Clinical impact of long PR-interval and presence of late gadolinium enhancement on hospitalized patients with non-ischemic heart failure

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Abstract

Background: The combination of electrical and structural remodeling may have a strong effect on the prognosis of non-ischemic heart failure (HF). We aimed to clarify whether prolonged PR-interval and the presence of late gadolinium enhancement (LGE) on cardiac magnetic resonance imaging (CMR) influence the outcomes of patients with non-ischemic HF. Methods: We studied 262 consecutive hospitalized patients with non-ischemic HF. In a clinically stable condition, a 12-lead electrocardiogram and CMR were performed, and the clinical characteristics and outcomes were investigated. Results: During the follow-up of 967.7±851.8 days, there were 68 (25.9%) cardiac events (HF or sudden death, re-hospitalization due to HF, or ventricular tachyarrhythmias). In a multivariable analysis, a median rate-adjusted PR (PRa)-interval of [?]173.5 ms and the presence of LGE were associated with cardiac events with a hazard ratio of 1.690 and 2.045 (P=0.044 and P=0.006, respectively). Study subjects were then divided into three groups based on PRa-interval and LGE status. The patients were given 1 point each for PRa-interval of [?]173.5 ms and the presence of LGE: score of 0 (n=79), score of 1 (n=123) and score of 2 (n=60). Cardiac events were 16.4% in score of 0, 26.0% in score of 1 and 38.3% in score of 2 (P=0.005), respectively. The multivariable analysis showed that score of 2 was an independent predictor for cardiac events compared to score of 0 (hazard ratio, 3.437, P=0.001). Conclusions: The combination of a long PRa-interval and the presence of LGE provides a better predictive value of cardiac events in non-ischemic HF.

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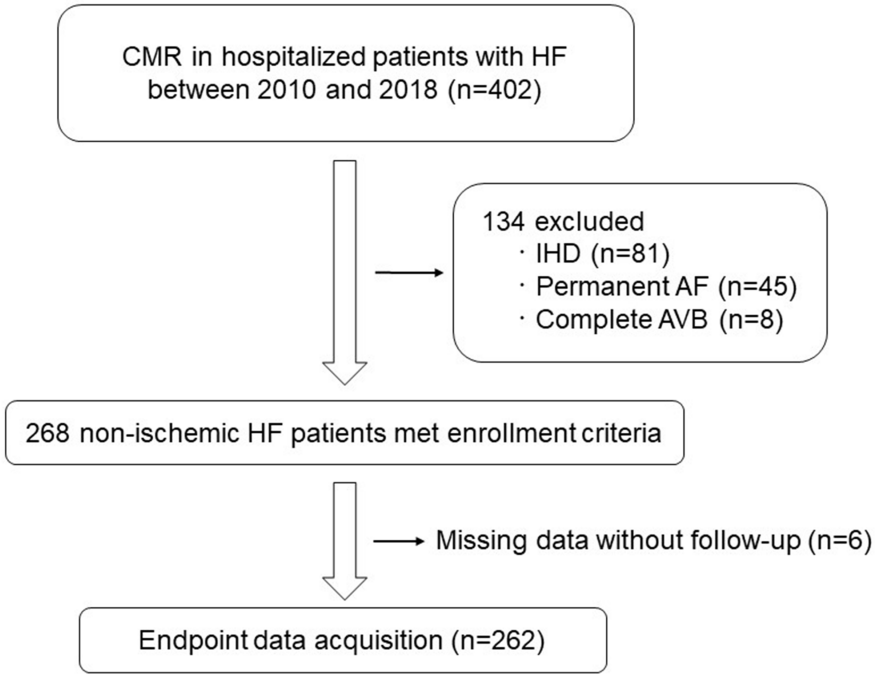
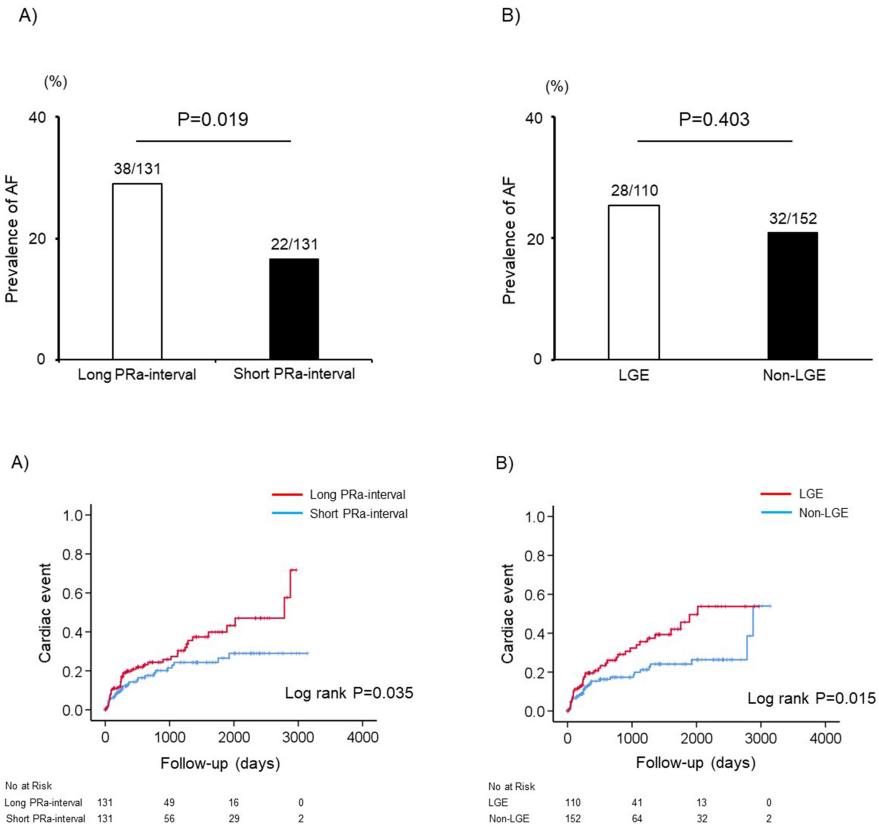
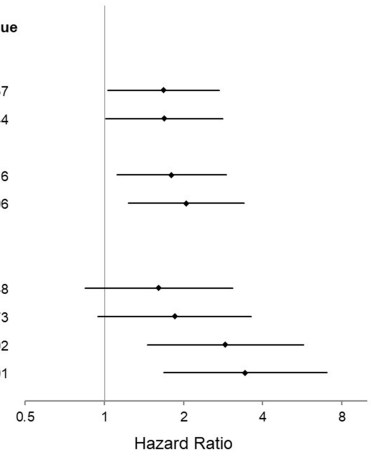
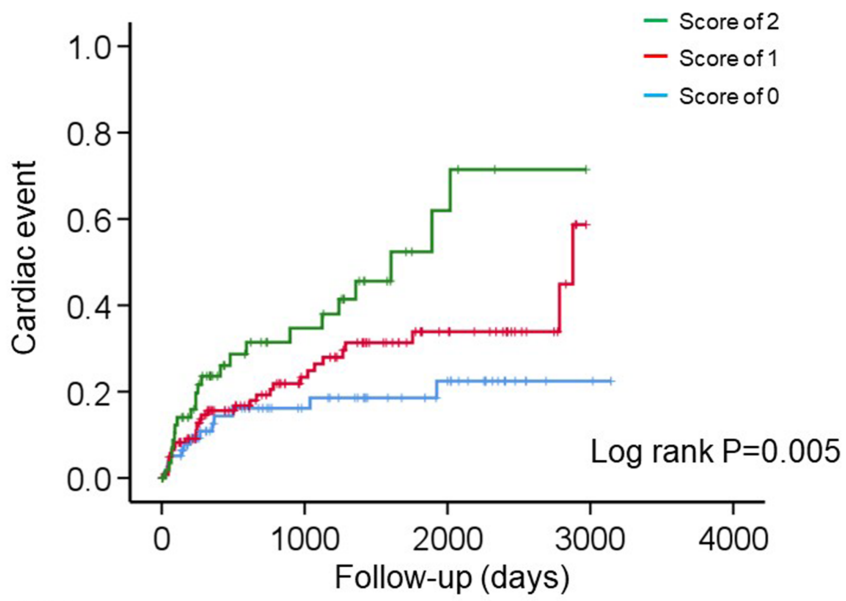




Factor	HR	95% CI	P value
PRa-interval			
Long (≥173.5 ms) vs. short (<173.5 ms)	1.678	1.031–2.731	0.037
Long (≥173.5 ms) vs. short (<173.5 ms)*	1.690	1.015–2.813	0.044
LGE status			
Presence vs. absence	1.800	1.116–2.905	0.016
Presence vs. absence*	2.045	1.231–3.400	0.006
Combination of PRa-interval and LGE			
Score of 0	Reference	–	–
Score of 1	1.611	0.845–3.074	0.148
Score of 1*	1.850	0.945–3.623	0.073
Score of 2	2.889	1.458–5.725	0.002
Score of 2*	3.437	1.685–7.014	0.001

*Adjusted: adjusted for age, gender, New York Heart Association class III or IV, brain natriuretic peptide, left ventricular ejection fraction and QRS duration.





No at Risk				
Score of 2	60	20	4	0
Score of 1	123	50	21	0
Score of 0	79	35	20	2