OBJECTIVES

At the conclusion of this session, students will be able to:

1. Identify common types of congenital cardiac anomalies.
2. Describe basic concepts, mechanisms and the outcome of altered hemodynamics on the economy of simple types of congenital cardiac anomalies.
3. Will be able to appreciate the fact that most of the common and simple congenital cardiac anomalies are corrected surgically or by interventional methodology and many are living a normal life.

BASIC CONCEPTS

1. Hypertrophy of Myocardium
   A. Pressure
   B. Volume
   C. Ischemia
2. Enlargement of Chamber
3. Dilatation
4. Endocardial hypertrophy and sclerosis
5. Hemodynamic changes of valves

METHODOLOGY

1. Pathologic Anatomy
   A. The Anomaly
   B. The Complex
2. Physiologic Considerations
CLASSIFICATION
A. Shunts
B. Obstructions
   1. Right Side
   2. Left Side
C. Obstructions with Shunts
D. Other Complexes

SHUNTS
1. Atrial Septal Defect
2. Ventricular Septal Defect
3. Common A-V Orifice
4. Patent Ductus Arteriosus
5. Aortico Pulmonary Septal Defect
6. Total Anomalous Pulmonary Venous Drainage

ASD
1. Fossa ovalis or secundum type
2. Primum type or persistent ostium primum
3. Sinus venosus or proximal type
4. Coronary sinus type
Atrial Septal Defect
primum type

DEFINITION
Defect allows mixing of blood, creating left to right shunt.

HEMODYNAMICS
- RV & RA pressures normal or slightly elevated.
- RA, LA & LV pressures normal or elevated.
- Increased pulmonary flow.
- Increased pulmonary vascular resistance and pulmonary hypertension may develop in adult life.

PATHOLOGIC ANATOMY
- Coarctation at subaortic area, SMA
- RV hypertrophy and dilatation
- Absent interventricular septum
- LV hypertrophy present if atrial sequestration or subaortic stenosis
Ventricular Septal Defect

**Definition:**
As in life.

**Hemodynamics:**
- RV & PA pressures normal if defect small, increased if defect large.
- RV & LA pressures normal or elevated, LV pressure normal.
- LV outflow tract shadowing.
- Increased pulmonary flow.
- Increased pulmonary vascular resistance and pulmonary hypertension may lead to right heart failure and death.

**Pathological Complex:**
Defect usually involves any one or more of the valves or congenital anomalies of the heart and great vessels. If defect is large, it may be associated with other congenital heart defects.
**Patent Ductus Arteriosus**

**DEFINITION**
Communication between aorta and left pulmonary artery distal to aortic valve.

**PATHOMORPHOLOGY**
- RV & RV pressures normal or elevated.
- L.A. & L.V. pressures normal or elevated.
- Aorta pressure normal.
- L/R shunt of ductus level.
- Increased pulmonary flow.
- If pulmonary vascular resistance high, may have bidirectional shunt at ductus level.

**PATHOLOGIC COMPLEX**
Without pulmonary hypertension, L.A.
R.V. & L.V. hypertrophied and dilated, mus-
ularation of RV with pulmonary hyper-
tension, RV & RV hypertrophied and

1. Flow beyond the distensibility of the lung vasculature
2. Vasoconstriction of the pulmonary bed
3. Secondary pathologic changes in the intima or media of the muscular arteries and arterioles of the lung restricting the pulmonary bed.