

17

COMMUNITY ACUTE DIARRHOEA: RISK FACTORS. C. Algorta, A. Montano, C. Pérez, E. Piedracueva, V. Méndez, P. E. Lorena. Dept. of Bacteriology and Virology, Institute of Hygiene, School of Medicine, Montevideo, Uruguay.

Acute diarrhoea is one of the primary causes of childhood mortality in underdeveloped countries. To characterize acute diarrhoea in infants < 2 years of age from a marginal area of Montevideo and to identify risk factors, a weekly household follow up was carried out in December/88-January/89. Basic information: family structure, cultural and socio-economic status were collected in a pre-codified form. The occurrence and clinical aspects of diarrhoea and other illnesses were recorded, along with the knowledge, attitudes and practices (KAPs) related as to how mothers managed their children with diarrhoea. Of the 276 children who finished the follow-up, 147 (53%) had at least one episode of diarrhoea. Variables with significant differences were: in the affected group, family break up was more frequent, mothers had less deliveries and a higher number were under 25y, few children had been breast-fed during their first 3 months of life. The group that developed diarrhoea had also more respiratory symptoms throughout the survey and at the beginning of the study, maternal KAPs showed that fewer mothers were cooking for their family and keeping milk in the refrigerator. Family history of recurrent diarrhoea and diarrhoea in an adult 2 weeks before the follow-up was also more frequent. Only a small proportion of these mothers believed that lengthy episodes of diarrhoea were severe; and most lacked confidence in the physicians' ability to identify the illnesses of their children. These information on the risk factors have to be taken into account in future interventions on preventive practices towards the modification of diarrhoea morbidity in similar communities.

18

BEHAVIORAL CHANGES IN MOTHERS OF INFANTS WITH HIGH RISK OF DIARRHEA. M.L. Alvarez, F. Wurgaft, I. Pacheco, M. Araya. Institute of Nutrition and Food Technology, University of Chile, Casilla 138-11, Santiago, Chile.

Personalized education of mothers whose infants are at increased risk of diarrhea was evaluated. 121 mother-infants diads of the low socio-economic stratum, 110 in the experimental group (EG) and 110 in the control group (CG), were divided into two cohorts and surveyed for 6 months during weekly home visits. Norms about rehydration, refeeding (milk, solids) and hygienic practices related to the oral-fecal cycle were taught. At the beginning and one month after finishing the intervention maternal behavior (questionnaire) and hygienic status of the bathroom and kitchen (structured observation) were evaluated. EG mothers modified some behaviors: diluted the milk ( $p < 0.0001$ ), gave a diet ( $p < 0.00002$ ), used fluids and home made oral rehydration solutions ( $p < 0.0004$ ); instead, CG mothers did not use diets, although fluids (no ORS) were more frequently used ( $p < 0.04$ ). Mother-infant hygienic index (nails, pacifier) did not change in EG while this deteriorated in CG ( $p < 0.03$ ). The table-and-place-for-cooking cleanliness index and that of the kitchen (floor, sink) improved in EG ( $p < 0.03$  and  $< 0.00005$ ) but not in CG. Hygiene-of-the-bottle index increased in EG and tended to decrease in CG ( $p < 0.002$  and  $< 0.07$ ). Hygienic index of the bathroom increased in EG ( $p < 0.0001$ ) and did not change in CG. The "total index", which includes all previously mentioned indexes, increased in EG ( $p < 0.00001$ ) and decreased in CG ( $p < 0.02$ ). These results suggest that it is possible to modify behaviors in these mothers and that direct actions are effective in promoting these changes.

Supported by FONDECYT 89-0922.

19

EXOGENOUS LUNG SURFACTANT (NAT) FOR THE TREATMENT OF SEVERE HYALINE MEMBRANE DISEASE (HMD) INITIAL CLINICAL EXPERIENCE. C. Solana, M.C. Osio, S. Lujan, C. Vecochiarelli, A.M. Larquia, O.A. Stoliar, L.M. Prudent. Sanatorio Otamendi y Clínica del Sol. Buenos Aires, Argentina.

At the Annual SLAIP Meeting in 1988 we presented the method of procedure and biochemical features of a Nat obtained by bronchoalveolar lavage of bovine lungs. This product is now being elaborated by an Argentinian laboratory. Between 8-1-90 and 7-31-91, 40 premature infants (Pret) less than 37 weeks gestational age, diagnosed a HMD and in mechanical ventilation, were treated by tracheal intubation with Nat (90mg/kg) in the first hours of life. Additional doses were given up to 48 hs., based on clinical requirements. The treated group had a birth weight of  $\bar{x}=1268$ gr ( $r=630-2470$ ) and a gestational age of  $\bar{x}=29.1$  weeks ( $r=23-36$ ). The first dose was administered at  $\bar{x}=4.7$ hs. ( $r=0.5-24$ ). Before it the  $PiO_2$  was  $\bar{x}=0.81$  ( $SD=0.2$ ), the  $PaO_2$   $\bar{x}=59$ mmHg ( $SD=15$ ) and the mean airway pressure ( $Paw$ )  $\bar{x}=9.2$ cm H<sub>2</sub>O ( $SD=3.8$ ). Ten minutes afterwards the  $PaO_2$  was  $\bar{x}=145$ mmHg ( $SD=51$ ) ( $p < 0.001$ ). One hour later the  $PiO_2$  was  $\bar{x}=0.54$  ( $SD=0.28$ ) ( $p < 0.001$ ) and the difference was maintained during the first 72 hours. The  $Paw$  decreased significantly only after 12 hs ( $\bar{x}$   $Paw=7.4$ cm H<sub>2</sub>O  $DS=3.2$   $p=0.02$ ). Each patient received a mean of 2.1 doses. Sixteen Pret (40%) required only one dose, 16 (40%) received a second dose (age  $\bar{x}=8.7$ hs  $r=2.5-2.4$ ) and the remaining 8 (20%) three or four doses. From 17 Pret with birthweights  $< 1000$ gr., 10 died (58%), 7 from causes associated with the HMD. There were no deaths in the 23 Pret with birthweights  $> 1000$ gr. Seven patients (17.5%) had air leaks (4 pneumothorax and 4 interstitial emphysema). Three Pret developed bronchopulmonary dysplasia. Nat may be helpful in the treatment of the HMD in Pret.

20

ZINC SUPPLEMENTATION IN SCHOOL CHILDREN WITH SHORT STATURE. C. Castillo-Durán, H.B. García, P. Venegas, E. Pan-teón, I. Torrealba, N. Concha. Pediatric Dept., Sótero del Río Hospital and INTA, U. of Chile, Santiago, Chile.

There is a significant group of children in whom the causes of their short stature are unknown. To assess the potential role of zinc in the etiology of growth delay, we studied 26 boys and 20 girls, 6 to 12 years old, without signs of pubertal development. All had H/A percentile  $< 10$  (NCHS standards) and an unknown cause of its short stature. They were paired by sex and randomly assigned to a supplemented group (S), receiving zinc 10 mg/day, as sulfate, or to a placebo group (P) in a double blind study and were followed up for 1 year. Weight, stature, arm span and plasma zinc were assessed; dietary history was obtained at 0 and 6 month of study. On admission nutritional status was normal and intakes of energy, protein, vegetal fiber were comparable; zinc intake was 50-60% of normal recommendation for age. No differences were found in plasma zinc, weight increments, or arm span. Group S had a significant greater increase in stature than P ( $6.3 \pm 2.2$  vs  $4.3 \pm 0.9$  cm/year,  $p < 0.025$ ) among the males; no differences were observed among the females ( $4.5 \pm 1.2$  vs  $4.3 \pm 1.6$  cm/year). In Chilean school children with short stature of unknown cause, the nutritional deficit of zinc may be an important factor, which improve during oral zinc supplementation in males but not in females.

Partially funded by FONDECYT Grant 89-938.

21

CEREBRAL BLOOD FLOW VELOCITIES (CBFV), INTRAVENTRICULAR BLEEDING (IVH) AND SURFACTANT (SURF) ADMINISTRATION. R. Bustos, J. Golden, R. Bejar, T. Allen Merritt. University of California San Diego, Department of Pediatrics.

CBFV were studied in the internal carotid arteries through the anterior fontanelle with a pulsed Doppler in 23 infants (mean BW=1500  $\pm$  144g) before and after SURF. The time averaged Mean Flow (MFV), Mean Systolic (SFV) and Mean Diastolic (DFV) of the CBFV were calculated. End Diastolic (EDV) and Peak Systolic CBFV were also measured. CBFV, arterial blood pressures (BP), arterial blood gases, &  $FiO_2$  were measured approximately 10 min before and after a 10 min instillation of SURF. After SURF the infants as a group showed a drop in the EDV ( $p=0.04$ ) and a decrease in the pH and BE ( $p=0.04$ , both). However, MFV increased 20% after SURF in 11 infants and dropped 18% in 12. 3/12 developed reverse diastolic flow. Before SURF, the 12 infants who dropped the MFV had pH 7.29 and the 11 infants with an elevation of the MFV during SURF 7.34 ( $p=0.04$ ). The 11 infants who increased the MFV dropped the pH during SURF (7.34 vs 7.31;  $p=0.045$ ). Incidence of IVH was 30% (5gr I-II and 2gr III). Two infants enlarged previous IVH and 4 developed new IVH after SURF (mean time at diagnosis =  $44 \pm 8$  hrs after SURF). All these 6 infants were in the group who dropped the MFV during SURF. The risk of IVH was higher in the 12 infants who dropped the MFV during SURF than in the 11 infants who increased the MFV ( $p=0.02$ ). Before SURF, the 6 infants who bled had a lower pH ( $p=0.05$ ), a lower BW ( $p=0.05$ ) and required higher  $FiO_2$  ( $p=0.04$ ) than the 17 infants who did not bleed after SURF. However, during SURF these 6 infants had a higher % drop in BP and in all CBFV ( $p=0.01$ , both) than the 17 infants who did not bleed after SURF. SURF administration is associated with profound changes in CBFV depending upon preexisting clinical conditions. Infants who drop MFV shortly after SURF have a higher risk of developing IVH or increasing previous IVH within 48 hours.

22

QUALITY OF MORBIDITY AND DETERIORATION OF NUTRITIONAL STATUS IN HIGH RISK PATIENTS. S. Cruchet, M. Araya, J. Espinoza, M.E. Carvacho, O. Brunser. INTA, Universidad de Chile, Santiago, Chile.

Infants selected by means of a validated predictive model have 4 to 5 times more morbid episodes than unselected population. The results of the diagnostic evaluation performed on 41/108 (38%) infants surveyed for 6 months and whose nutritional status deteriorated despite measures undertaken by the health team, are presented. After three to six months each child was reevaluated clinically and by laboratory tests to characterize his/her pathology. In spite of repeated appointments and home visits, 14,6% children could not be evaluated because their mothers did not come to the Field Station. Of the 35/41 studied, one infant suffered from cow's milk protein intolerance and two from recidivant episodes of obstructive bronchitis. The remainder suffered from "trivial" pathologies which nevertheless were associated to unsatisfactory nutritional evolution. Approximately at 12 months of age the loss in weight gain stabilized and by 15 months, 19/35 (54,3%) showed progressive improvement. This coincides with the decrease in energy requirements with age.

Supported by DTI, project M-3017-9011.