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## APPENDIX

Milligrams per 100 milliliters were converted to fractional concentration (v/v) according to the formula:

mg/100 ml = fractional concentration (v/v)

$$\times 100 \times \lambda \times \frac{\text{m.w.}}{22.4 \frac{(273 + TC)}{273}}$$

where  $\lambda$  for halothane in water was determined by gas chromatography to be 1.22 at 28 C.

## Circulation

**ACIDEMIA IN CYANOTIC INFANTS** The author suggests that metabolic acidemia of the newborn secondary to hypoxemia is a common threat to life. The discrepancies between oxygen supply and cellular metabolic requirements for oxygen underlie the problem and form the basis for treatment. The author feels that in infants with cyanotic heart disease, this complication is the most common cause of death.

Once the hypoxic condition occurs, pyruvate arising from glycolysis, which normally should enter into several metabolic reactions (including participation in the formation of acetyl co-enzyme A) is converted anaerobically to lactic acid. Reconversion to pyruvate is the only effective method of reducing lactate levels, and can occur only when systemic oxygen saturations are satisfactory. Only small amounts of lactate undergo renal excretion. During protracted severe hypoxemia, the accumulation of lactate far exceeds the capacity of the tissues to re-oxidize it to pyruvate, resulting in rising accumulations of this potentially lethal substance. Metabolic acidemia can ensue rapidly

and demands immediate and vigorous management.

The author describes 30 consecutive infants manifesting acidemia from either cardiac or respiratory causes and discusses frequent monitoring of their blood gases and the use of bicarbonate or THAM-E to help correct acidosis, in addition to the use of palliative and/or corrective surgery for cardiac malformations. (Folger, G. M.: *Acidemia of Cardiogenic Origin in Young Infants with Cyanotic Congenital Heart Abnormalities*. *Clin. Pediatr.* 11:573-579, 1972.)

**ABSTRACTER'S COMMENT:** One must take issue with the statement that every effort should be made to return pH to 7.30 and the base excess to no lower than -6 before catheterization or operation is undertaken. In many infants, improvement of acid-base balance will not become evident until after palliative cardiac surgery. Transient metabolic improvement following the administration of exorbitant quantities of sodium bicarbonate or THAM-E is not justifiable when correction or improvement of blood flow (and acidemia) requires surgical intervention.