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Levosimendan therapy in children with chronic/acute cardiomyopathy compared to congenital heart disease.

Galoin-Bertail C., Mulatier C., Perouse de Montclos T., Bakloul M., Walton C., Durousset C., Leconte C., Di Filippo S.
Pediatric Cardiology, Cardiovascular Hospital, Lyon, France

The objective of this study was to compare levosimendan therapy administered to hemoynamically compromised pediatric patients with either myocardial dysfunction(CMP) or congenital heart disease(CHD) .

Methods : this is a retrospective study of patients aged < 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), 10days (T10), 30days (T30) and 6months (M6) after LEVO termination. Patients were divided into CHD and CMP groups. Patients were LEVO responder if weaned off inotrope and/or ECMO support after LEVO termination.

Results : CMP group included 34 patients (53% females) with myocardial dysfunction (5 acute myocarditis) who received 65 LEVO and CHD included 37cases (29.7% females) who received 47 LEVO. Mean number of levosimendan infusions was 1.27 (max 3) in CHD and 1.9 (max 6) in CMP ($p= 0.03$). Mean age at LEVO was 3.8 versus 2.3years in CMP and CHD ($p= 0.04$). Twelve percent of CMP and 51% of CHD were dependent on ECMO support ($p<0.0001$). ECMO was discontinued in 6% of CMP and 36% in CHD ($p<0.0001$), 21.6% of CMP and 36% of CHD could be weaned off inotrope support ($p= 0.08$), i.e. 26% of CMP versus 66% of CHD were responders ($p<0.0001$). Failure (heart transplantation and/or death) occurred in 76% o CMP versus 43% in CHD ($p= 0.0039$). Shortening fraction (SF) was constantly lower in CMP compared to CHD at each time point from T0 to T30, and increased in both group from T0 to T30. LVSF did not differ between chronic and acute CMP at onset (T0) and increased in acute myocarditis (AM) but not in chronic CMP, while none of AM was LEVO responder. Survival at 5-year follow-up were 60% in CHD versus 20% in CMP ($p= 0.0002$).

Conclusion : Levosimendan therapy can be safely administered in children and seems to be effective in CHD compared to CMP patients.