

## B

### **Balloon Atrial Septostomy**

- Performed in newborns with transposition of the great arteries.

### **Balloon Valvuloplasty**

- Contraindications: (1) thrombus in left atrial appendage; (2) moderate mitral regurgitation; (3) severe aortic or tricuspid valve disease.

### **Barlow's Syndrome**

- Familial form of mitral valve prolapse.

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## Bentall Operation

- Ascending aorta and aortic valve replacement with a valved conduit and reimplantation of the coronary arteries used to treat combined aortic valve and ascending aorta disease.

## Bernoulli Formula

- Gradient (mmHg) =  $4 V^2$ .
- Simplified Bernoulli formula to calculate the pressure gradient from peak velocity.  $V$ : peak velocity (m/s).

## Beta-Blockers

- Beta receptor antagonist.
- Helpful in HR reduction.
- Optimal administration should start 2–3 days before examination.
- They are also effective if administered the same day (maximum HR reduction around 10 bpm).
- Contraindications: asthma, second- or third-degree heart block, bradycardia.

## Biological Risk

- The effect of ionizing radiation can be divided into two categories: (1) deterministic effects (skin erythema, skin necrosis, hair loss), seen immediately after radiation doses that lie well above those administered in cardiac CT, and (2)

stochastic effects, seen after a long latent period and associated with low exposures. Stochastic effects occur randomly, are mediated by chemical damage to the DNA molecules, and clinically manifest as genetic defects and an increased risk of cancer; the risk of their occurrence depends on the tissue, the age, and the sex of the subject receiving the radiation.

## **Blalock–Taussig Shunt**

- Systemic to pulmonary arterial shunt using a subclavian arterial flap or Gore-Tex<sup>®</sup> to increase pulmonary blood flow in cyanotic congenital heart disease.

## **Body Mass Index**

- BMI:  $\text{weight/height}^2$  (kg/m<sup>2</sup>).

## **Bourneville–Pringle Disease**

- Genetic autosomal dominant disease with hamartomas of the heart and kidneys.

## **Breath Hold**

- *MR*: maximum expiratory breath hold reduces diaphragm involuntary movements.
- If patient cannot afford a long breath hold, try to reduce sequence duration.

## Brock Procedure

- Palliative procedure in ToF patients.
- Resection of RVOT musculature and valvulotomy of the pulmonary valve.

## Brugada Syndrome

- Genetic autosomal dominant disease with variable penetrance.
- RBBB with ST elevation in  $V_1$ – $V_3$ .
- Increased risk of sudden cardiac death in young adults.
- Differential diagnosis: ARVC.

## Bundle Branch Block

- Disease in His–Purkinje system.
- QRS  $>120$  ms.
- Causes: fibrosis, ischemia, hypertension, cardiomyopathies, myocarditis, infiltrative disease, cardiac surgery.
- Left bundle branch block (LBBB): large R waves in  $V_1$  and  $V_6$  and “M” pattern in  $V_1$ . Asynchronous contraction of the left and right ventricle with functional impairment.
- Right bundle branch block (RBBB): RSR pattern in  $V_1$  and prominent S wave in I and  $V_6$ .
- Bifascicular block: RBBB + left anterior hemiblock (left axis deviation) and RBBB + left posterior hemiblock (right axis deviation).
- Trifascicular block: bifascicular block + first-degree AV block.

- Do not require temporary pacing unless transvenous pacing wire in case of hemodynamic impairment.

## **Bypass, Coronary**

- Preoperative: evaluate the course and patency of arterial conduits in order to better plan the surgical approach.
- Postoperative: (1) Evaluate and monitor graft patency; (2) identify the possible progression of atherosclerotic disease in native vessels.
- Bypass patency: Within the first postoperative month, the primary mechanism for graft failure is thrombosis. Need to evaluate proximal anastomosis, graft body, and distal anastomosis. When present, graft stenosis or occlusion generally occurs at the distal anastomosis owing to the retrograde progression of coronary disease.
- Late LIMA graft failure more commonly occurs from progressive atherosclerotic disease of the grafted native vessel distal to the anastomosis.
- Types of bypass: (1) LIMA, used to revascularize the LAD artery; (2) RIMA, commonly implanted as a free graft (with proximal anastomosis on the ascending aorta and distal anastomosis on the target coronary) or composite graft, with proximal anastomosis on a LIMA graft and distal anastomosis on the left circumflex artery (LCX) territory, with a Y- or T-shaped configuration; (3) SVG, normally anastomosed proximally on the anterior wall of the ascending aorta (on the left side for grafts to the LAD territory or LCX, on the right side for those to the RCA territory) and distally below the stenosis or obstruction of the native coronary; (4) radial artery, used as a free or Y- or T-shaped composite graft, often as a third-choice conduit anastomosed distally on the LAD or LCX territory, after grafts with dominant LIMA–LAD and SV.

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## Suggested Reading

- John RM et al (2012) Ventricular arrhythmias and sudden cardiac death. *Lancet* 380:1520–1529
- Jones CM, Chin KY, Yang GZ, Hamady M, Darzi A et al (2008) Coronary artery bypass graft imaging with 64-slice multislice computed tomography: literature review. *Semin Ultrasound CT MR* 29:204–213
- Mizusawa Y et al (2012) Brugada syndrome. *Circ Arrhythm Electrophysiol* 5:606–616
- Taylor AJ, Cerqueira M, Hodgson JM, Mark D, Min J et al (2010) ACCF/SCCT/ACR/AHA/ASE/ASNC/NASCI/SCAI/SCMR 2010 appropriate use criteria for cardiac computed tomography. *J Am Coll Cardiol* 56:1864–1894
- Warnes CA et al (2008) ACC/AHA 2008 guidelines for the management of adults with congenital heart disease. *Circulation* 118:e714–e833



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