

### Experience with safety and efficacy of levosimendan in pediatric patients

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The objective was to describe tolerability and results of levosimendan infusion (LEVO) in critically ill children.

**Material, methods :** It is a retrospective analysis of patients aged 0 to 18 years, who received one or more levosimendan infusions, for failure to wean off inotrope and/or ECMO support. Demographic data, clinical, biological, and echocardiographic parameters (LVSF, subaortic VTI and TAPSE) were collected at onset of LEVO (T0), at 2 days (T2), 10 days (T10), 30 days (T30) and 6 months (M6) after termination of LEVO.

**Results :** 71 patients (42 males, mean age 3.2y) received 112 levosimendan infusions (LEVO)= 34 (48%) had myocardial dysfunction including 5 acute myocarditis (CMP group), and 37 (52%) were in postoperative course after surgery for congenital heart disease (CHD). Mean time from surgery to LEVO was 8.3 days (median 3), from hospitalisation to LEVO 30.5 days (median 15). Ninety-seven percent of the cases were dependent of at least one inotrope support (77% milrinone) and 32% of ECMO. Mean dose of LEVO was 0.2 microgrammes/kg/mn. Inotrope support was successfully discontinued in 34% of 32 LEVO (60% maintained off support) and 65.6% of 32 LEVO on ECMO support were weaned off assistance. Mean heart rate decreased from 137 to 131 and 116 bpm at T0, T2 and T30), mean blood pressure increased (64 to 67 and 79 mmHg at T0, T2 and T30), and mean lactates decreased from 2.17 to 1.9 to 1.5.

Mean LVSF increased from 18.3% to 21.2%, 22.9%, 25% and 31.9%, at T0, T2, T10, T30 and M6. VTI increase was +1.7 cm, +3.1 cm and +6 cm, at T2, T10, T30 and TAPSE increased +2.2 mm and +2.8 mm at T10 and T30. LEVO was uncomplicated in 109 of 112 infusions (97.3%), 3 experienced adverse events (tachycardia and hypotension). Mean CICU time was 66 days (median 46) and hospitalisation time was 76 days (median 65). Fourteen patients underwent heart transplantation and 30 died, i.e. failure occurred in 42 cases (59.2%). Survival was 50% at 6th month after termination of LEVO.

**Conclusion :** Levosimendan is safe and can allow weaning from inotrope and/or ECMO support in hemodynamically compromised pediatric patients with CMP and/or CHD.