A750 - Effects of levosimendan on weaning from mechanical ventilation of patients with left ventricular dysfunction

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Introduction:
This study aims to assess the effects of levosimendan, a calcium sensitizer, in the treatment of patients with impaired left ventricular function and difficult weaning from mechanical ventilation.

Methods:
Difficult-to-wean from mechanical ventilation [failed ≥ 3 consecutive spontaneous breathing trials (SBTs)] patients, who had left ventricular dysfunction defined as left ventricular ejection fraction (LVEF) of less than 40%, were studied. For each patient, 2 SBTs were studied: the first one before and the second one after a continuous infusion of levosimendan over 24 h (Control day and Study day, respectively). On both days transthoracic echocardiography (TTE) was performed on mechanical ventilation and at the end of the SBT. Also, serum levels of troponin I were measured at the same time points.

Results:
Eleven patients (7men; mean age of 72 ± 9 years) were studied. Whereas weaning failed in all patients on Control day, levosimendan administration enabled a successful spontaneous breathing trial in 8 out of 11 patients on Study day.

Compared to the Control Day, left ventricular ejection fraction significantly increased on Study Day (from 27.5±9.6% to 36.9±2.8%, p<0.05) whereas E/A significantly decreased both on mechanical ventilation and at the end of SBT: from 1.14±0.76 to 0.92±0.26, p<0.05 and from 1.29±0.73 to 0.88±0.12, respectively, p<0.05). Also, troponin I value decreased significantly on mechanical ventilation (from 217±268 to 163±194 mg/l) and at the end of SBT (from 196±228 to 146±180 mg/l)

At the end of SBT, levosimendan treatment resulted in a lesser extent of arterial PO2 decrease: 96±35 vs. 66±27 mmHg, p<0.05) and similarly of ScvO2 decrease: 67±10 vs. 60±8, p<0.05 (compared to the values on mechanical ventilation)

Conclusion:
Levosimendan may provide significant benefit to difficult-to-wean patients with impaired left ventricular function.