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Effect of QRS duration on the diagnostic performance of T Wave Alternans.

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Background: T wave Alternans (TWA) is a measure of repolarization that predicts arrhythmia vulnerability in several patient populations. The signal averaged ECG, and more simply QRS duration, are measures of ventricular activation that may also predict arrhythmias. The interaction between these measures has not been well addressed.
Methods: 202 patients with ischemic cardiomyopathy underwent TWA testing during exercise or atrial pacing. They were followed for a mean duration of 442+/-379 days for the endpoints of sustained ventricular arrhythmia, appropriate defibrillator therapy or death. The prognostic value of TWA was compared between patients with a QRS duration of < or ≥120 ms.
Results: Prolonged QRS duration decreases the specificity of TWA. In particular, the presence of LBBB was associated with a significantly lower specificity (22% vs. 38%, p=0.007), compared to patients with RBBB or nonspecific IVCD. The difference in baseline characteristics did not account for reduced specificity.
Conclusion: Prolonged ventricular depolarization, in particular LBBB, decreases the specificity of TWA in patients with ischemic cardiomyopathy.

	QRS>=120 ms	QRS< 120ms	p value
number	84	118	
events, n	29(35%)	29(25%)	NS
age, yrs.	67±10	63±10	0.004
Ejection fraction	26±8	29±8	0.03
NYHA	2.2±0.6	2±0.6	0.03
TWA: sensitivity	83	85	NS

specificity	31	46	< 0.001
PPV	40	28	NS
NPV	76	91	< 0.001
TWA positive	60(71%)	68(58%)	NS