

CONGENITAL HEART DISEASE FOR UNDERGRADUATES

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CONT.

- Present from birth
- Most common form of CHD 0.8% of all live births
- An end point of a disorder in the process which the heart and the great vessels develop
- Requires understanding of normal and abnormal CVS development
- An interaction of genes, environment and chance.

CARDIAC ANATOMY AND PHYSIOLOGY

- The heart is found at the left side of the chest (**precordium**)
- The upper part of the body takes 1/3 of the CO and the lower part takes 2/3 of the CO.
- The heart is made of 2 collecting chambers (**atria**) and 2 pumping chambers (**ventricles**)
- The atria are thin chambers and are at very low pressures (5 mmHg) compared to the right ventricles (15-30 mmHg) and left ventricles (120 mmHg) < this is the pumping pressure; the filling pressure is 0 mm Hg>.
- The Left atrium has a filling pressures of 7.0 mmHg.
- The DBP is always 0.

BASIC EMBRYOLOGY

- The cardiogenetic plate
- The primitive heart plate
- The cardiac looping
- Septation of the heart
- AV valves
- Arterial valves
- Aortic arch system
- The pulmonary and systemic veins

- One can tell of a cardiac malformation at 16 week.

LEFT-RIGHT SHUNTS

NON-CYANOTIC CONDITIONS

- **Atrial Septal Defects**
 - The pressure difference is low hence a murmur will not be appreciated
- **Ventricular Septal Defects**
 - Gives a pansystolic murmur
- **Patent Ductus Arteriosus**
 - From Pulmonary a. -> Aorta
 - Pressure is higher in the aorta both in systole and in diastole hence a **continuous murmur**.
- **Conditions which block the flow of blood at the level of the AV valves.**
 - Stenosis of the valves.
- **Coarctation of the aorta (CoA)**

RIGHT TO LEFT SHUNTS (5Ts)

CYANOTIC CONDITIONS:

- **Tricuspid Atresia**
 - Without a tricuspid valve, one must have have an PDA, ASD or VSD to survive
- **Total Anomalous Pulmonary Venous Connection**
 - Pulmonary veins connect to the right atrium
- **Truncus arteriosus**
 - Single arterial trunk
- **Tetralogy of Fallot**
 - VSD
 - Pulmonary stenosis
 - Over-riding aorta
 - RVH – to pump blood through the stenosed pulmonary artery
- **Transposition of the great vessels**
 - Pulmonary artery is connected to the left ventricle and the aorta is connected to the right ventricle.
 - They run parallel and forget to crossed
 - For survival, there has to be either an ASD, VSD or PDA

• TYPED BY DR. E. NAILA