CORONARY INTERVENTION EMERGENCY

Prof. Hamid Amoozgar, MD
• Fistula
• Kawasaki
• Familial hypercholesterolemia
• TGA
• Coronary anomaly
CORONARY INTERVENTION AFTER KAWASAKI DISEASE
Among aneurismal segments, 50% regress to normal internal lumen diameter within 2 years after illness onset.

The likelihood of regression is inversely proportional to aneurysm size, and regression rarely continues after 2 years.

In contrast, stenosis at the entrance or exit of the coronary artery steadily progresses with time, with stenosis occurring by 15 years in more than half the coronary aneurysms of maximal diameter >6 mm early in the disease.
• giant aneurysms are particularly prone to thrombosis, necessitating use of an anti-thrombotic regimen that combines antiplatelet agents (eg, aspirin) with anticoagulants (warfarin or low-molecular-weight heparin).

• The relative risk of myocardial infarction in KD is greatest in the first year after disease onset, but risk continues even late after KD.
• There were 22 reported patients age 10.6±5.8 years (range 2.1-26.2) at time of intervention, 6.9±6.1 years after KD diagnosis.

• Post intervention follow-up was 3.6±3.1 years.

• PCI was performed in 10 (45%) patients and CABG in 12 (55%) (multi-vessel in 9).

• There was a marked difference in the choice of procedure between centers (p=0.038). Interventions were performed based on angiography findings in 15/22 patients (68%) or following a cardiac event in 7/22 patients (32%), without significant differences between centers (p=0.810).

• Before intervention, 14 cardiac events occurred in 9/22 (41%) patients, 3.3±4.0 years after KD onset.

• Only 10 events (67%) led to cardiac intervention (PCI, CABG or systemic thrombolysis), in 7/22 (32%) patients. Signs of ischemia were present in 15/22 patients (68%) before intervention, either on stress testing in 8 (36%) and/or MIBI in 8 (36%) patients. After initial intervention, 6 patients (60%) required reintervention at 1.7±1.1 years following PCI, and none following CABG (p=0.003). Following last intervention, 9 patients (41%) still had signs of ischemia on stress testing or MIBI (25% PCI vs. 67% CABG patients; p=0.17). Finally, 1 patient sustained a sudden cardiac death, 7.4 year after last PCI.
• In this Canadian series, there was marked variation between centers regarding the indications and choice of intervention for revascularization. CABG, which was mostly multi-vessel, did not require reintervention, whilst PCI had the advantage of better subsequent myocardial perfusion imaging. In the absence of established guidelines, larger scale studies are required to inform risk stratification and guide therapeutic approaches.
18 procedures were performed in 15 patients with 19 coronary lesions and a mean age of 7 years (range, 13 days to 17 years). Four patients were younger than 1 month and 6 weighed less than 10kg. Ten patients had congenital heart disease: 4 had d-TGA treated with the Jatene ASO and LeCompte maneuver, 5 had congenital aortic valve disease—treated with the Ross procedure in 4 patients and percutaneous aortic valvuloplasty in one—and 1 had a heart anomaly treated with coronary reimplantation surgery. There were also 4 heart transplant recipients with GVD and 1 patient with Kawasaki disease and coronary and cerebral aneurysms.
CONCLUSION

- we believe that PCI is both feasible and safe for pediatric patients and is a useful option for long-term transplant recipients with GVD and for the treatment of early and late complications of surgical procedures involving coronary manipulation. In such cases, it is important to act as quickly as possible as delays are associated with rapid hemodynamic deterioration, cardiogenic shock, and high mortality risk. All pediatric interventional hospitals must thus be familiar with PCI techniques.
TO PROVIDE GUIDANCE, PCI HAS BEEN RECOMMENDED BY THE RESEARCH COMMITTEE OF THE JAPANESE MINISTRY OF HEALTH, LABOR AND WELFARE IN THESE CONDITIONS:

• (1) presentation with ischemic symptoms;
• (2) presence of reversible ischemia on stress testing (i.e., areas of the myocardium that are perfused at rest become ischemic with exercise); or
• (3) presence of at least 75% stenosis of the left anterior descending coronary artery

The committee also advised that a surgical approach would be superior to interventional catheterization in patients with severe left ventricular dysfunction and in arterial segments with multiple, ostial, or long-segment stenoses
RECOMMENDATIONS FOR SURGERY

• Surgical revascularization is considered when there is evidence of reversible ischemia; the myocardium to be perfused by the graft is still viable; and the artery distal to the planned graft site has no stenotic lesions.

• It is most often performed in children who have high-grade obstructions in at least 2 major coronary arteries or in the left main coronary artery and who have a high risk of myocardial infarction.
Children were classified according to the first procedure performed (67 PCI and 81 CABG). Children undergoing PCI were older, had intervention on fewer coronary artery segments, and were less likely to have collateral arteries compared with children in the CABG group. Patients who underwent CABG procedures had a longer followup period. The PCI and CABG groups did not differ significantly in their rates of mortality or acute myocardial infarction. However, patients who underwent PCI were more likely to require repeat revascularization.

Conclusions and relevance: Percutaneous coronary intervention and CABG show comparable safety in patients with LMCA stenosis and low to intermediate-complexity coronary artery disease. However, repeat revascularization is more common after PCI.
FAMILIAL HYPERCHOLESTEREMIA
he optimal interventional approach to these patients is unknown. Key unanswered questions relate to both whether (In stable angina?) and how (CABG vs. PCI? Bioabsorbable stents?) to intervene.
Familial hypercholesterolemia (FH) is a major risk factor for premature and subsequent cardiovascular disease.

- Data on long-term major adverse cardiovascular events in patients with FH after coronary stenting are scarce.
- 5.0% were classified with probable/definite FH.
- Mean follow-up was 6.0 ± 2.4 years.
- Probable/definite FH was associated with a 1.9-fold increased risk for MACE.
TGA
• Primary PTCA of stenotic proximal coronary arteries after the arterial switch procedure for dtransposition of the great arteries seems to be an effective treatment with excellent long-term results.
Conclusions. Myocardial perfusion scan abnormalities assessed by technetium-99m sestamibi are common after an arterial switch operation. These abnormalities are of uncertain clinical significance and generally lessen with exercise. The normal exercise tolerance without symptoms or ECG changes suggests that myocardial perfusion is adequate during the physiologic stress of exercise in children up to 8 years after an arterial switch operation.
• (1) Following ASO, coronary lesions are not uncommon and they are progressive. Routine and sequential coronary evaluation is necessary.

• (2) Coronary revascularization can be achieved using coronary angioplasty in most cases. Mammary bypass may be used in selected circumstances. Normal myocardial perfusion is restored in most patients.
CORONARY FISTULA
2 Congress Of Clinical Cases in Complex Cardiovascular Therapeutics
Shiraz 2017
(CCCCT2)

Name: Hamid Amoozgar, Mohammad Reza Edraki

Title: Closure of coronary cameral fistula with small left coronary
• A 1.5 y/o patient with history of excessive sweeting during feeding
• Pt was referred to some physician without definitive diagnosis
• In P/E had continuous murmur in left upper sternal border.
• In chest X-ray had left ventricular enlargement.
• In Echocardiography had a fistula witch draining to RVOT , very close to pulmonary valve
FISTULA WAS ARISING NEAR RIGHT CORONARY SINUS AND DRAINING TO
FISTULA WAS CLOSED BY NIT OCCULT PFM
DUE TO SIGNIFICANT RESIDUAL SHUNT
ANOTHER 5PFM COIL WAS INSERTED

CCCCT 2, 2017
FOLLOW UP 1 YEARS LATER

- Patient had no symptom but there was residual flow in fistula.
- The patent was scheduled for closure of residual
- Another 7*6 PFM coil was inserted for closure of residual
The patient had small residual shunt after closure up to 6 mo but the patient had no follow up till 9 y/o.
9 Y/O

- The pt. had no symptom
- Residual shunt
- NI ECG
• Residual shunt was closed by PFM coil for 30 min and pt had no ECG changes
• Coil was released
• The night after fistula closure the pt had chest pain but no ECG change and rise in troponin.

• SPECT was done that showed ischemia in apical CCCCT 2, 2017

Interpretation:
Perfusion:
• Severe ischemia of the anteroapical and apical part of the anterior walls.

Function:
• Normal wall motion and thickening.
• Normal LVEF = 64%.
• Normal LV volumes: ESV: 52 ml, ESV: 19 ml.
• Speckle echo showed decreased strain in apical part
ANGIOGRAPHY REPEATED

- No residual fistula
- Small LCA

CCCCT 2, 2017
6 MO FOLLOW

- Normal heart functions
- No chest pain
- Nl exercise test
- No change in Speckle echo during follow up