods: We extracted clinical data on 199 consecutive patients undergoing CRT with the following: LBBB, EF≤35%, and an available follow up echocardiogram. Response was defined as an absolute reduction in LVESV of ≥15% from baseline. A multivariate model was created to determine the association of LV size measured by LVESV indexed to body surface area/ the QRS duration and response.

Results: Of 199 patients, 120 met criteria for response (60.3%). In univariate analysis, responders had a significantly smaller ratio of LVESVI/QRSd (0.46± 0.20 vs. 0.58±0.23, p=<0.001, respectively). In multivariate analysis, LVESVI/QRSd remained strongly inversely associated with response (OR 0.11(0.02-0.57), p=0.009). The final model had a c-statistic of 0.79 on which LVESVI/QRSd had the largest impact.

Conclusions: The ratio of LV size indexed to body surface area and QRS duration is a potent predictor of response to CRT.