COMMITTEE ON FETUS AND NEWBORN
OXYGEN THERAPY IN THE NEWBORN INFANT

The following recommendations will appear in the revision of the manual, Standards and Recommendations for Hospital Care of Newborn Infants, scheduled for publication early in 1971. Because the Committee felt a sense of urgency to provide these recommendations to pediatricians, family physicians, and other health professionals caring for newborn infants, they are being published prior to appearance of the manual. The statement has had extensive review by a large number of experts not on the Committee, and their comments and suggestions have been followed in the preparation of the final draft. It was also reviewed and approved by the Committee on Drugs of the Academy at their meeting in San Francisco October 24, 1970.

When a newborn infant needs extra oxygen, it must be administered with great care because there is a causal relationship between a higher than normal oxygen tension in arterial blood (60 to 100 mm Hg) and retrolental fibroplasia (retinopathy of prematurity). When the normal O₂ tension is exceeded, there is an increased risk of retrolental fibroplasia. The upper limit of arterial oxygen tension and its duration which are safe for these infants is not known. It is probable that even concentrations of 40% of inspired oxygen (formerly considered safe) could be dangerous for some infants.

An inspired oxygen concentration of 40% may be insufficient for infants with cardiorespiratory disease to raise the oxygen tension of arterial blood to a normal level. In such instances, an inspired oxygen concentration of 60%, 80%, or higher may be necessary. However, it is difficult to judge the concentration of inspired oxygen necessary to maintain effective oxygenation of tissues by clinical signs in these infants. An infant may have peripheral cyanosis and yet may have a normal or an elevated arterial oxygen tension. Therefore, arterial blood gas measurements are extremely important for regulation of the concentration of inspired oxygen when an oxygen-enriched environment is necessary.

RECOMMENDATIONS

1. Oxygen tension of arterial blood should not exceed 100 mm Hg and should be maintained between 60 to 80 mm Hg.

2. Inspired oxygen may be needed in relatively high concentrations to maintain the arterial oxygen tension in the normal range.

3. If blood gas measurements are not available, a full-term, mature infant who is not apneic but has generalized cyanosis may be given oxygen in a concentration just high enough to abolish the cyanosis. However, the prematurely born infant needing supplemental oxygen should be transferred to a hospital where the inspired oxygen concentration can be regulated on the basis of blood gas measurements.*

4. The ideal sampling sites for arterial oxygen tension studies are the radial or temporal arteries. In most circumstances, however, a sample from the descending aorta through an indwelling umbilical arterial catheter is satisfactory.

5. Equipment for the regulation of oxygen concentration (as provided by some incubators and respirators) and devices for mixing oxygen and room air may not function properly; therefore, it is essential that, when an infant is placed in an oxygen-enriched environment, the concentration of oxygen be measured with an oxygen analyzer at least every 2 hours. The performance of the oxygen analyzer must be checked daily by calibration with room air and 100% oxygen.

6. Mixtures of oxygen and room air may be delivered to an infant by endotracheal tubes, masks, funnels, hoods, or incubators. Regardless of the method used, the mixture should be warmed and humidified.

7. The condition of infants requiring oxygen may improve rapidly. Under these circumstances, the inspired oxygen concentra-

* The Committee recognizes that, at the present time, this represents an optimal standard of care; and, it may well be impossible to arrange for such transfer because of lack of facilities and transport problems. The Committee hopes that, by making this recommendation, all concerned in the delivery of health care to the newborn infant will work toward making this standard a reality.
tions should be promptly lowered. If the infant's recovery is gradual, the oxygen concentrations should be lowered by 10% decrements, guided by blood gas measurements.

8. It should be appreciated that oxygen is toxic to other organs (e.g., lungs), which may be damaged even if the foregoing criteria are adhered to.

9. A person experienced in recognizing retrolental fibroplasia (retinopathy of prematurity) should examine the eyes of all infants born at less than 36 weeks' gestation or weighing less than 2,000 gm (4.2 lb) who have received oxygen therapy. This examination should be made at discharge from the nursery and at 3 to 6 months of age.

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ERRATA

The statement “The Interrelationship Between the Patient, His Family, the Referring Physician and the Pediatric Allergist,” which appeared in the March issue of the Journal, was prepared by the Committee on Communications and approved by the Section Committee of the Section on Allergy of the American Academy of Pediatrics. The names of the members of the Committee on Communications of the Section Committee were inadvertently omitted from the statement:

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