



<b>Title</b>	<b>QRS changes and QT intervals on 12-lead ECGs in patients receiving biventricular pacing for congestive heart failure</b>
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## G-C-9

### QRS Changes and QT Intervals on 12-Lead ECGs in Patients Receiving Biventricular Pacing for Congestive Heart Failure

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**Background:** Intraventricular conduction delay (IVCD), shown as prolonged QRS duration, has been identified as predictor of mortality in patients with congestive heart failure (CHF). QT interval and QT dispersion (QT dis) provide a measure of repolarization inhomogeneity which may predispose to ventricular arrhythmias and sudden cardiac death. Biventricular (BiV) pacing has recently been advocated in patients with CHF and IVCD. We analyzed ECG characteristic changes during BiV pacing, left ventricular (LV) and right ventricular (RV) pacing respectively.

**Patients and Methods:** 12-lead ECGs were obtained from 23 patients during implantation of either pacemaker or implantable defibrillator capable of BiV pacing. The following were compared at baseline and BiV, LV and RV pacing: QRS duration, QRS axis, corrected QT interval (QTc) and QTdis (maximum QT – minimum QT).

**Results:** BiV pacing resulted in the narrowest mean QRS duration when compared with baseline and other 2 univentricular pacing. RV pacing resulted in significant positive axis shift and polarity changes from predominant isoelectric with BiV pacing to predominant negative in lead I. A negative shift of axis seen in LV pacing and polarity changes from being negative to positive in lead II and III when compared with BiV pacing. There was significantly prolonged mean QTc with RV pacing compared with BiV and LV pacing. No significant differences in mean QTdis were observed with different mode of pacing.

**Conclusions:** BiV pacing significantly reduces mean QRS duration in patients with CHF and IVCD. QTdis was not significantly altered by BiV pacing and its predictive value remains unclear in patients receiving such therapy.

	QRS axis (°)	QRS duration (ms)	QTc (ms)	QTdis (ms)
Baseline	201 ± 159	160 ± 14	426 ± 36	33 ± 11
BiV	241 ± 75	140 ± 29*	448 ± 53**	36 ± 18
LV	153 ± 93	189 ± 34	459 ± 52	36 ± 16
RV	-85 ± 60	188 ± 54	481 ± 52	41 ± 17

\*  $p < 0.01$  compared with baseline, LV and RV pacing; \*\*  $p < 0.05$  compared with LV and RV pacing

## G-C-10

### Return to Work after Cardiac Rehabilitation

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**Background:** Cardiac Rehabilitation Programme has been shown to be beneficial not just only to the young cardiac patients, but also to the elderly cardiac patients in terms of enhancement of exercise capacity and quality of life. However, there has been no literature reported on the vocational outcome of the elderly cardiac patients after the cardiac rehabilitation programme.

**Patients and Method:** A prospective longitudinal study of patients after myocardial infarction (AMI) who had gone through an 8-weeks intensity cardiac rehabilitation programme was carried out at the Tung Wah Cardiac Rehabilitation Centre. Patients with AMI admitted to the programme between 1994-96 were followed up for 1 year. Descriptive statistical analysis was used to analyze the rate of return to work in various age group after the 8-weeks programme and at 1 year post-event.

**Results:** 180 post-AMI patients admitted between 1994-96 were recruited. 62 (38%) were 60 or younger and 118 (62%) were 61 or older. 49.9% of them had open employment prior to the AMI, ranging from 100% employment rate in the age group of 30-40 to 14% in the age group of 70-80. The rate of return to work after the cardiac rehabilitation programme for those below and above 60 years old were 66% and 40% respectively, and at 1 year post-event were 92.5% and 51.4% respectively. The overall rate of return to work 1 year later in the blue collar and white collar were 71.9% and 83.9% respectively ( $p = 0.001$ ). This difference was not obvious in those 60 or younger (93.5% vs 90.9%) but was very significant in those older than 60 (46.2% vs 66.7%).

**Conclusion:** To return to work after AMI in the elderly is not uncommon in our population, despite that the rate of return to work is lower in the elderly than in the young. The rate of return to work in the white-collar elderly is higher than that in the blue-collar elderly. As a whole, the vocational retraining component of the cardiac rehabilitation programme should not be just limited to the younger age group.