Bloodgas Values among the Newborn Infants after Birth—A Newer Method of Evaluation

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In pursuit of the relationships between the thermal regulatory capacities and the respiratory functions of the newborn infants, the central deep body temperature (C-DBT), peripheral deep body temperature (P-DBT), transcutaneous Pco_2 ($tcPco_2$) and transcutaneous Po_2 ($tcPo_2$) were continuously measured in 90 newborn infants for a duration of 4 hours commencing immediately after birth. The newborn infants were subdivided into 3 groups: the "warm" group, in which the infants were warmed up to 36°C; the "cool" group, in which the infants were kept at the room temperature of 24°C; and the "high-risk" group, who were complicated with different kinds of perinatal morbidities and kept under close observations in the incubators.

As results: (1) Recoveries of the C-DBT values following the initial fall after birth were mostly dependent on the neonatal conditions; being 37.0 ± 0.5°C on average in the "warm" group, 36.6 ± 0.4°C in the "cool" group and 36.0 ± 0.4°C in the "high-risk" group at 100 minutes after birth. (2) The P-DBT values demonstrated tendencies of prolonged decreases after birth except for the "warm" group, in which averaged P-DBT at 100 minutes after birth was 34.0 ± 1.7°C, while those of the "cool" and "high-risk" groups were 30.6 ± 1.6 and 31.6 ± 1.5°C, respectively. (3) The $tcPco_2$ values were statistically low in the "warm" group, being 30.7 ± 5.0 torr on average, while those of the "cool" and "high-risk" groups were 33.4 ± 5.4 and 35.7 ± 5.9 torr, respectively at 100 minutes after birth. (4) The $tcPo_2$ values of the "warm", "cool" and "high-risk" groups were 72.1 ± 10.1, 71.4 ± 10.4 and 67.1 ± 14.8 torr, respectively. no statistical differences were found between each groups. (5) Respiratory disturbances frequently occurred among those infants who demonstrated a decrease of C-DBT less than 36°C and/or an increase of the gradient between C-DBT and P-DBT more than 4°C.

198. Factors of Intracranial Hemorrhage of Premature Infants and its Antenatal Prediction

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Ninety-eight inborn infants with a birth weight <1500 gm or <32 weeks of gestation were evaluated for intracranial hemorrhage (ICH) by perinatal factors.

1) ICH were diagnosed by ultrasound sonography and/or computed axial tomography in twenty-five infants (28%) of these during the first seven days of life (ICH group).

2) Maternal age, parity, gravidity, premature rupture of membrane, pregnant toxemia, abruptio placenta, placenta previa, fetal position, type of delivery, amnionitis and fetal sex were not significant to occurrence of ICH.

3) Gestational age was fewer and birth weight was smaller in ICH group but they were not significant statistically.

4) Apgar scores in ICH group were lower than non-ICH group.

5) FHR scores (by Krebs et al.) of ICH group were also lower.

6) Two groups were significantly discriminated by multivariable discriminant analysis used FHR scores, birth weight and gestational age (discriminant efficiency; 3.90, F-value; 20.3, true positive ratio; 84%).

Antenatal prediction of intracranial hemorrhage of premature infants was statistically possible but its efficiency is future problem.

199. Intelligent Terminal and Network for the Pregnant Women

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In the clinic for the pregnant, a physician records the data on a case history sheet, maternity pass-book and the pregnogram to obtain the progress of gestation. In order to simplify troublesome work and obtain the intelligible presentation of data rapidly, I developed the total system for the clinic using Apple II computer. This system is composed of Apple computer (terminal) and Omninet Disk system (20M hard disk).

The features of this system are as follows: