

Chronic home inotropic support in infants and children with heart failure improves survival and quality of life and may lead to long-term improvement or transplantation

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Introduction: Severe chronic heart failure (CHF) especially in infants and children is a serious condition with rapid progression and very high morbidity and mortality especially in countries with absence or low rate of heart transplantation. This population usually needs continuous in hospital or ICU care and inotropic support.

Methods: This study reviews our experience with chronic home intravenous inotropic support and/or monthly levosimendan infusion in patients with end-stage CHF unable to be weaned off inotropes and exit the hospital.

Results: The study population consisted of 20 critically ill patients aged 8.7 ± 7.8 (0.2-26.1) years with severe CHF (7 myocarditis, 6 dilated cardiomyopathy, 2 restrictive cardiomyopathy, 5 repaired congenital heart disease) needing continuous inotropic support in hospital and mostly treated in the ICU. A total of 17 patients received continuous infusion prepared daily by the caretakers with 5mcg/kg/min dobutamine and 0.5mcg/kg/min milrinone at home through a permanent central catheter for 1.0 ± 0.8 (0.2-3.0) years. Additionally, 14 of the patients on home intravenous inotropes and the remaining 3 patients of this population received monthly levosimendan infusions for 1.1 ± 1.0 (0.1-3.0) years. During 1.9 ± 1.2 (0.2-4.2) years of follow-up, 3 patients died of worsening CHF after 0.3-2.1 years of home intravenous inotropic support. All remaining patients remained in stable condition at home with close follow-up and good quality of life with only 2 line infections treated with intravenous antibiotics and 3 catheter reinsertions due to inadvertent removal. With stabilization, 5 myocarditis patients improved and discontinued inotropic support after 0.3-2.3 years, 1 cardiomyopathy had a left ventricular assist device and 2 underwent heart transplantation in another country.

Conclusions: Chronic home intravenous inotropic support with or without levosimendan in patients with end-stage CHF is feasible for long periods with good results and few side effects even in small infants and children allowing stabilization, discharge from hospital, good quality of life. It may significantly prolong life and provide precious time for heart transplantation or myocardial remodeling, improvement and discontinuation of inotropes even after long periods of support. The last 2 statements gain great importance in countries with absence or low rate of heart transplantation especially in the paediatric population.