

Prevalence of T Wave Alternans Late After Repair of Tetralogy of Fallot

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Background: Sudden death is a dreaded late complication after surgical correction of tetralogy of fallot (TOF). Microvolt T wave alternans (mvTWA) is a non invasive method used to risk stratify patients with Left ventricular dysfunction at risk of lethal ventricular arrhythmia. Little is known about the role of mvTWA in risk stratification of patients after surgical correction of TOF.

Aims of the study: A prospective analysis To determine TWA prevalence and its association with echocardiographic and epidemiologic variables associated with sudden cardiac death.

Methods: A prospective analysis of patients after surgical correction of TOF. Assessment of TWA and associated echocardiographic and clinical parameters.

Results: 34 patients after repair of TOF were included (mean age- 43,47% men). Mean age for TOF repair was ten. 21 patients needed at least two surgeries for TOF (61%). RBBB found in 28 out of 34 patients (82%). 14 patients had positive TWA test (41%). Positive TWA test was associated with older age at TOF repair (9 years vs 4 years, p-0.008), higher LVEDD (48mm vs 42mm, p- 0.006) and higher LVESD (30mm vs 27mm,P-0.05), presence of right ventricular hypertrophy (57% vs 20%, p- 0.036) and also higher degrees of dilatation in aortic sinus level and ascending aorta (38mm vs 34mm at sinus level, 37mm vs 33mm at ascending aorta level, p- 0.025, p- 0.003, respectively). There was a trend for positive TWA in patients with mild leak around VSD patch (35% vs 10%, p- 0.09). QRS width and QTc were longer in average in patients with positive TWA but it did not reach statistical significance (QRS of 160ms vs 130ms and QTc OF 440ms VS 420ms respectively).

Conclusion: Positive TWA was associated with older age at repair, left ventricular systolic and diastolic dilatation and right ventricular hypertrophy. All known as prognostic factors post TOF repair. We also found an association with Aortic regurgitation and aortic dilatation which was not described previously.