Congenital Cardiology Solutions

IS PREGNANCY ASSOCIATED WITH ADVERSE RIGHT VENTRICULAR REMODELING IN WOMEN WITH REPAIRED TETRALOGY OF FALLOT?

ACC Oral Contributions
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Background: Improved survival of adults with congenital heart disease (ACHD) is coupled with the rise in pregnancy and related hospitalizations in women with ACHD. The physiologic loading of pregnancy may be associated with a longitudinal, persistent increase in right ventricular (RV) volumes in women with repaired tetralogy of Fallot (rTOF).

Method: We performed a retrospective, cohort study analyzing ventricular volumes and function in women with rTOF who underwent successful completion of pregnancy between two consecutive cardiac magnetic resonance (CMR) examinations. A matched control group of women with rTOF, no prior pregnancy and two consecutive CMRs was used for comparison. A mixed effects model was used to compare longitudinal CMR parameters among cases and controls.

Results: The time between first and second CMR was similar in the two groups (median, cases: 31 months [22-54] vs. controls: 25 months [19-36], p = 0.34). There was no significant difference in the change in RV end-diastolic volumes (0.1±0.04 vs. 0.03±0.03 p = 0.09) and RV ejection fraction (0.01±0.04 vs. 0.05±0.03, p = 0.17). See Table 1.

Conclusion: In this demonstration analysis, pregnancy does not appear to significantly impact CMR indices of RV remodeling in women with rTOF. Further longitudinal study of the impact of pregnancy and related interventions in this expanding and at-risk ACHD population is warranted.

	Case (n=13)		Control (n=26)		p value	
Age at first CMR (years)	22 (17-25)		27 (24-31)		0.01	
Age at repair (years)	1.4 (0-5)		4.7 (4-6)		0.03	
QRS duration (msec.)	141 (135-152)		139 (136-154)		0.71	
NYHA ≥ 2, n (%)	3 (27)		0 (0)		< 0.001	
CMR data						
	First CMR	Second CMR	First CMR	Second CMR	Comparison of First CMRs	Comparison of Second CMRs
RV EDV (ml/m2)	132±9	144±9	128±9	131±9	0.29	0.06
RV ESV (ml/m2)	64±5	71±5	61±4	66±5	0.25	0.25
RV EF (%)	51±2	51±2	52±1	50±2	0.64	0.45
PR fraction (%)	37±5	36±5	29±4	30±4	0.07	0.14
LV EDV (ml/m2)	74±3	79±4	81±2	82±3	0.85	0.29
LV EF (%)	60±2	60±2	61±1	58±2	0.09	0.55
Change of RV EDV (%)	0.1±0.04		0.03±0.03		0.09	
Change RV ESV (%)	0.12±0.05		0.1±0.04		0.83	
Change RV EF (%)	0.01±0.04		-0.05±0.03		0.17	
Change of PR fraction (%)	-0.04±0.12		0.16±0.08		0.19	
Change of LV EDV (%)	0±0.03		-0.05±0.02		0.22	
Change of LV EF (%)	0.07±0.03		0.02±0.02		0.13	