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Noninvasive evaluation of neonates with suspected heart disease

Functional abnormality of the cardiovascular system in the neonate may be recognized by cyanosis, signs of congestive heart failure, respiratory distress (tachypnea, hyperpnoea and/or retractions) or a combination thereof. Definitive diagnosis may be made or suspected by history, physical examination, chest X-ray, ECG, pulse oximetry, blood gas analysis and if necessary PO_2 response to 100% oxygen. Echocardiography is useful in excluding significant heart disease or confirming clinically suspected cardiac disease and has almost completely replaced cardiac catheterization for diagnostic purposes. M-mode and two-dimensional echocardiography, pulsed, continuous wave and color Doppler studies from standard views should be recorded; subcostal views are helpful in the diagnosis. Normalcy of the heart can be confirmed in important non-cardiac causes of cyanosis or respiratory distress such as persistent pulmonary hypertension, neonatal asphyxia, central nervous system disorders, polycythemia, methhemoglobinemia, hypoglycemia, pulmonary hypoplasia, shock and sepsis, maternal drugs and others. Important cardiac defects such as tetralogy of Fallot, transposition of the great arteries, pulmonary atresia, hypoplastic left heart syndrome, tricuspid atresia, total anomalous pulmonary venous connection, truncus arteriosus, single ventricle, interrupted aortic arch, coarctation of the aorta and others can easily be diagnosed by echocardiography. In a non-distressed infant with simple cardiac murmur, the cause of murmur may easily be detected, whether it is a small ventricular septal defect, peripheral pulmonary artery stenosis, mild semilunar valve stenosis or a functional murmur. Echocardiogram is also useful in the premature babies to diagnose and quantify the size of the patent ductus arteriosus. Detailed echocardiograms of these defects will be presented.

Biography

P. Syamasundar Rao has completed his medical degree from Andhra Medical College/Andhra University, Visakhapatnam, India and postdoctoral studies in Pediatric Cardiology from Stanford University, Palo Alto, Case-Western Reserve University, Cleveland and UCLA, Los Angeles Schools of Medicine. He is currently Professor of Pediatrics & Medicine, Emeritus Chief of Pediatric Cardiology at University of Texas-Houston Medical School, Houston, USA. He has published more than 350 papers in reputed journals, 230 abstracts and presentations, 150 invited presentations & lectureships, 7 monographs and books and 55 book chapters. His special interests are Physiologically Advantageous Ventricular Septal Defects, Tricuspid Atresia and Transcatheter Management of Heart Defects.

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