

**Prognostic power of anaerobic threshold parameters in patients with transposition of the great arteries and systemic right ventricle**

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Abstract

Introduction:

Both transposition of the great arteries (TGA) previously submitted to a Senning/Mustard procedure and congenitally corrected TGA (cc-TGA) have the systemic circulation supported by the morphological right ventricle, thereby rendering these patients to heart failure events risk. The aim of this study was to evaluate cardiopulmonary exercise test parameters for stratifying the risk of heart failure events in TGA patients.

Methods:

Retrospective evaluation of adult TGA patients with systemic circulation supported by the morphological right ventricle submitted to cardiopulmonary exercise test in a tertiary centre. Patients were followed up for at least 1 year for the primary endpoint of cardiac death or heart failure hospitalisation. Several cardiopulmonary exercise test parameters were analysed as potential predictors of the combined endpoint and their predictive power were compared (area under the curve).

Results:

Cardiopulmonary exercise test was performed in 44 TGA patients (8 cc-TGA), with a mean age of  $35.1 \pm 8.4$  years. The primary endpoint was reached by 10 (22.7%) patients, with a mean follow-up of  $36.7 \pm 26.8$  months. Heart rate at anaerobic threshold had the highest area under the curve value (0.864), followed by peak oxygen consumption ( $pVO_2$ ) (0.838). Heart rate at anaerobic threshold  $\leq 95$  bpm and  $pVO_2 \leq 20$  ml/kg/min had a sensitivity of 87.5 and 80.0% and a specificity of 82.4 and 76.5%, respectively, for the primary outcome.

Conclusion:

Heart rate at anaerobic threshold  $\leq 95$  bpm had the highest predictive power of all cardiopulmonary exercise test parameters analysed for heart failure events in TGA patients with systemic circulation supported by the morphological right ventricle.