PREDICTION OF MODE OF DEATH IN PATIENTS WITH CHRONIC HEART FAILURE BY CARDIAC I-123 METAOIDOBENZYLGUIANIDINE IMAGING: A PROSPECTIVE COMPARATIVE STUDY WITH FRAGMENTED QRS COMPLEXES

Poster Contributions
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Background: Prediction of mode of death (sudden cardiac death (SCD) and pump failure death (PFD)) in patients with chronic heart failure (CHF) may facilitate decisions about specific medications or devices. Cardiac I-123 metaiodobenzylguanidine (MIBG) imaging provides prognostic information in patients with CHF. On the other hand, fragmented QRS complexes (fQRS) on the 12-lead ECG have been associated with poor outcome in CHF patients. However, there is no information available on the comparison of the prognostic value about mode of death between MIBG imaging and fQRS in CHF patients.

Methods: We studied 112 CHF outpatients with LVEF <40% in our prospective cohort study. The cardiac MIBG heart-to-mediastinum ratio (H/M) and washout rate (WR) were calculated from the chest anterior view images obtained at 20 and 200 min after isotope injection. Abnormal WR was defined as > 27%. fQRS was defined by the presence of >2 notches on the R wave or the S wave and had to be present in >or=2 contiguous inferior (II, III, aVF), lateral (I, aVL, V(6)) or anterior (V(1) to V(5)) leads.

Results: During a follow up period of 7.8±4.4 yrs, 23 patients had SCD and 13 patients had PFD. At multivariate Cox analysis, abnormal WR was significantly independently associated with SCD (p=0.005) and PFD (p=0.003), while H/M at the delayed image (p=0.006) showed the significant association with SCD. On the other hand, fQRS had no significant association with SCD or PFD. Patients with abnormal WR had a significantly higher risk of SCD and PFD than those with normal WR (SCD: 29% [17/58] vs 11% [6/54], p=0.002, adjusted hazard ratio 3.9 [95%CI 1.5-9.8], PFD: 21% [12/58] vs 2% [1/54], p=0.003, adjusted hazard ratio 13.8 [95%CI 1.8-106.2]), while there was no significant difference in the risk of mode of death between patients with and without fQRS.

Conclusion: The cardiac MIBG imaging could predict not only sudden cardiac death but also pump failure death in patients with CHF, although fQRS did not.