WHY I DO CMR AFTER ARTERIAL SWITCH OPERATION (ASO) FOR D-TRANSPOSITION OF THE GREAT ARTERIES (D-TGA)

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• CORONARIES ARE ON POSTERIOR ASPECT OF NATIVE AORTA
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Arterial Switch Operation Step 1

- Left and Right Coronary Arteries Removed From AO on "buttons"
- PDA Divided
- Aorta and PA Divided
- AO: Aorta
- PA: Pulmonary Artery
- LA: Left Atrium
- RA: Right Atrium
- LV: Left Ventricle
- RV: Right Ventricle
LECOMPTE MANEUVER

• NEOAORTIC ROOT IS THE EMBRYOLOGIC NATIVE PA DESIGNED FOR LOWER PRESSURES
Arterial Switch Operation Step 3

- Pulmonary Artery Reconstructed
- Right Coronary Artery
- Left Coronary Artery
HOW WELL ARE D-TGA PEOPLE LONG AFTER THEIR ARTERIAL SWITCH OPERATION?

THE PERCENTAGE OF PEOPLE FREE OF ADVERSE CARDIOVASCULAR EVENT AT 25 YEARS IS....?

1. 13%
2. 33%
3. 53%
4. 73%
5. 93%
## COMPLICATIONS TO CONSIDER

**INTRINSIC**
- PROGRESSIVE DILATION OF NEOAORTIC ROOT
- NEOAORTIC REGURGITATION

**POSTOPERATIVE**
- SUPRAVALVULAR PA AND AO STENOSES
- BRANCH PA NARROWING AROUND THE NEOAORTIC ROOT
- “RVOTO”
- CORONARY ARTERY THROMBOSIS, ANGULATION, KINKING
INCIDENCE OF COMPLICATIONS

- RVOTO 10%
- MOD-SEVERE PULM REGURG 7%
- CORONARY OBST 5%
- NEO AO REGURG 3%
- MOD-SEVERE NEO AO STEN 3%

KHAIRY ET AL. CIRCULATION 2013 Jan 22;127(3):331-9
DIFFERENTIAL FLOW
58% RIGHT / 42% LEFT
RVOTO AND NEO AO ROOT DILATION

RPA STENOSIS
NORMAL SWITCHED CORONARIES
LCA STENOSIS

Intercoronary Commissure
ANOMALOUS CORONARIES

Single Ostium RCA & LAD

ISOLATED CIRCUMFLEX FROM POSTERIOR ASPECT OF CUSP
MYOCARDIAL INJURY

LOSS OF CIRCUMFLEX ARTERY

First-Pass Gadolinium Perfusion

Delayed Enhancement
Of the following recognized complications after arterial switch operation (ASO) for correcting D-TGA, which one is the most commonly observed?

1. Coronary artery thrombosis
2. Neoaortic valve insufficiency
3. Supravalvular neopulmonary stenosis
4. Neoaortic root dilation
5. Postoperative in-hospital mortality
Rudra et al reviewed their own series of 258 children who underwent arterial switch operation (ASO) for TGA over a 25 year period and compared it to other published reports. While mortality from 1983-1990 was 15%, this dropped to 7% in the period 1999-2007. Among studies, the most commonly reported complication has been supravalvular neopulmonary stenosis with ranges from 7 – 40%. Less frequently seen is the need for addressing neoaortic insufficiency with reoperation rates of 1.4 – 5%. Interestingly no correlation exists between neoaortic root size and neoaortic insufficiency, perhaps implying that this is a result of growth disturbance rather than a postoperative complication. Postoperative coronary artery events and reoperations were rare, correlating with simple vs complex coronary anatomy. Less than 1% of ASO with simple coronary anatomy needed reoperation contrasting with a 7% reoperation rate on those with complex coronary anatomy.

Reference:

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