**Supplementary table files**

**Table S1** Comparison of changes in Z-scores of RPA, LPA at pre-BCPC and pre-TCPC cardiac catheterization (n=167)

|  |  |  |
| --- | --- | --- |
|  | **AAPBF** **(n = 44)** | **Without AAPBF** **(n = 123)** |
| Pre-BCPC | Pre-TCPC | *p*-value | Pre-BCPC | Pre-TCPC | *p*-value |
| Z score RPA | 1.91 (0.37-3.74) | 2.45 (1.11-4.05) | 0.616 | 1.69 (0.54-3.26) | 1.06 (-0.05-1.78) | **<0.001\*** |
| ∆RPA Z score | 0.44 (-0.96-1.8) | -0.94 (-2.45-0.32) | **0.001\*** |
| Rate RPA Z score change/month | 0.0064 (-0.271-0.325) | -0.0178 (-0.0414-0.0043) | **0.005\*** |
| Z score LPA | 1.15 (-0.24-2.93) | 1.17 (-0.56-2.39) | 0.757 | 1.29 (0.12-2.99) | -0.06 (-0.95-0.93) | **<0.001\*** |
| ∆LPA Z score | -0.010 (-1.87-1.22) | -1.435 (-2.735- -0.170) | **0.001\*** |
| Rate LPA Z score change/month | -0.0001 (-0.0343-0.0261) | -0.0190 (-0.0393- -0.0032) | **0.003\*** |

Data represented as mean ± SD, median (range), and n (% within column).

\* Statistical significance at p-value <0.05

*AAPBF*, additional or antegrade pulmonary blood flow; *BCPC*, bidirectional cavopulmonary connection; *TCPC*, total cavopulmonary connection; *RPA*, right pulmonary artery; *LPA*, left pulmonary artery

**Table S2** Comparison of mean differences of RPA, LPA size at pre-BCPC and pre-TCPC cardiac catheterization with baseline adjustment using ANCOVA statistics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Group 1 with AAPBF** **(95%CI)** | **Group 2 without AAPBF (95%CI)** | **Mean difference****(95%CI)** | **Cohen’s d** | ***p*-value**  |
| RPA (mm) | 13.19 (12.41-13.97) | 11.26(10.80-11.72) | 1.93(1.02-2.84) | 0.098 | <0.001\*\* |
| LPA (mm) | 11.44(10.61-12.26) | 10.00(9.53-10.51) | 1.42(0.45-2.38) | 0.049 | 0.004\*\* |
| McGoon ratio | 2.27(2.13-2.41) | 2.01(1.93-2.01) | 0.26(0.09-0.42) | 0.058 | 0.002\*\*\* |
| Nakata index (mm2/m2) | 318.01(285.20-350.97) | 235.18(215.72-254.65) | 82.90(44.37-121.44) | 0.101 | <0.001\*\* |

\* Statistical significance at *p*-value <0.05 \*\* Statistical significance at *p*-value <0.017 (Bonferroni correction) \*\*\*Statistical significance at *p*-value <0.025 (Bonferroni correction)

*AAPBF*, additional or antegrade pulmonary blood flow; *CI,* confidence interval; *RPA*, right pulmonary artery; *LPA*, left pulmonary artery

**Table S3** Details of atrioventricular valve progression

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Group 1 with AAPBF (n = 44)** | **Group 2 without AAPBF (n=123)** | ***p*-value** |
| **Initial moderate to severe AVVR**- Remain moderate to severe- Improved to mild | 4 (9.1%)2 (50%)2 (50%) | 17 (13.8%)7 (5.7%)10 (8.1%) | 0.4171.0000.734 |
| **Final moderate to severe AVVR**- Progress from initially mild | 6 (13.6%)4 (9.1%) | 20 (16.3%)8 (6.5%) | 0.6380.518 |
| **Type of AVV:**CommonTV or MV | 5 (83.3%) 1 (16.7%) | 12 (60%)8 (40%) | 0.380 |
| Heterotaxy  | 4 (66.7%) | 12 (60%) | 1.000 |
| **Dominant ventricle:**RightLeftUnidentified | 1 (16.7%)-5 (83.3%) | 9 (45%)3 (15%)8 (40%) | 0.170 |
| **Previous operation:**ShuntPA bandingNorwoodNo previous operation | -1 (16.7%)-5 (83.3%) | 6 (30%)7 (35%)1 (5%)6 (30%) | 0.134 |
| **Ventricular function:**Good Reduced  | 51 | 173 | 1.000 |
| Arrhythmia  | 2 | 8 | 1.000 |

\* Statistical significance at *p*-value <0.05

*AAPBF*, additional or antegrade pulmonary blood flow; *AVV*, atrioventricular valve; *AVVR,* atrioventricular valve regurgitation; *TA*, tricuspid; *MV,* mitral valve; *PA,* pulmonary artery