

430

LONG-COURSE, BUT NOT SHORT-COURSE, DEXAMETHASONE TREATMENT IN ELBW INFANTS RESULTS IN HIGHER INTELLECTUAL IMPAIRMENT RATES AT PRESCHOOL AGE

M.D. Ahronovich^{1,2}, K. Erickson², I.S. Baron¹,
R. Baker^{1,2}, F.R. Litman^{1,2}

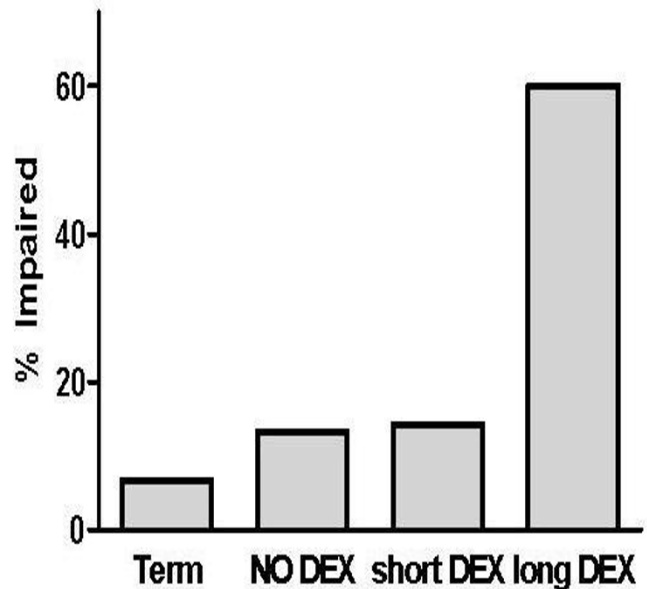
¹*Pediatrics, Inova Fairfax Hospital for Children,*

²*Neonatology, Fairfax Neonatal Associates at
Inova Fairfax Hospital for Children,
Falls Church, VA, USA*

Background and aims: Controversy exists regarding dexamethasone treatment in preterm infants with respiratory failure. We assessed the relationship between dexamethasone (DEX) exposure and length of treatment with intellectual outcome in extremely low birth weight newborns (< 1000 g; ELBW).

Design/methods: We studied 57 ELBW and 90 term-born children at age 3 (2004-2006 births). There were three groups of ELBW participants: NODEX (untreated; n=38); short-course DEX (1-16 days; n=14); and long-course DEX (17-42 days; n=5). DEX treatment was limited to use in infants with severe respiratory failure who were ≥ 21 days of age and ≥ 27 weeks corrected gestation. General intelligence (Differential Ability Scales-II General Conceptual Ability [GCA]) scores age adjusted for prematurity < 85 were coded as impaired. Chi-square test compared impairment rates.

Results: Impairment rates (IQ < 85) were: 6.7% for term-born; 13.2% for NODEX; 14.2% for short-course; and 60.0% for long-course (Chi-square=14.46, p=.002). Post-hoc comparisons indicate NODEX and short-course groups did not differ significantly while long-course resulted in significantly higher impairment rates compared to both NODEX (p=.01) and short-course groups (p=.002).



[Impairment rates and DEX treatment]

Conclusions: We found short-course dexamethasone treatment did not increase the risk of intellectual impairment in ELBW children at age 3. Concerns regarding developmental outcome may be warranted but should not preclude consideration of short-term dexamethasone treatment for severe respiratory failure in ELBW infants. However, treatment extended beyond 16 days significantly increased the risk of intellectual impairment.

431

PREDICTORS OF DECREASED FLUID TOLERANCE IN VLBW INFANTS

T. Vuohelainen^{1,2}, R. Ojala^{1,2}, A. Virtanen²,
T. Luukkaala³, M. Janas¹, P. Korhonen¹,
O. Tammela^{1,2}

¹*Department of Paediatrics, Tampere University Hospital,* ²*Paediatric Research Centre, University of Tampere,* ³*Science Center, Pirkanmaa Hospital District, Tampere, Finland*

Objective: The goal was to elucidate predictors of decreased fluid tolerance (DFT) in very low birth weight (VLBW) infants. We hypothesized that the fluid retention is linked to severity of pulmonary problems and prolonged respiratory support, especially to nCPAP treatment.

Methods: The investigation was carried out at Tampere University Hospital between years 2001 and 2006. The study population comprised 74 very low birth weight (VLBW) infants born at 29.21

(24.57-34.14) weeks of gestation. Median of birth weight was 1175 (575-1490) grams. We measured plasma and urine osmolality and 24 hour urine volume to calculate free water clearance (FWC) for each infant. If FWC was less than 30 ml/kg/day the infant was classified as having a DFT.

Results: There were 38 (51.4%) infants with an abnormal FWC (AFWC) in the study population. The median duration of observed DFT period was 14 (4-44) days. The gestational age at birth was lower for AFWC infants compared to infants with normal FWC (NFWC), 28.29 (24.57-32.86) vs. 30.00 (25.57-34.14) weeks ($p=0.001$). AFWC infants also needed longer ventilator treatment, 2 (0-23) vs. 0.50 (0-23) days ($p=0.046$), nCPAP treatment 30 (0-100) vs. 3 (0-41) days ($p<0.0001$) and longer oxygen supplementation 22 (0-74) vs. 47 (0-163) days ($p=0.011$) than NFWC infants.

Conclusions: Decreased fluid tolerance seems to be frequently connected with exacerbation and prolongation of pulmonary problems in VLBW infants. Fluid restriction might be a more beneficial treatment than diuretics in VLBW infants with prolonged respiratory problems and DFT.

432

EFFECT OF INFANTS' POSITION ON SERUM BILIRUBIN LEVEL DURING CONVENTIONAL PHOTOTHERAPY

M.L. Donneborg, K.B. Knudsen, F.O. Ebbesen
Paediatrics, Aalborg Hospital, Aarhus University Hospital, Aalborg, Denmark

Background: Alternating exposure of front and back of infants during phototherapy is widely practiced.

Aim: Compare rate of decline in total serum bilirubin concentration (TSB) during phototherapy in infants treated in supine position throughout versus infants alternating between supine and prone position every 3 h. Further, survey current practice in two Scandinavian countries.

Methods: 112 infants with gestational age above 32 weeks, healthy except for non-haemolytic hyperbilirubinaemia, were randomised to one of the treatment groups. TSB was measured at start-up and after 12 and 24 h of therapy. Transcutaneous bilirubin concentration (TcB) was measured mid-sternum in a subgroup of 10 infants including both groups. A questionnaire about routines for position changes during phototherapy was sent to all 41

neonatal departments in Denmark and Norway.

Results: No significant differences in decline of TSB were observed between the two treatment groups: After 12 h of therapy TSB had decreased 32% in both groups and after 24 h 49% and 50%, respectively. TcB decreased rapidly during the first 150 min of treatment and approached a plateau at 35% of the initial level. In two thirds of Danish and Norwegian departments infants were routinely turned during phototherapy, most often every 3rd h.

Conclusion: No difference in the decrease of TSB was observed whether the infants were turned during phototherapy or treated in supine position throughout. An explanation for this lack of effect of turning infants might be that photobilirubins are mainly produced in the intravascular space. Alternating exposure during phototherapy is widely practiced in Scandinavia.

433

MATERNAL CHORIOAMNIONITIS AND ITS IMPACT ON EARLY MORBIDITY OF VERY LOW BIRTH WEIGHT INFANTS

P. Huml¹, J. Dort¹, S. Hadravská², P. Stunová¹, J. Nahlovský¹

¹Neonatology, ²Pathology, University Hospital, Plzen, Czech Republic

Objective: To evaluate the impact of chorioamnionitis on early morbidity in very low birth weight infants (VLBW) in a retrospective study.

Methods: 245 VLBW were admitted at the Neonatology Department within the years 2007-2009. The placentas were examined histologically for the presence of acute chorioamnionitis in deliveries of 215 VLBW who were eligible for the study. The incidence of *bronchopulmonary dysplasia grade 2 (BPD2)*, *disorders of gastrointestinal tract* (necrotizing enterocolitis, malabsorption syndrome, ileus of prematurity) and brain injury (intraventricular haemorrhage grade III, periventricular leucomalacia, and posthaemorrhagic hydrocephalus) was compared statistically in subgroups with proven chorioamnionitis and without it.

Results: The group included 215 subjects in total, 110 (51,5%) male and 105 (48,8%) female, with mean birth weight 1069g (range 405-1490g), mean gestational age 28,5 weeks (range 23-36 wks). There were no significant differences in gestational