Effects of levosimendan in the acute phase of acute myocardial infarction complicated with severe ventricular dysfunction and without cardiogenic shock at admission

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Background: Levosimendan is an inodilator with approved inotropic properties in the treatment of acute heart failure (CHF). Its use in patients (Pts) with severe left ventricular dysfunction in the acute phase of acute myocardial infarction (AMI) is still unknown and lacks randomized trials.

Purpose: To evaluate the effects of Levosimendan in a population of Pts with AMI complicated by severe left ventricular dysfunction (defined as ejection fraction <30%) and without cardiogenic shock at admission.

Methods: We evaluated 600 Pts with AMI complicated of severe left ventricular dysfunction and without cardiogenic shock at admission. We considered 2 groups: Pts who performed Levosimendan (n = 31Pts) and Pts who did not perform Levosimendan (n = 569D). We registered age, gender, cardiovascular and non-cardiovascular co-morbidities, coronary anatomy, and in-hospital therapy. In-hospital mortality was assessed as the primary end-point and secondary end points were defined as the presence of one of the following complications: Re-Infarction, cardiac mechanical complications, high-grade atrial-ventricular block, sustained ventricular tachycardia (VT) and atrial fibrillation (AF). A multivariate analysis was performed, adjusting for variables with statistical significance, to measure the impact of Levosimendan in the endpoints considered.

Results: The baseline characteristics between the two groups were very similar, with no statistically significant differences between age, gender and cardiovascular and non-cardiovascular co-morbidities. The coronary angiography was also similar between the groups, with no difference in the number or type of vessels with lesions. Although Levosimendan was used more frequently in Pts who developed symptomatic heart failure (77.4% vs 54.3%, p=0.01) and cardiogenic shock (44.8% vs 19.0%, p<0.001), in-hospital mortality was similar between groups. Except for the incidence of AF that was higher in the Pts who underwent Levosimendan (29.0% vs 9.9%, p=0.004), there were no differences in the other secondary endpoints (Re-Infarction, cardiac mechanical complications, high grade atrial-ventricular block and VT). After multivariate analysis, the use of Levosimendan appears to be associated with an increased incidence of AF [OR: 2.98 (CI: 1.13-7.9)].

Conclusions: In the scope AMI complicated of severe left ventricular dysfunction, the use of Levosimendan appears to be safe and may only be associated with an increased incidence of AF.