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Metabolism

CATECHOLAMINE EXCRETION IN CYANOTIC CONGENITAL HEART DISEASE Urinary catecholamines were studied in 23 normal children 13 days to 14 years of age and 23 children with cyanotic heart disease 3 days to 10 years of age.

Significant elevations of dopamine (DA) and combined metanephrine and normetanephrine (MN + NMN) were found in the cyanotic group. Epinephrine (E), norepinephrine (NE) and 3-methoxy-4-hydroxymandelic acid (VMA) values showed no significant differences, but the cyanotic children tended to have higher values than normal. The increase of the precursor DA and of the principal metabolites MN + NMN plus the tendency to high urinary levels of E and NE make it probable that the cyanotic children had increased endogenous secretion of E and NE.

The authors speculate regarding the significance of the increases of E and NE in the cyanotic child: 1) enhancement of positive inotropic myocardial effect; in individuals with outflow tract obstruction from either ventricle this may result in an even larger reduction of pulmonary blood flow and an increase in hypoxemia; 2) increased tissue oxygen consumption; in the presence of oxygen deprivation the resulting metabolic acidemia may be the single most important element in the morbidity and mortality of the neonate. (*Folger, G. M., Jr., and Hollowell, J. G.: Excretion of Catecholamine in Urine by Infants and Children with Cyanotic Congenital Heart Disease, Pediat. Res. 6: 151–157, 1972.*)