Results Forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) Z-scores values were lower in children with CHD than controls (-0.4 ± 1.5 vs. 0.4 ± 1.3, $P < 0.001$ and -0.5 ± 1.4 vs. 0.4 ± 1.2, $P < 0.001$, respectively), without any obstructive airway disorder. Restrictive pattern was more frequent in CHD patients than in controls (20% vs. 4%, $P < 0.0001$). FVC Z-scores were predominantly impaired in complex CHD, such as heterotaxy (-1.1 ± 0.6), single ventricle (-1.0 ± 0.2), and complex anomalies of the ventricular outflow tracts (-0.9 ± 0.1). In multivariate analysis, FVC was affected by the age, the body mass index, the maximum oxygen uptake, the genetic anomalies, the number of cardiac surgery and cardiac catheter procedures. FVC and FEV1 correlated with self and proxy-related quality of life scores.
Conclusion These results suggest that pulmonary function should be monitored early in life, from childhood, in the CHD population.
Keywords Children; Congenital heart disease; Lung; Pulmonary function; Spirometry
Disclosure of interest The authors declare that they have no competing interest.

https://doi.org/10.1016/j.acvdsp.2019.06.020

CO 9

Anterograde blood flow associated with Blalock—Taussig shunts does not modify pulmonary artery growth compared with Blalock—Taussig shunt alone

Marien Lenoir[1,*], Beatrice Desnous[2], Bilal Rahmani[1], Nabila El Gueddari[1], Edouard Aries[3], Fedoua El Louali[3], Philippe Aldebert[3], Caroline Ovaert[3], Dominique Metras[1], Loic Macé[1], Virginie Fouilloux[1]
[1] *Service de chirurgie cardiaque pédiatrique, Timone, AP—HM, Marseille, France*
[2] *Service de neurologie pédiatrique, Timone, AP—HM, Marseille, France*
[3] *Service de cardiologie pédiatrique, Timone, AP—HM, Marseille, France*
* *Corresponding author.*
E-mail address: lenoirmarien@gmail.com (M. Lenoir)

Objective The difference between extreme Tetralogy of Fallot (T4F) and pulmonary atresia with ventricle septal defect (PA/VSD) is the anterograde pulmonary blood flow. It is speculated that the association of modified Blalock-Taussig shunt (mBTs) and additional pulmonary blood flow favours shunt thrombosis but promotes better pulmonary arterial (PA) growth. This study sought to compare (PA) growth after mBTs shunt between T4F and AP/VSD.
Methods From 1995 to 2018, 79 mBTs were performed in infants (< 1 years), 45 for T4F and 34 for AP/VSD. Using a 1:1 propensity score match analysis, 38 patients were included ($n = 19$ in each group). The primary outcome was, mBTs thrombosis, PA growth and operative mortality.
Results After matching, the preoperative Nakata was similar ($101 \pm 8\,mm^2/m^2$ in T4F; 106 ± 8 in AP/VSD $P = 0.75$). The age and weight were similar ($24{,}3 \pm 5$ days, 3.3 ± 0.5 kg in T4F; $24{,}15 \pm 4$, 3.3 ± 0.9 in AP/VSD $P = 0.84$ and $P = 0.77$ respectively). The mBTs size was similar (4.15 ± 0.5 mm in T4F; 4.3 ± 0.5 in PA/VSD $P = 0.35$) There was no difference in in-hospital mortality ($n = 0$, in T4F; $n = 2{,}11\%$ in AP/VSD, $P = 0.14$) and mBTs thrombosis (3,16% in T4F; 2,11% in AP/VSD, $P = 0.18$). The time to extubation tended to be longer in T4F (5 ± 1days vs. 2 ± 1 $P = 0.06$).
The left and right PA diameter at time of biventricular repair were similar (7.5 ± 0.5 mm, 7 ± 0.2 in T4F; 8.1 ± 0.7 mm, 7 ± 1 in AP/VSD $P = 0.43$ and $P = 0.78$, Figs. 1 and 2) and the Nakata delta ($112 \pm 23\,mm^2/m^2$ in T4F; 110 ± 17 in AP/VSD $P = 0.78$). Median time to complete repair was the same in the PA/VSD (12.26 [3.9—25] months) compared with T4F (9.7 [6.2—41.1] months) $P = 0.87$. The interstage reintervention were similar (3,16% in T4F; 4,22% in AP/VSD, $P = 0.9$).
Conclusions Anterograde blood flow with mBTs did not increase the risk of mBTs thrombosis. We couldn't show benefit of anterograde blood flow with mBTS versus mBTS for pulmonary arteries growth. Anterograde blood flow did increase the time to extubation, probably by increasing total pulmonary blood flow.
Keywords Tetralogy of Fallot; Pulmonary atresia with ventricular septal defect; Modified Blalock-Taussig shunt
Disclosure of interest The authors declare that they have no competing interest.

https://doi.org/10.1016/j.acvdsp.2019.06.021

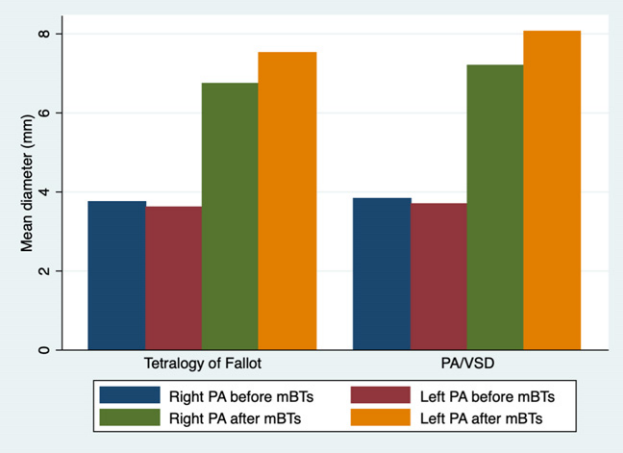

Fig. 1 Pulmonary arteries diameter before and after mBTs for T4F group and AP/VSD group.

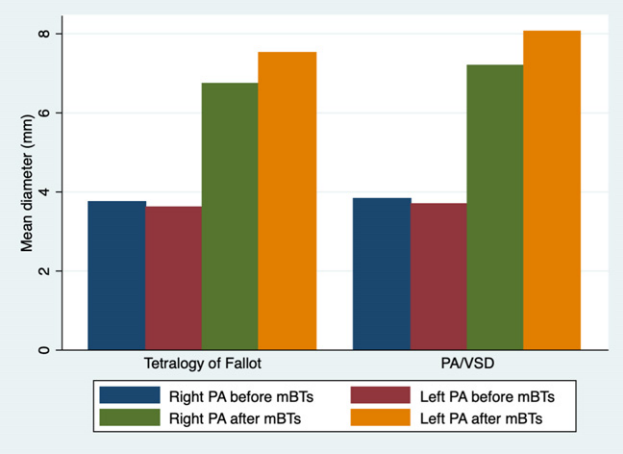

Fig. 2 Mean Nakata delta according to time after mBTs for T4F group and AP/VSD group. There was no difference between the two groups for pulmonary arteries growth.