

Clinical significance of Q waves in ischemic cardiomyopathy

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AIMS: The scintigraphic translation of Q waves in patients with ischemic cardiomyopathy and LVEF < 40% has not yet been assessed. The aim of this study was to explore the relationship between Q waves and necrotic tissue and to analyze their impact in prognosis.

METHODS AND RESULTS: A retrospective study enrolling 487 consecutive patients (67,0 [57,4 – 75,4] years), with ischemic cardiomyopathy, LVEF <40% and narrow QRS who underwent stress-rest SPECT was conducted. Patients with Q waves (320 patients [65,7%]) had less comorbidity and ischemia, but more necrosis. Q waves correlated poorly with lack of viability (AUC = 0,63) and were independently associated with the subendocardial extent of the necrosis. After a follow-up of 5,07 years, the primary outcome (cardiovascular death, heart failure hospitalization or myocardial infarction) occurred in 192 (39,4%) patients, without differences between groups in multivariate analysis. After accounting for non-cardiovascular death as a competitive risk, the interaction between >10% of ischemia and revascularization remained in Cox model both in the total cohort (aHR= 0,46 [0,24 – 0,86]), and in patients with Q waves (aHR = 0,27 [0,11–0,69]).

CONCLUSION: Patients with ischemic cardiomyopathy with Q waves have larger subendocardial scarring and more transmural necrosis, although correlation between Q waves and transmural scarring is poor. Revascularization if >10% ischemia is present is associated with a better prognosis. Ischemia burden should be assessed and accordingly treated in these patients, and no differences in management should be made in the presence of Q waves.

Table 1. Cox proportional hazards model

	Total cohort (N = 471)			Patients with Q waves (N = 315)		
	aHR	p-value	95% CI	aHR	p-value	95% CI
Age (per year)	1,02	0,007	1,01 - 1,04		n.s.	
Diabetes mellitus	1,35	0,047	1,00 - 1,81	1,54	0,016	1,09 - 2,20
eGFR < 60 ml/min	1,59	0,005	1,15 - 2,21	1,96	<0,001	1,36 - 2,82
Previous HF hospitalization	1,71	0,002	1,23 - 2,38	1,76	0,007	1,17 - 2,64
Previous PCI	1,32	0,069	0,98 - 1,78		n.s.	
Previous CABG		n.s.		1,77	0,009	1,15 - 2,72
Angina or dyspnea	1,68	0,001	1,24 - 2,28	1,71	0,004	1,19 - 2,46
Indexed TDV (per quartile)	1,16	0,047	1,02 - 1,33		n.s.	
Revascularization*ischemia > 10%	0,46	0,015	0,24 - 0,86	0,27	0,006	0,11 - 0,69

Cox regression for the primary endpoint (cardiovascular death, heart failure hospitalization or myocardial infarction), accounting for non-cardiovascular death as a competitive risk.

Abstract Figure. Survival for the primary endpoint

