Introduction:
The use of calcium sensitizers has grown enormously in the last decade, probably due to their interesting pharmacodynamic properties. Levosimendan (LS) is frequently administered in patients under mechanical circulatory support.

We performed a retrospective evaluation of patients treated with LS prior to weaning from mechanical support. This evaluation was combined with a review of the literature.

Methods:
A query of our ICU patient data management system revealed 22 patients receiving LS prior to or during VAD/ECLS support. Outcome data were obtained from the patients medical records.

Results:
Of our 22 patients, 78% was successfully weaned off ECLS. Fourteen patients (63%) died before being discharged of whom 5 while on ECLS support. Of the weaned patients, 9 died afterwards. 4 of the converted patients needed subsequent veno-venous ECLS support for right ventricular support after the implantation. Survival to discharge ratio for the whole group was 31%. More detailed demographic results can be found in table 1.

Literature review

A pubmed search using the terms “(ECMO OR ECLS) AND LS AND weaning” resulted in 7 publications which dealt specifically with weaning of ECLS support. Several weaning approaches are available, however poor outcome has remains a problem. Some recent studies [1-2] show a possible beneficial effect of LS infusion prior to weaning from ECLS. However most of these studies are retrospective [1, 5] or observational at best [6]. Because LS is primarily reserved for the most severe cases, outcome interpretation is difficult. Overall weaning success ranges from 82%-92% and variation is very dependant of inclusion criteria.

Conclusion:
The calcium sensitizer LS can be used when weaning off patients from ECLS, certainly given its low incidence of complications. Future, large randomized trials are however needed in order to confirm this strategy.

Table:

<table>
<thead>
<tr>
<th></th>
<th>Discharge Home</th>
<th>Deceased</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>On ECLS or within 24h</td>
<td>After weaning</td>
</tr>
<tr>
<td>All</td>
<td>7 (31,8%)</td>
<td>5 (22,7%)</td>
<td>10 (45,4%)</td>
</tr>
<tr>
<td>Male</td>
<td>7 (41,2%)</td>
<td>4 (23,5%)</td>
<td>5 (29,4%)</td>
</tr>
<tr>
<td>Female</td>
<td>0 (0%)</td>
<td>1 (20%)</td>
<td>4 (80%)</td>
</tr>
<tr>
<td>&lt;60y</td>
<td>5 (45,5%)</td>
<td>2 (18,2%)</td>
<td>4 (36,4%)</td>
</tr>
<tr>
<td>&gt;60y</td>
<td>3 (27,2%)</td>
<td>3 (27,2%)</td>
<td>5 (45,5%)</td>
</tr>
</tbody>
</table>

*Table 1: Patient demographics and mortality*