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COGNITIVE OUTCOME AT SCHOOL-AGE IN CHILDREN WITH POST-HAEMORRHAGIC HYDROCEPHALUS

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Objective: Preterm infants are at risk for intracranial haemorrhage with subsequent hydrocephalus. Post-haemorrhagic hydrocephalus is associated with poor outcome but little is know about the long-term outcome at school-age. Our aim was to determine the cognitive outcome in children with post-haemorrhagic hydrocephalus at school-age.

Methods: We included infants treated at the NICU in Groningen with post-haemorrhagic hydrocephalus, born between 1996 and 2003. We reviewed the medical charts for neonatal characteristics and interventional surgery. We determined intelligence (WISC-III-NL), attention (Test of Everyday Attention in Children), and verbal memory (Auditory Verbal Learning Test).

Results: We included 28 children (18 boys, 10 girls), median gestational age 29 weeks (range 25-40) and birth weight 1355 grams (880-3810). Seven children died in infancy. Eleven children of 21 survivors required surgical intervention. At follow-up (median age 11y, [6-14]), 2 children had severe cerebral palsy and were not able to perform cognitive testing. Median total IQ was 88 (59-110) with verbal IQ 88 (62-128) and performance IQ 88 (52-112). Attention scores were normal in 6 (>P15), subclinical (P5-P15) in 1, and abnormal (< P5) in 7 children. Verbal memory was normal in 13, subclinical in 2, and abnormal in 2 children. There was no difference in cognitive scores between children requiring intervention and not.

Conclusion: Children with post-haemorrhagic hydrocephalus have approximately 0.8 SD lower scores on IQ than the norm population. Attention was affected in more than half of the children, verbal memory seemed less affected. Surgical intervention for hydrocephalus was not associated with cognitive outcome.

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A CLINICAL PREDICTION MODEL FOR HISTOLOGICAL CHORIOAMNIONITIS AT BIRTH

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Background: Antenatal exposure to histological chorioamnionitis affects neonatal outcome. Early identification of affected infants could potentiate early intervention. However, in clinical practice the final results of placental pathology may take weeks.

Methods: Placental pathology and relevant clinical data were obtained from consecutively born singleton infants (gestational age < 32 wks) in the Erasmus MC. Prediction models for histological chorioamnionitis (HC) and for HC with fetal involvement (FI) were constructed using clinical variables known at birth, in a backward logistic regression model. ROC curves were computed using model-derived predictives.

Results: Of the 216 included infants 84 had HC, of whom 51 had FI. HC+FI was best predicted by a combination of low gestational age, clinical chorioamnionitis, PPROM, absence of preeclampsia and not being small for gestational age (Table 1; AUC(95%CI)=0.93(0.89-0.96), p< .001). HC was best predicted by the same model with addition of placental weight (Table 2; AUC(95%CI)=0.95(0.93-0.98); p< .001). At a set specificity of 90%, sensitivity of the model is 82% for HC+FI and 85% for HC.

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Factor	OR	95% CI	P-value
Gestational age (per wk increase)	0.69	0.54-0.88	.003
Clinical chorioamnionitis	3.85	1.53-9.70	.004
PPROM	5.13	2.00-13.2	.001
Preeclampsia	0.10	0.01-0.90	.04
SGA	0.18	0.03-1.02	.05
Constant	0.16	-	<.001

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Factor	OR	95% CI	P-value
Gestational age (per wk increase)	0.66	0.48-0.89	.006
Clinical chorioamnionitis	4.26	1.44-12.7	.009
PROM	2.89	1.03-8.11	.04
Preeclampsia	0.06	0.01-0.23	<.001
SGA	0.09	0.02-0.46	.004
Placental weight (per 100 g increase)	1.78	0.95-3.34	.07
Constant	0.98	-	.95

Tables 1+2. Clinical prediction model for histological chorioamnionitis with fetal involvement (1) or any histological chorioamnionitis (2) at birth.

[Tables]