

Arrhythmia in Acute Right Ventricular Infarction

Rasoul Azarfarin, MD, Azin Alizadeh Asl, MD*

Cardiovascular Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

Received 5 July 2007; Accepted 21 July 2007

Acute inferior myocardial infarction (MI) frequently involves the right ventricle (RV).¹⁻³ We assessed the prognostic impact of RV myocardial involvement in patients with inferior MI. One hundred seventy patients were admitted to the cardiac care unit of Madani Heart Hospital (Tabriz-Iran) with the diagnosis of inferior MI with (group1) or without (group2) the simultaneous involvement of RV during the study period (from 2005 to 2006). Patients presenting within 12h of symptom onset were eligible for inclusion. Patients with simultaneous anterior wall MI or renal impairment (creatinine > 2 mg/dl), as well as those undergoing primary percutaneous translational coronary angioplasty, were excluded. Eighty eight percent of the patients with RVMI and 75% of those with isolated inferior MI had some type of arrhythmia. Atrioventricular (AV) block occurred in 42% of the infarctions with RV involvement and only in 29% of the control group. Intra-ventricular conduction disturbance (IVCD) was also more frequent in RVMI (29.4% vs. 13.1%, $p=0.021$), especially right bundle branch block (RBBB) (20% vs. 7.4%, $P=0.003$). There was, however, no meaningful difference in the incidence of left bundle branch block (LBBB) between the two groups (3.5% vs. 2.35%, $P=0.95$). Ventricular fibrillation (VF) was observed in 5.2% and 1.2% and ventricular tachycardia in 26% and 12.2% of the patients in groups 1 and 2, respectively. In 27% of patients with RVMI, it was necessary to implant a pacemaker as compared to 10% of those in the control group. Mortality was higher in the patients with inferior infarction extended to the RV

(15.3% vs. 3.5%, $P= 0.0001$).

Thus, the differences between the findings in the two groups in terms of the occurrence of post-MI arrhythmias and conduction disorders were quite significant, but there was no meaningful difference with respect to the incidence of LBBB between the two groups. Additionally, patients with inferior MI who also had RV myocardial involvement were at increased risk of death and arrhythmias. This suggests that the RV may be more arrhythmogenic than the LV; a hypothesis that warrants further investigation.

J Teh Univ Heart Ctr 4 (2007) 237

References

1. Kinch JW, Ryan TJ. Right ventricular infarction. *N Engl J Med* 1994;28:1211-1217.
2. Zehender M, Kasper W, Kauder E, Schonthaler M, Geibel A, Olschewski M. Right ventricular infarction as an independent predictor of prognosis after acute inferior myocardial infarction. *N Engl J Med* 1993;328:981-988.
3. Dell'Italia LJ, Starling MR, Crawford MH, Boros BL, Chaudhuri TK, O'Rourke RA. Right ventricular infarction: identification by homodynamic measurements before and after volume loading and correlation with noninvasive techniques. *J Am Coll Cardiol* 1984;4:931-939.

*Corresponding Author: Azin Alizadeh Asl, Assistant Professor of Cardiac Surgery, Cardiovascular Reserch Center, Tabriz University of Medical Sciences, Madani Hospital, Tabriz, Iran. Tel: +98 0411 3363880. Fax: +98 0411 3363880. Email: alizadeasl@yahoo.com