CASE REPORT

Reperfusion Associated Cardioversion of Atrial Fibrillation in Acute Myocardial Infarction

Hendrik Bonnemeier, M.D. and Jasmin Ortak, M.D.

From the Medizinische Klinik II, Universität zu Lübeck, Ratzeburger Allee 160 D-23538, Lübeck, Germany

A.N.E. 2005;10(2):224–225

A 62-year-old woman was admitted to the hospital with 2 hours of severe chest pain, diaphoresis, and palpitations. The admission ECG revealed tachycardic atrial fibrillation (Afib) and significant ST-segment elevation of the inferior leads and reciprocal ST depression in the anterior leads. Emergent coronary angioplasty displayed total thrombotic occlusion of the proximal right coronary artery. Consecutively, the RCA was successfully revascularized (thrombolysis in myocardial infarction flow

grade III) by direct percutaneous coronary intervention (PCI).

At the timepoint of coronary reperfusion, continuous ECG-monitoring revealed spontaneous cardioversion of tachycardic atrial fibrillation into a short phase of accelerated idioventricular rhythm (AIR), followed by normofrequent sinus rhythm (SR) (Fig. 1). The chest pain subsided immediately after reopening of the infarct vessel. Continuous ST-segment analysis exhibited a rapid resolution of

Figure 1. Simultaneous recording of two ECG leads during reperfusion of the infarct related coronary artery. The arrow points to the moment of cardioversion of atrial fibrillation (Afib) into transient accelerated idioventricular rhythm (AIR). Initially, the ectopic rate of AIR was similar to the sinus rate, causing isorhythmic dissociation. After 45 beats, AIR transisted into stable sinus rhythm (SR).

Figure 2. Course of mean heart rate and continuous ST-segment analysis (deviations of slope reference point and deviation measurement point). The arrows point to the moment of reperfusion of the infarct related coronary artery. After spontaneous cardioversion of atrial fibrillation during reperfusion mean heart rate significantly decreased, going along with a subsequent ST-segment resolution.

the ST-segment elevation directly after PCI (Figs. 2 and 3).

Atrial fibrillation is a common complication of acute myocardial infarction. The present case is remarkable because it demonstrates the beneficial effect of successful reperfusion on electrical stability

in the acute phase of myocardial infarction. It is reasonable to assume that both myocardial salvage achieved with reperfusion and the reperfusion-induced activation of the cardiodepressor Bezold-Jarisch reflex may have resulted in spontaneous cardioversion of atrial fibrillation.

Figure 3. Two channel ECG tracings before and after reperfusion.