Technical Performance Score in a single center in Argentina

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Introduction and objective

Hospital “J.P.Garrahan” is the largest tertiary pediatric teaching hospital. In Argentina. Around 800 cardiac surgeries are performed annually with 6% global mortality. It is one of the centers enrolled in the IQIC program since 2011, and also reports data to ELSO since 2013. It has a 21 beds CICU, staffed with highly trained doctors and nurses, who take care of 680 patients per year.

In the path of continuous improvement we started using technical performance score in 4 procedures in 2016. Technical Performance Score (TPS) was developed as a tool to evaluate surgical repair, and proved to be useful in predicting early outcomes. The objective is to describe our surgical performance and results according this score.

Patients and methods

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**Patients and methods**

**Design:** Descriptive retrospective study.

**Inclusion criteria:** consecutive patients with VSD, CAVC, TOF repair and ASO procedures from January 2016 to March 2018 were included

**Variables:** age, weight, surgical procedure, mechanical ventilation (MV), postoperative length of stay (PLOS), morbidity and outcome.

Surgical repair was considered: optimal (TPS1), adequate (TPS2) or inadequate (TPS3) according echocardiographic criteria defined by Technical Performance Score (*)

**Outcomes:** early mortality, adverse events and PLOS.

Adverse events: Mechanical support; re-operation for bleeding, diaphragm plication or infection; cardiac arrest requiring resuscitation; stroke; and renal failure requiring dialysis.

Unplanned reinterventions in the repaired anatomic area, and permanent pacemakers placement were not recorded as adverse events, because they are components of the TPS.

**Statistical analysis:** categorical variables are summarized as numbers and percentages and continuous variables as medians and ranges. Chi square or Wilcoxon Rank Sum Test were used for differences in outcomes according TPS score.


**Results**

**PATIENT’S DESCRIPTION** (n=258)

- Median age 141 days (1-5342)
- Median weight 7 kg (3-53)
- Genetic syndrome association 33%.
- Average bypass 102 min ± 40
- ACC 76 min ± 32.
- PLOS 6 days (1-160)
- Renal replacement 3.4%,
- ECMO 1.9%
- Unplanned reoperation 5.4 %.
- Mortality 4.8%.

<table>
<thead>
<tr>
<th>PROCEDURES</th>
<th>TPS 1</th>
<th>TPS 2</th>
<th>TPS 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>38.7%</td>
<td>54.2%</td>
<td>6.9%</td>
</tr>
<tr>
<td>PLOS</td>
<td>6 days (1-85)</td>
<td>6 days (1-106)</td>
<td>12.5 days (0-54)</td>
</tr>
<tr>
<td>MV</td>
<td>1 day (1-29)</td>
<td>2 days (1-90)</td>
<td>5 days (1-23)</td>
</tr>
<tr>
<td>Mortality</td>
<td>1 %</td>
<td>4.3 %</td>
<td>26.3 %</td>
</tr>
<tr>
<td>Adverse events</td>
<td>5 %</td>
<td>6.4 %</td>
<td>26 %</td>
</tr>
</tbody>
</table>

**Conclusions**

- Technical performance score was optimal or adequate in 93.1% surgical repairs.
- Technical performance score class 3 was associated with more adverse events and higher early mortality in our series.