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Truncal valve function in children following primary correction of common arterial trunk. A long term longitudinal single centre study

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Objectives - To identify predictors of development of severe truncal valve insufficiency (TrVI) after primary correction in infancy.

Methods and Results - A retrospective longitudinal echocardiographic study of 61 consecutive patients after primary correction of common arterial trunk in infancy. Severe TrVI was observed before repair in 8 (13%) out of 61 patients. The mean Z - score of truncal valve annulus and sinuses dimension in patients with severe preoperative TrVI compared to patients with absent to moderate TrVI was 7.6 ± 0.7 vs 6.4 ± 1.5 ; $p = 0.03$ and 7.1 ± 2.0 vs 5.2 ± 1.6 ; $p = 0.003$ respectively. The truncal valve was subsequently replaced in 9 out of 50 early survivors with actuarial freedom from the valve replacement 91%, 78% and 69% at 5, 10 and 15 years after the correction. Severe TrVI developed in 10 out of 40 patients with absent to moderate TrVI postoperatively, the actuarial freedom from severe TrVI was 89%, 85% and 53% at 5, 10 and 15 years after the correction. The major independent predictor of postoperative development of severe TrVI was the presence of disproportional enlargement of truncal annulus (HR 11.6; CI 1.4 - 95.2; $p = 0.023$) or sinuses (HR 10.1; CI 1.3 - 83.9; $p = 0.033$).

Conclusion - The truncal valve insufficiency after successful correction in infancy is progressive in patients with the disproportional truncal root enlargement.

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