



EP Fetal cardiac function in diabetic mothers using conventional and speckle-tracking echocardiography and its association with neonatal outcome

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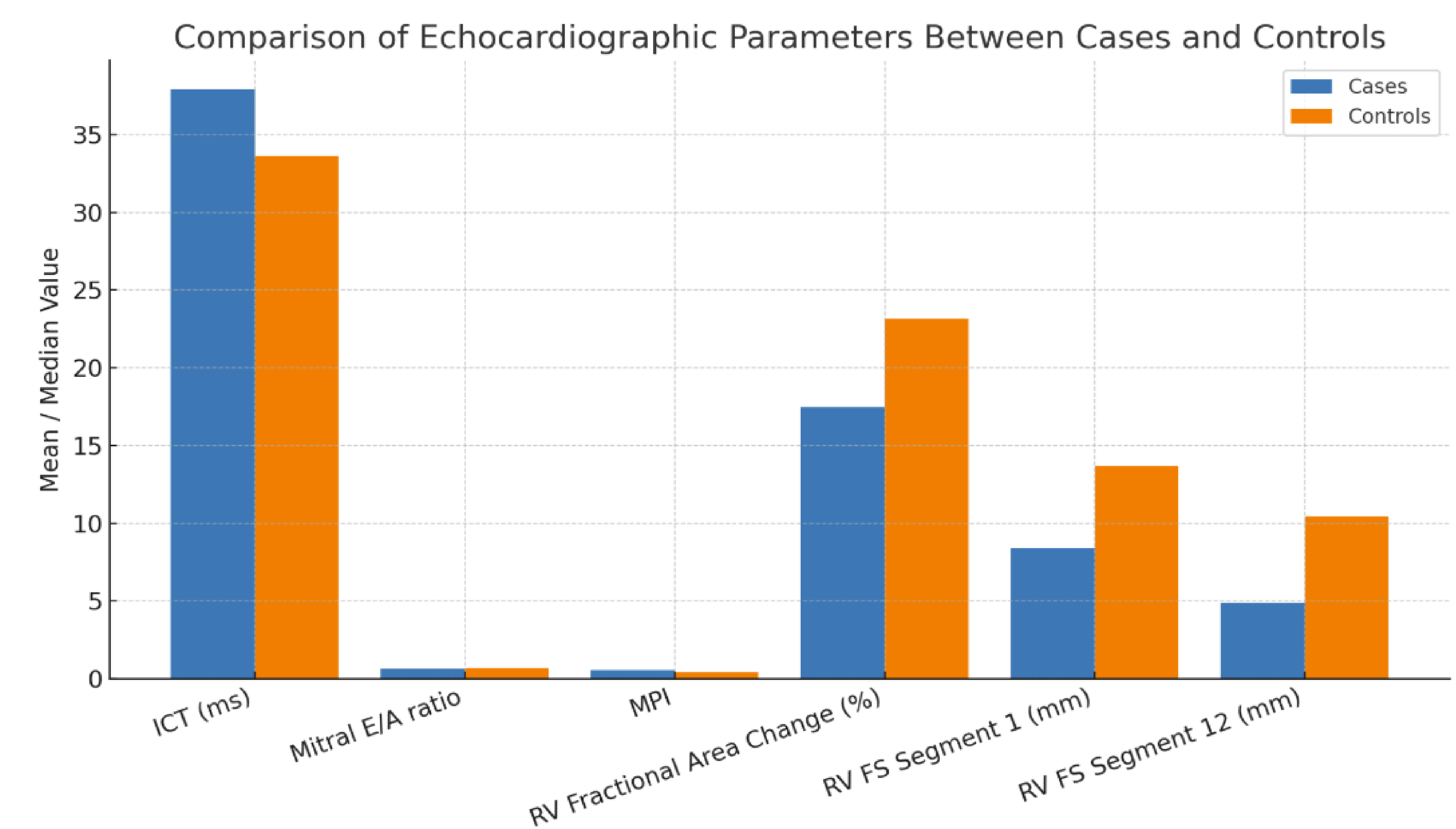
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Introduction: Fetal cardiac dysfunction in diabetic pregnancies is hypothesized to affect neonatal outcomes. There is limited information on this association and on methods to assess cardiac function. The objective of this study was to evaluate biventricular cardiac function in fetuses of diabetic mothers using conventional echocardiography and speckle tracking echocardiography, and to correlate the findings with neonatal outcomes

Methodology: A case-control study was conducted in a tertiary care centre in India, which included 69 singleton pregnancies between 30 and 36 weeks with diabetes (cases) and a similar number of controls. On conventional fetal echo, the Myocardial performance index (MPI), E/A, isometric contraction time (ICT), isometric relaxation time (IRT), and ejection time (ET) were noted. On Speckle tracking, global ventricular contractility and transverse contractility were noted

Results

Parameter	Cases (Mean ± SD / Median [Range])	Controls (Mean ± SD / Median [Range])	p-value
Conventional Echocardiography			
ICT (ms)	37.90 ± 10.11	33.63 ± 7.22	0.005
Mitral E/A ratio	0.633 ± 0.10	0.678 ± 0.10	0.013
MPI	0.56 (0.43–0.65)	0.41 (0.42–0.55)	0.0003
Speckle Tracking Echocardiography			
RV Fractional Area Change (%) – Global contractility	17.45 (4.94–25.54)	23.13 (10.95–32.87)	0.025
RV FS Segment 1 (mm) – Transverse contractility	8.38 (–0.15–16.97)	13.69 (5.68–22.55)	0.018
RV FS Segment 12 (mm) – Transverse contractility	4.88 (–1.72–12.79)	10.44 (0.97–18.50)	0.018



Conclusion: A significant difference in E/A ratio (diastolic function), ICT (systolic dysfunction), MPI (both systolic and diastolic function), and contractility points towards cardiac remodeling and global dysfunction in fetuses of diabetic mothers. Speckle tracking technology is a simpler method to assess cardiac function