ST-segment Elevation in V1-V3 in Patients with Inferior STEMI: An Important Sign of Right Ventricular Infarction (Reply)

Key words: acute myocardial infarction, conus branch, diagnosis, electrocardiogram


The Authors Reply

I thank Dr. Omar for thoughtful comments and appreciate his great interest in our report. As to his suggestion, the electrocardiogram (ECG) showed a characteristic pattern in which the level of ST-segment elevation was reduced from leads V1 to V3. This is certainly different from the ECG pattern of anterior acute myocardial infarction (AMI). Several reports have demonstrated an ECG pattern of an isolated right ventricular branch. Van der Bolt et al. assessed nine cases of right ventricular branch occlusion that developed as a complication of elective coronary intervention (1) and reported that ST-segment elevation was found in leads V1, V2, and V3. Inoue et al. reported a case of pure right ventricular AMI with ST-segment elevation in leads V1, V2, and V3 (2). The ECGs presented in their reports did not always show a reduction in the level of ST-segment elevation from leads V1 to V3. On the other hand, Eichhöfer et al. described a case of conus branch occlusion that developed as a complication of elective coronary intervention (3) and reported the typical ECG pattern of ST-segment elevation in leads V1>V2>V3. According to these reports, in our case, the conus branch occlusion appeared to be associated with the ECG pattern. The presence of ST-segment elevation in leads V1>V2>V3, depends on the location and/or size of the occluded conus branch and/or right ventricular branch.

As to Dr. Omar’s suggestion, ST-segment elevation in leads III > II, ST-segment depression in leads aVL > I or ST-segment elevation in V3R or V4R are known to be ECG patterns suggestive of right coronary artery (RCA)-related AMI (4). In addition, I believe that bradycardia and/or a junctional rhythm possibly occurring through the sinus node artery are also suggestive of RCA-related AMI (5).

The authors state that they have no Conflict of Interest (COI).

Satoshi Kurisu and Yasuki Kihara

References

1. van der Bolt CL, Vermeersch PH, Plokker HW. Isolated acute occlusion of a large right ventricular branch of the right coronary artery following coronary balloon angioplasty. The only true ‘model’ to study ECG changes in acute, isolated right ventricular infarction. Eur Heart J 17: 247-250, 1996.