The Predictors of Pacemaker Dependency of Post Myocardial Infarction Patients Who Have Heart Block: a Cohort Study

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Background --- Benign to life threatening cardiac arrhythmias are commonly observed in patients having acute coronary syndrome, including variable degrees of atrioventricular block. The latter must be taken into consideration because it may bring forth a crucial decision in placing a permanent pacemaker. Furthermore, prognosis for these patients is worse than that of patients who do not develop atrioventricular block.

General Objective --- To determine the predictors of pacemaker dependency in post MI patients who developed heart block.

Specific Objective --- To determine the demographic and clinical factors such as age, sex, site of block, and co-morbidities that are associated with pacemaker dependency.

Method --- A cohort study of admitted patients, 18 years and above, with (STEMI or NSTEMI) from January 01, 2003 up to December 31, 2007 at Philippine Heart Center who developed heart block and temporary pacemaker insertion was done. Variables were: age, gender, type of myocardial infarction, time of onset and type of the conduction abnormality, site of block, and co-morbidities (hypertension, diabetes, and kidney diseases). Continuous data were described as mean and standard deviation. Associations were carried out using the student's one tailed T-test with 95% confidence interval. Nominal data were presented in frequency and percent; association was tested using the chi-square test.

Results --- A total of 29 patients met the inclusion criteria. Mean age was 65 ± 9.26 years and 69% were male. ST segment elevation myocardial infarction comprised the 69% of subjects, 65.5% affecting the inferior wall, 31% with NSTEMI and none with unstable angina. Co-morbidities included diabetes in 55.2%, hypertension in 48.3%, and renal insufficiency in 20.7%. The onset of atrioventricular block was mostly observed upon admission or within 24 hours thereafter in 79.3%. Of the electrocardiogram tracings available for review; 4 were AV nodal (50%), 3 were infranodal (37.5%), and 1 was indeterminate (12.5%). Only 20.7% required permanent pacemaker implantation. Mortality was 27.6%. Among the variables considered; advanced age (73 ± 5.32, p value 0.012), type of myocardial infarction, i.e., NSTEMI (p value 0.005), and presence of diabetes (p value 0.008) correlated with higher risk for need of implantation of permanent pacemaker.

Conclusion --- Patients who had post myocardial infarction heart block with advance age (73 ± 5.32), with concomitant diabetes and the NSTEMI subgroup are at a higher risk to be pacemaker dependent. Association of the above confounding factors will help the clinician in the decision in implanting permanent pacemaker, unfortunately the site of block post myocardial infarction of the some subjects included were not fully identified due to failure of electrocardiogram tracing retrieval. ***Phil Heart Center J 2012;16:77-78.***