A 10-YEAR EXPERIENCE WITH ARTERIAL SWITCH OPERATION IN A SINGLE-MEDIUM VOLUME INSTITUTION: IMPROVING OUTCOMES OVER THE YEARS

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BACKGROUND. Several factors have been identified as carrying additional risk in patients with transposition of great arteries (TGA) following arterial switch operation (ASO). Due to the evolving surgical strategies/perioperative management, the purpose was to analyse the outcomes and morbi-mortality trends at our institution.

PATIENTS AND METHODS. Between 2006-2015, 115 ASO were performed.

- Simple DTGA → 59.1% (n=68)
- DTGA + VSD/DORV → 30.4% (n=35)
- Taussig-Bing → 8.7% (n=10)
- DTGA + partial AVSD → 0.8% (n=1)
- DTGA + hypoplastic aortic arch → 0.8% (n=1)
- Age 11+/-7 days (range 1-150).
- Weight 3.2+/-0.3 kg (range 1.8-7.4).

Surgical era / impact of preoperative factors on early mortality and follow-up analysis were conducted.

RESULTS. Single-stage repair was performed (all patients). The coronary pattern was: normal (type A/D) (80.8%, n=93), single coronary artery (9.5%, n=11), intramural pattern (3.4%, n=4), inverted pattern (0.8%, n=1), single sinus pattern (2.6%, n=3) and others (2.6%, n=3).

- Cardiopulmonary bypass time was 212.6+/-34.5 min (range 134-448) and aortic-cross-clamping time 111.9+/-23.2 (range 55-270).
- Peri-/post operative ECMO: 17 patients (14.7%).
- PICU stay: 18+/-4.5 days (range 5-179). Mechanical ventilation duration: 192+/-87.8 hours (range 48-1752). Delayed sternal closure: 62.6%.

<table>
<thead>
<tr>
<th>Variables – 30-day mortality, n (%)</th>
<th>2006-2010</th>
<th>2011-2015</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td>Age &gt;21 days</td>
<td>2 (2.7)</td>
<td>0 (0)</td>
<td>0.04</td>
</tr>
<tr>
<td>Associated cardiac/great vessels</td>
<td>5 (6.9)</td>
<td>2 (4.6)</td>
<td>0.038</td>
</tr>
<tr>
<td>Abnormal coronary pattern</td>
<td>4 (5.5)</td>
<td>0 (0)</td>
<td>0.0021</td>
</tr>
</tbody>
</table>

Table. 30-day mortality was influenced by surgical era and factors showed.

- In-hospital percutaneous procedures (6 in 5 patients, 4.3%): ballooning (neopulmonary/PA’s/neoaorta) (n=5) and coarctation stenting (n=1).
- In-hospital reinterventions (8 in 5 patients, 4.3%): left coronary artery reconstruction (n=1), aortic/mitral repair (n=3), mitral replacement (n=2), LV free wall rupture repair (n=1) and pacemaker implantation (n=1).

- Median in-hospital stay: 28.8+/-9.3 days (range 11-128). Median follow-up: 59.1+/-31.8 months (range 2-120). Overall survival (post-discharge): 99%; one mortality case 3 months following ASO (severe biventricular dysfunction).
- Freedom from catheter-based interventions at 2, 5 and 8 years: 91%, 76% and 73% [ballooning/stent RVOT (n=12)].
- Freedom from re-interventions at 1 and 5 years: 94% and 89% [RVOT/PA patching (n=4)].

CONCLUSIONS. Early outcomes following ASO have improved in recent years. Older patients or those with associated lesions/abnormal coronary pattern may not be at increased risk of death at medium-volume institutions in the current era. Medium-term outcomes are excellent, but follow-up focused on right-sided lesions is needed.

REFERENCES