patent ductus arteriosus; *PS,* pulmonic stenosis; *SVC,* superior vena cava; *TAPVC,* total anomalous pulmonary venous connection; *TGA,* transposition of the great arteries; *VSD,* ventricular septal defect.

Clinical Consequences of Congenital Heart Disease

Heart Failure

HF is the inability of the heart to pump an adequate amount of blood to the systemic circulation at normal filling pressures to meet the body's metabolic demands. In children, HF most frequently occurs secondary to structural abnormalities (e.g., septal defects) that result in increased blood volume and pressure within the heart. It can also result from myocardial failure in which the contractility or relaxation of the ventricle is impaired. This can occur with cardiomyopathy, dysrhythmias, or severe electrolyte disturbances. HF can also occur because of excessive demands on a normal heart muscle, such as sepsis or severe anemia.

Pathophysiology

HF is often separated into two categories, right-sided and left-sided failure. In **right-sided failure**, the right ventricle is unable to pump blood effectively into the pulmonary artery, resulting in increased pressure in the right atrium and systemic venous circulation. Systemic venous hypertension causes hepatosplenomegaly and occasionally edema. In **left-sided failure**, the left ventricle is unable to pump blood into the systemic circulation, resulting in increased pressure in the left atrium and pulmonary veins. The lungs become congested with blood, causing elevated pulmonary pressures and pulmonary edema.

Although each type of HF produces different signs and symptoms, clinically, it is unusual to observe solely right- or left-sided failure in children. Because each side of the heart depends on adequate function of the other side, failure of one chamber causes a reciprocal change in the opposite chamber.

If the abnormalities precipitating HF are not corrected, the heart