Follow-up echocardiography in dextro-Transposition of the great arteries (d-TGA) – It's time to switch our practice

STUDY DESIGN
Design: Single-centre retrospective analysis

STUDY QUESTION
SETTING: A tertiary Paediatric Cardiology unit in the USA.

PATIENTS: 149 patients with a diagnosis of d-TGA who underwent an arterial switch operation (ASO) from January 1984 - January 2015 and had adequate follow-up data available. These included diagnoses of d-TGA without any other anomalies with an intact ventricular septum (d-TGA IVS) and d-TGA with other anatomical anomalies (complex d-TGA). Patients who presented with clinical symptoms and signs were excluded, as this study was solely to evaluate routine echocardiography in asymptomatic patients.

INTERVENTION: Routine screening echocardiography follow-up for a median length of 7.6 years with a median number of 12 echocardiograms per patient.

OUTCOMES: The primary outcome measured was the need for intervention, measured as a percentage of interventions needed following routine echocardiograms. The potential interventions were 1) medication increase 2) cardiac catheterisation 3) surgical intervention 4) hospital admission.

MAIN RESULTS
These are summarised in table 1 below.

DIAGNOSIS	NUMBER OF ECHOCARDIOGRAMS	NUMBER OF ECHOCARDIOGRAMS REQUIRING INTERVENTION (%)
d-TGA IVS	1086	7(0.64%)
Complex d-TGA	706	13 (1.84%)

Table 1: Number of routine echocardiograms with findings requiring intervention.

CONCLUSION: There is no benefit to annual follow-up echocardiography in aysymptomatic patients with surgically corrected d-TGA IVS. There may be benefit to frequent echocardiography in patients with more complex anatomy.

ABSTRACTED FROM: Shivaram P, Padiyath A, Bai S, *et al*. Utility of Follow-Up Annual Echocardiograms in Patients With Complete Transposition of the Great Arteries After Arterial Switch Operations. American Journal of Cardiology 2018. amjcard.2018.08.044

COMMENTARY

Echocardiography remains the mainstay of paediatric cardiology follow-up for structural congenital heart defects. This study aims to shed some light on the necessity for the large volumes of echocardiograms that are performed on patients with repaired d-TGA.

The retrospective study conducted by Shivaram et al. was a well conducted review with a unique population of patients who were attending asymptomatically for routine review following ASO to assess for complications that would require intervention.[1]

Current recommended follow-up for d-TGA IVS includes echocardiograms at 1,3,6,12 months, annually thereafter during childhood and 2 yearly in adulthood.[2] This is

stark difference in comparison to what is recommended by this paper.

Follow-up guidelines thus far in this population have previously not been thoroughly researched. Current guidelines for follow-up were based on a paper from 2006, which published no data (nor any reference to any data) to establish the necessity of the guidelines it was recommending.[3]

This study provides evidence that routine echocardiography in uncomplicated d-TGA may be unnecessary, and reducing the frequency of follow-up echocardiograms or introducing risk stratification methods could safely save time and resources. With more complex d-TGA anatomy, which has an associated greater risk of complications, there is insufficient evidence at present to alter the current recommendation of annual echocardiograms.

REFERENCES

1. Shivaram P, Padiyath A, Bai S, *et al*. Utility of Follow-Up Annual Echocardiograms in Patients With Complete Transposition of the Great Arteries After Arterial Switch Operations. *Am J Card* 2018:08-044.
2. Sarris G, Balmer C, Bonou P et al. 2017. Clinical guidelines for the management of patients with transposition of the great arteries with intact ventricular septum. *Eur J Cardiothorac Surg* 2017:e1-e32.
3. Wernovsky G, Rome J, Tabbutt S et al. Guidelines for the Outpatient Management of Complex Congenital Heart Disease. *Congenital Heart Dis 2006:10-26.*