

Oral presentation

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## Lack of relationship between right ventricular volume, degree of pulmonic regurgitation (PR) and left ventricular function in repaired Tetralogy of Fallot (TOF)

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from 13th Annual SCMR Scientific Sessions  
Phoenix, AZ, USA. 21-24 January 2010

Published: 21 January 2010

*Journal of Cardiovascular Magnetic Resonance* 2010, **12**(Suppl 1):O30 doi:10.1186/1532-429X-12-S1-O30

This abstract is available from: <http://jcmr-online.com/content/12/S1/O30>

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### Introduction

Previous studies of small numbers of patients have shown conflicting results concerning the effect of RV dilation and PR on LV function, with some showing an inverse correlation between LV EF and RV volume and pulmonic regurgitant fraction, and others demonstrating no effect.

### Purpose

To evaluate the correlation between LV EF and RV volume and degree of PR in a larger group of patients with repaired TOF.

### Methods

103 consecutive MRI exams performed on adults with repaired TOF from 2005-2009 were reviewed; 11 studies obtained after pulmonic valve replacement were excluded, leaving 92 exams in 78 patients for analysis. RV end-diastolic volume (indexed to body surface area) and LV EF, obtained from SSFP cine images, and pulmonic regurgitant fraction, obtained from velocity encoded phase contrast images, were recorded.

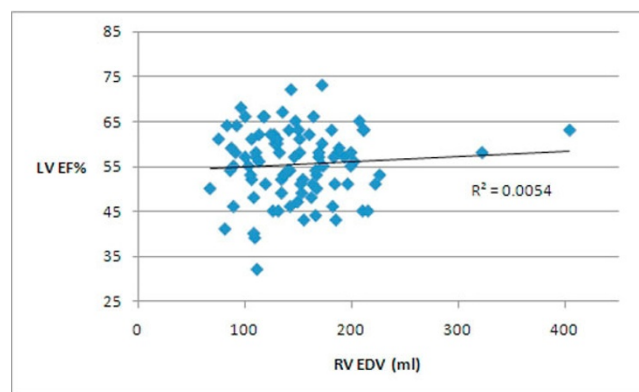
### Results

Mean indexed RV EDV was 149 ml/m<sup>2</sup> (range 67-404), mean pulmonic regurgitant fraction was 27% (range 0-66) and mean LV EF was 56% (range 32-73). There was no significant correlation between either RV EDV or PR and LV ejection fraction, ( $r^2 = 0.005$  and  $0.03$ , respectively) (Figures 1 and 2). There was a moderate correlation

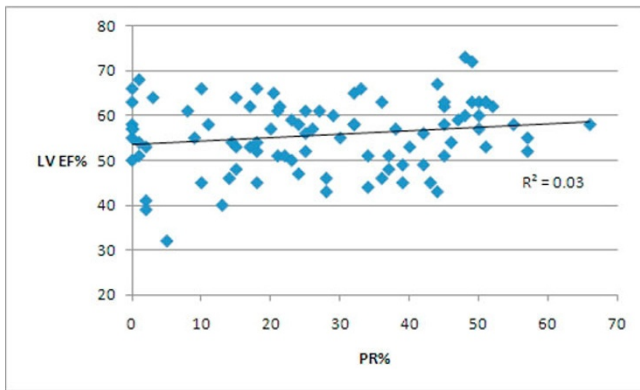
between RV EDV and degree of PR,  $r^2 = 0.2$  ( $0.29$  if outlying RV sizes are excluded) (Figure 3)

### Conclusion

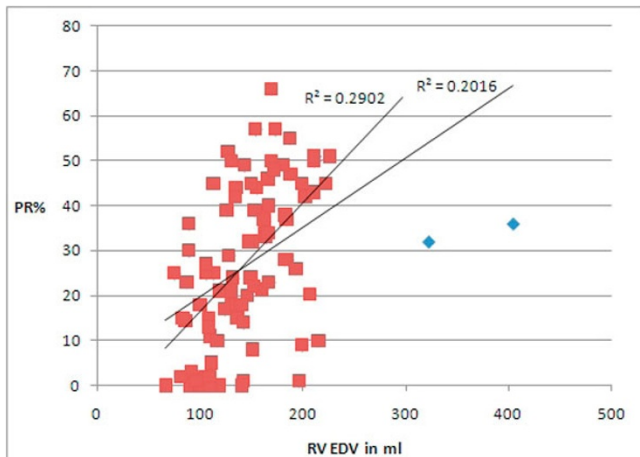
No significant relationship was detected between LV ejection fraction and RV size or degree of PR in a large, heterogeneous group of adults with repaired TOF. LV function remains well preserved in many patients with very large RV volume and severe PR. Diminished LV function can occur with any level of RV dilation or pulmonic regurgitation, and appears to be related to factors other than RV volume overload.



**Figure 1**  
LV EF vs. RV EDV.



**Figure 2**  
LV EF vs. PR%.



**Figure 3**  
PR% vs. RV EDV\$\$.

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