

be induced and maintained for many hours in the rat and dog by sudden exposure at 5° C. to concentrations of CO₂ of 5 per cent or greater. In this state the rat has a body temperature of 16–20° C., a heart rate of 30–100 per minute, and a respiratory rate of 1–20 per minute. When the rat is respiring 11% CO₂ at 5° C. the CO₂ content of the blood may reach 110 volumes per cent and the plasma pH a level of 7.07. A similar state may be induced in the rabbit by 20% CO₂ and cold but it is not reversible because of the fatal pulmonary edema. Rats are rendered more susceptible to this state by fasting, prolonged (three weeks) exposure to 10% O₂, or by administration of small doses of depressant drugs. Repeated narcotization by this method at intervals of several days; acclimatization to cold or to CO₂ for several days; or previous thyroid feeding; renders the rat partially or completely resistant to the narcosis induced by 11% CO₂ at 5° C. A state of depression somewhat similar to, but not identical with, that described above may be produced in rats by exposure to low oxygen tensions (10%) or to high oxygen tensions (4 atmospheres) at an environmental temperature of 5° C. It is believed that these experiments furnish additional evidence to support the view that a sudden and well marked increase in the tissue tension of CO₂ produces a definite, if temporary, decrease in the total oxidative metabolism and a parallel reduction in activity of certain body tissues including some portions of the nervous system." 16 references.

J. C. M. C.

COLE, W. C. C., AND KIMBALL, D. M.: *Relationship of Maternal Ether Anesthesia to Inauguration of Fetal Respiration*. Nebraska M. J. 28: 200–203 (July) 1943.

"About three years ago we reported our observations on a series of 5,000

consecutive newborns in which we attempted to analyze the importance of the various factors which may tend to produce asphyxia. We discovered that one of the most important factors lies within the fetus itself—premature and immature babies increase in their susceptibility to asphyxia in direct proportion to the degree of immaturity. . . . From this study we also learned that anesthetics given to the mother are an extremely important factor in the production of asphyxia in the baby. . . . All children have a much narrower margin of safety than adults; and besides this, the fetus normally operates on a much reduced oxygen level, consequently what is only a safe, surgical anesthetic for the mother, may be too deep an anesthetic for the baby. This observation was so striking that we determined to study further the effects of anesthesia in an additional group of cases. . . . We have collected data on an additional 2,000 cases in which not only the duration but the degree of anesthesia was carefully ascertained. This study involves only the use of ether anesthesia. . . .

"There were only eighteen mothers in this series who received no anesthetic whatever. . . . All of these babies breathed in less than one minute. 910 mothers received only first and second stage anesthesia without regard for the length of time. Some were only a few minutes. Many were for long periods. In this group, 68 per cent breathed in less than thirty seconds and 86 per cent in less than one minute. Only 4 per cent took longer than three minutes. 303 mothers received, in addition to whatever first and second stage anesthesia they may have received, up to five minutes of third stage anesthesia. The babies that breathed in less than thirty seconds have dropped 10 per cent. Mild asphyxia has increased from 10 to 16.5 per cent, and severe asphyxia has increased from 4 per cent to 5.6 per cent. In 285 cases, the third

stage anesthesia was between 5 and 10 minutes' duration. The babies breathing in less than 30 seconds have dropped to 42.8 per cent, those in one minute to 63.2 per cent. Mild asphyxia is more than double (21.4 per cent), and severe asphyxia is nearly four times as great (15.1 per cent) as in the group receiving only first and second stage anesthesia. 124 cases received between ten and fifteen minutes of third stage anesthesia. Only 25.8 per cent breathed in less than 30 seconds, and only slightly over half (52.4 per cent) within one minute. Nearly 30 per cent were mildly asphyxiated and 17.7 per cent severely asphyxiated. Exactly 100 cases received third stage anesthesia of more than fifteen minutes' duration. Only 22 per cent of those babies breathed in 30 seconds and only 45 per cent in one minute. Practically one-third (32 per cent) were severely asphyxiated. . . .

"All of the operative cases other than low forceps were removed from the series and the data reanalyzed. The results found are almost identical. Accordingly, it is not the operative procedure, but the anesthetic, which causes the delayed respiration. . . . There can be no question that ether given to the mother bears a direct quantitative relationship to the establishment of respiration in the baby. . . . Particularly to be condemned is the common practice of holding the mother under deep anesthesia until the doctor arrives or scrubs up. It is infinitely better to let the greenest intern handle the situation or permit the patient to precipitate than to stop labor by anesthesia. It is strongly indicated that an increased number of operative procedures, when these are necessary, should be carried out under spinal or local anesthesia, or that new anesthetic agents be sought which do not so profoundly affect the baby."

J. C. M. C.

CEBALLOS, ALEJANDRO: *An Operation Performed in one Stage with Inhalation Anesthesia for Hydatid Cysts of the Lung, Free of Adhesions.* J. Thoracic Surg. 12: 553-565 (Aug.) 1943.

"In our actual experience, twenty-four operations have been performed on twenty patients. . . . Neither suffocation, hemorrhage, nor emphysema have been noted as the result of hyperpressure anesthesia. We have also observed that the patients with multiple hydatid cysts who have been operated upon in different stages have tolerated the anesthesia with hyperpressure without affecting the other cysts existing in the lung. This is worthy of mention and consideration because while we operated on one cyst we might fear that the increase of bronchial pressure would influence the cyst in the same lung or even in the other lung. If we wish hyperpressure to be effective it is necessary to use intratracheal intubation. If not, the gas administered at a pressure of 15, 18, or 20 mg. of mercury may pass through the pharynx producing distention of the stomach. In our experience we have seen that hyperpressure through the simple facial mask does not distend the lung so completely as when the administration is carried out through a tracheal tube. Hyperpressure administered in cases of hydatid cysts of the lung presents some problems not encountered in other pulmonary diseases at the time of operation, because the cyst is filled with liquid and is subject to the changes of increased bronchial pressure. It is necessary, therefore, to graduate the hyperpressure and use it with caution. We have not observed the complication which is not uncommon in these cases, namely, suffocation from vesicles expelled into the mouth or dispersion of the vesicles into the pleura. With intratracheal inhalation