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Pharmacologic cardiac resynchronization in children.

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We present the case of 1 3/12 years old male toddler with Wolff-Parkinson-White syndrome (WPW) and severe LV dysfunction due to early activation of interventricular septum via the septal AP and delayed activation of the left ventricular free wall. This resulted in intraventricular wall motion delay with impairment of LV function (LV fractional shortening (FS) of 14% and a biplane LV ejection fraction (EF) of 31%). 2D strain analysis revealed intraventricular dyssynchrony with septal to posterior wall motion delay (SPWMD) of 350 ms. Interventricular mechanical delay (IVMD) was 65 ms. After propafenone administration (1mg/kg i.v.) preexcitation disappeared due to conduction block in the AP. On oral propafenone (275 mg/kg/m²) no recurrence of preexcitation was seen. LV function improved significantly with FS of 29% and EF of 55%. No interventricular dyssynchrony was measured in 2D strain with SPWMD of 40 ms and IVMD of 5 ms. Preexcitation is still absent after 24 month of follow up and cardiac function is normalized with EF of 81% and FS of 48%.

Conclusion: Septal AP's are a rare cause of intraventricular dyssynchrony and severe LV dysfunction in children. Cardiac resynchronization can be achieved by induction of conduction block in the AP using propafenone as a safe and effective alternative to catheter ablation in very young children.