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Minimal toxic effects with alternate day Amphoteric in B (Ampho) treatment for candidiasis in V.L.B.W.

*N.Naor, A.Litwin, I.Litmanowitz, M.Drucker*and E.Weilunsky. N.I.C.U. and Infectious Disease Unit* Beilinson Medical Center and the Sackler School of Medicine, Israel.*

During the last few years there has been a rising incidence of Candida Sepsis in VLBW. The conventional treatment with Ampho and 5 Fluocytosine is associated with toxic effects. We present our experience with alternate day Ampho treatment with minimal toxic effects. During the years 1986-1987 nine preterms, mean birth weight 1041 ± 269 gms, mean gestational age 28.2 ± 1.92 wks with systemic candidiasis were treated in our department. Ampho protocol- Day I:-Test dose 0.1 mg/kg. Complementary dose up to 0.25 mg/kg. Day II:-0.5mg/kg. Day III:-1.0 mg/kg. Day IV:-onwards alternate day 1 mg/kg for 4-6 wks. Diluted in 5% glucose as 0.1 mg/ml administered over 6 hrs. Monitoring of body temp. H.R., R.R., B.P., urine output and daily blood count, electrolytes, Urea and creatinine and biweekly transaminases. None of the infants showed any change in vital signs or blood chemistry, except two infants with a transien -t rise in Transaminase up to 150 I.U.
We stress the successful treatment of Candida infections in VLBW with alternate day Ampho treatment and with minimal toxic effects.

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GAS EXCHANGE AND ENERGY COST OF RUNNING IN ASTHMATIC CHILDREN

Stefania Zanconato, Eugenio Baraldi, Pierantonio Santuz, Franco Zacchello
Dept. of Pediatrics, University of Padua, Italy

Little information is available on the ventilatory and gas exchange changes occurring during exercise in children with exercise induced asthma (EIA). The purpose of this study is to evaluate the pattern of gas exchange during exercise and the energy cost of running in asthmatic children with and without premedication. 12 children (7.1-15.5 years) with a history of mild-moderate bronchial asthma and EIA performed two maximal exercise tests on treadmill on separate days: 1) test A = without premedication; 2) test B = disodium cromoglycate (DSCG) (40 mg) was inhaled 30 min before exercise. After a 3-min resting evaluation, the speed of the belt was set at 6.5 km/h and the inclination was increased stepwise by 2% every minute until exhaustion. Oxygen uptake (VO2), carbon dioxide output (VCO2), ventilation (VE), respiratory rate (RR) and heart rate (HR) were measured every 4 seconds. The percent post-exercise fall in FEV1 was calculated. The energy cost (CE) of running, defined as the amount of energy (above pre-exercise resting) spent per unit distance, was calculated as a function of the incline of the belt at each minute of exercise. None of the children was limited by dyspnoea during the run; the postexercise fall in FEV1 after test A was >20% for each child, the mean fall being 32.8±11.6% in comparison with 12.6±8.9% after test B ($p<0.001$). The run time increased from 8.0±2.6 min in test A to 9.1±2.1 min in test B ($p<0.01$). Baseline VO2 was not different between the two tests. VO2max decreased from 43.9±7.7 ml/min/kg in test A to 37.7±6.0 ml/min/kg in test B ($p<0.01$). VE (l/min) and CE of running (ml O2/kg/m) were significantly lower in test B from the second to the last minute of exercise. In conclusion children with post-exercise bronchospasm show a high level of ventilation which causes secondary increased O2 cost of breathing during exercise, when they are asymptomatic. Our results, that surprisingly demonstrate a decrease of VO2max with premedication, suggest that the energy cost of running is a more reliable parameter than the VO2max in the evaluation of exercise response in diseases, such as asthma, in which high values of oxygen uptake are not coupled to high values of external work.

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Prone and supine positioning effects on dry heat loss of healthy newborn infants. Glatzl-Hawlik MA, Simbruner G. Children's hospital, University Vienna Austria.

We investigated whether altered dry heat loss could be responsible for the reported increase in energy expenditure of neonates in supine position . In 20 healthy newborn infants (gestational age 36±2.6 wks, weight at the time of study 2.39±0.55 kg, nursed in a single-walled incubator at thermo- neutral temperature), dry heat loss(HL) was measured for half an hour, the newborn lying in prone and in supine position at a random sequence. HL was determined from the average heatflux, measured by means of 17 heatflux transducers attached to the body surface (yielding a sensor density of 85 /m2), and the body surface. Heat loss of newborns was 8.4 % higher in supine than in prone position (HL supine 1.80 vs HL prone 1.66 Watt/kg, $p<0.01$). This increased HL in supine position was mainly due to increased heat loss from the axillary sites, dependent on arm positioning, the R lower abdomen and the limbs.
We conclude higher energy expediture of newborn infants in supine position is caused by higher dry heat loss due to increased body surface exposure. This finding implies that either newborns should be nursed in prone position or environmental temperatures to be optimal should be adapted according to infants' body position.

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RESPIRATORY WATER LOSS DURING HEAT STRESS IN INTUBATED YOUNG LAMBS.

Karen Hammarlund, Torgny Norsted, Tomas Riesenfeld and Gunnar Sedin.
Uppsala University, Department of Pediatrics, Uppsala, Sweden.

When exposed to heat stress lambs increase their heat loss by increasing respiratory water loss (RWL). We have shown that this also occurs in fullterm infants.

To study the effect of intubation on RWL 10 young nonsedated lambs were exposed to radiative heat stress on two separate days. The first time the lamb was not intubated and the second time it was. The lambs were awake when exposed to heat stress. Measurements of RWL, oxygen consumption ($\dot{V}O_2$) and carbon dioxide production ($\dot{V}CO_2$) were made continuously using a flow-through system with a mass-spectrometer for gas analysis. The lamb was intubated using a short period of Halothane anaesthesia, and blockade of n. laryngeus superior.

When the lambs were not intubated heat stress caused RWL to increase by 220%, while $\dot{V}O_2$ and body temperature (T_b) remained unchanged. When intubated heat stress caused RWL to increase by 150%, $\dot{V}O_2$ by 37% and T_b by 0.5 °C. On extubation RWL increased to very high values and body temperature started to fall.

This study shows that intubation reduces the ability of the lamb to increase RWL and heat loss, possibly as an effect of the reduction in dead space and exclusion of the nose. This could also be the case for intubated infants.

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RELIABILITY OF NON-INVASIVE MEASUREMENT OF TOTAL BODY WATER (TBW).

Peter Hof, Rienk Baarsma, Willem G. Zijlstra, Jaap Zock, Albert Okken. Dept. of Pediatrics, Div. of Neonatology and Dept. of Physiology, University of Groningen, Groningen, The Netherlands.

Up to now TBW is generally determined on the basis of measurements of D_2O concentration in blood after an i.v. dose of D_2O. We wondered if TBW could be determined on the basis of D_2O concentrations in urine after giving D_2O orally. Eight experiments were carried out in 6 preterm neonates (gest. age: 31.5 wk±3.5, birthweight: 1855 g±516, mean±SD). The D_2O concentrations were measured in every portion of urine voided within 24 h (on the average 16 portions) after giving D_2O (2 ml/kg) orally. In 5 experiments D_2O concentrations were also determined in blood. TBW was calculated after extrapolating the regression line after the equilibration period (on the average 5 h) to time 0. After equilibration, the D_2O concentration in urine decreased linearly (r= -0.99±0.01). Using D_2O concentration in urine TBW was on the average 1.5% lower than calculated with D_2O concentrations in blood.
Conclusion: TBW can be measured on the basis of D_2O in urine after giving D_2O orally. Considering the high correlation coefficient, we suggest that TBW can be calculated using only 3 portions of urine collected between 6 to 24 h after giving D_2O orally.

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GLUCOSE/OXYGEN-QUOTIENT ON THE FIRST DAY OF LIFE IN LOW BIRTHWEIGHT NEWBORN INFANTS AND INFANTS OF DIABETIC MOTHERS.

Wilma A van Asselt, Rienk Baarsma, Tom Chapman, Dirk-Jan Reijngoud, Ruud Berger, Albert Okken. Div. of Neonatology and Research Lab, Dept. of Pediatrics, University of Groningen, Groningen, The Netherlands.

Glucose/oxygen-quotient (G/O_2) represents the fraction of oxygen consumption (VO_2) required for complete oxidation of glucose that disappears from the glucose pool. G/O_2 was determined in newborn infants from glucose disappearance rate (R_d), measured with stable isotopes, and VO_2. Appropriate (AGA) and small (SGA) for gestational age low birthweight newborn infants, and infants of diabetic mothers (IDM) were studied at an age of 8±4 (mean±SD) hours. Gestational age, birthweight, VO_2, R_d and G/O_2 of each group are listed in the table (mean±SD, *$p<0.05$).

	AGA (n=5)	SGA (n=9)	IDM (n=10)
Gest. age (wk)	32.6 ± 0.5	35.6 ± 2.6	37.1 ± 2.3
Birthweight (kg)	1.60 ± 0.32	1.65 ± 0.44	3.14 ± 0.75
VO_2 (ml/kg/min)	4.7 ± 0.6	4.7 ± 0.8	5.1 ± 0.9
R_d (ml/kg/min)	6.6 ± 1.2	5.3 ± 0.5	5.3 ± 1.4
G/O_2	1.06 ± 0.20*	0.86 ± 0.20	0.78 ± 0.14*

Conclusion: In contrast to preterm AGA infants, in preterm and term SGA and IDM infants a considerable part of oxygen consumption cannot be explained by glucose oxidation. Consequently, these infants oxidize substrates other than glucose soon after birth.