

Predictive factors of cardiogenic shock in children less than one year of age with supraventricular tachycardia

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Objectives: Supraventricular tachycardia (SVT) is the most common arrhythmia in children. However, factors leading to cardiac dysfunction are still unknown. We aimed to determine predictive factors of cardiogenic shock in children less than one year of age with SVT.

Methods: All the children under the age of one year and who were referred for SVT to our paediatric cardiologic intensive care unit were included. Cardiogenic shock was defined as a systemic ventricular ejection fraction under 50% and the need of inotropic drugs. Demographic data, type of SVT, prenatal diagnosis of arrhythmia, clinical characteristics and therapeutic management were reviewed.

Results: 109 children (10 days [1-30]) were included. 17% of patients (12 days [3.5-17.5]) developed cardiogenic shock. Heart failure was significantly more frequent in case of flutter (54.5% vs 13.3%; $p < 0.01$), when heart rate was high (280bpm [235-300] vs 230bpm [210-280]; $p=0.04$) and for sustained tachycardia. 29% of patients presented pre-natal arrhythmia which was not associated with post-natal heart failure. Neither presence of associated congenital heart disease, nor young age at presentation were at risk of cardiogenic shock.

Conclusions: The incidence of cardiogenic shock is not uncommon in children with SVT. A high heart rate seems to be the main risk factor. 50% of patients with flutter will develop heart failure in case of prolonged tachycardia. These predictive factors of cardiogenic shock should help to improve the therapeutic management.