Aortic root dilatation in adults with surgically repaired tetralogy of fallot: a multicenter cross-sectional study.


Source: Adult Congenital Heart Center, Montreal Heart Institute, Université de Montréal, Montréal, Canada. francois.pierre.mongeon@umontreal.ca.

Abstract

BACKGROUND:
Although aortic root pathology has been described in patients with tetralogy of Fallot, the scope of the problem remains poorly defined. We sought to determine the prevalence and predictors of aortic root dilatation in adults with repaired tetralogy of Fallot.

METHODS AND RESULTS:
A multicenter cross-sectional study was conducted with standardized reassessment of echocardiographic parameters in 474 adults (≥18 years) with surgically repaired tetralogy of Fallot or pulmonary atresia with ventricular septal defect. The aortic root was measured in a parasternal long-axis view, in diastole, at the level of the sinus of Valsalva. Prevalence and predictors of an absolute diameter ≥40 mm and of an observed-to-expected ratio >1.5 were assessed. The aortic root dimension was ≥40 mm in 28.9% (95% confidence interval, 26.9%-30.9%). In multivariate analyses, the only independently associated factor was male sex (odds ratio, 4.48; 95% confidence interval, 1.55-12.89; P=0.006). The prevalence of an observed-to-expected aortic root dimension ratio >1.5 was 6.6% (95% confidence interval, 5.3%-7.9%). It was associated with pulmonary atresia and moderate or severe aortic regurgitation in univariate analyses, but no independent predictor was identified. The side of the aortic arch was not associated with aortic root dimension. The prevalence of moderate or severe aortic regurgitation was 3.5% (95% confidence interval, 2.7%-4.2%).

CONCLUSIONS:
Although nearly one third of adults with repaired tetralogy of Fallot have an aortic root diameter ≥40 mm, the prevalence of a dilated aortic root, when defined by an indexed ratio of observed-to-expected values, is low. Similarly, moderate or severe aortic regurgitation is uncommon.

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