Prediction of CRT Responder in Non-Ischemic Cardiomyopathy Patients by CardioGRAF

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Background: Cardiac resynchronization therapy (CRT) is effective for serious cardiac failure, but predictor of CRT responder is not established. CardioGRAF (cardio Gated single photon emission computed tomography Regional Assessment for left ventricular Function), has been developed to analyze regional left ventricular (LV) segmental time-volume and dyssynchrony. The aim of this study was to evaluate the usefulness of CardioGRAF for predicting a CRT responder. Methods: We retrospectively studied 32 non-ischemic cardiomyopathy (non-ICM) patients who had undergone CardioGRAF and 2D-echo at pre and post CRT. Responder was defined as improvement of NYHA and ejection fraction (EF). In CardioGRAF, dyssynchrony was evaluated by the new index, SD-12 which indicates standard deviation of time to end systole of 12 areas except apex. 2D-echo was performed and calculated septal to posterior wall motion delay (SPWMD) as an indicator of LV dyssynchrony. Results: 16 patients (50%) were identified responder. In pre CRT, SD-12 was significantly difference between responder (R, n=16) and non-responder (NR, n=16) (R:108.65±91.1, NR:48.3±47.8, p=0.02). SPWMD was no significantly different between responder and non-responder. Furthermore among responders, the number of patient, who improved SD12 after CRT was significantly more than that of SPWMD (87% vs. 50%, p=0.02). Conclusion: CardioGRAF is a useful modality for predicting CRT responder in patients with non-ICM, which should be considered in CRT implantation decision. Keywords: cardiac resynchronization therapy, CardioGRAF