less mature than those without chorioamnionitis (mean age at birth 27wks v 29wks, mean dif. –2.2, p<0.001). After adjustment for gestation chorioamnionitis was not associated with respiratory sequele.

Conclusion In our population of VLBW infants treated with antenatal corticosteroids histological chorioamnionitis is not associated with adverse respiratory status. The most significant predictor of respiratory progress is gestational age.

408 AEROSOLIZED SURFACTANT IMPROVES LUNG MECHANICS AND REDUCES LUNG INJURY IN PREMATURE LAMBS WITH RESPIRATORY DISTRESS SYNDROME

doi:10.1136/archdischild-2012-302724.0408

[1]C ReySantano, [1]VE Mielgo, [1]E Ruiz-del-Yerro, [2]L Andres, [3]A Vallsi-Soler, [1]X Murgia. *[1]Respiratory Physiology Research Unit; [2]Pathology, University Cruces Hospital; [3]Neonatal Intensive Care Unit, Cruces Hospital, Barakaldo, Spain*

Background Aerosolization of surfactant(SF) has emerged as feasible alternative to instillation for RDS.

Aim To determinate the effects of aerosolized SF on lung function and evaluate changes in the biochemistry and histology of premature lung.

Methods 21 preterm lambs (85%gestation) were randomly assigned to receive aerosolized SF (Curosurf ®, 200mg/kg-20min), delivered via an inhalation catheter (SF-Aero), bolus-SF (SF-Bolus) or Control groups maintained during 6hours in IMV. Lung mechanics [compliance(C_{dyn}) and tidal-volume(V_T)], antioxidant enzyme (catalase; superoxide-dismutase, SOD; gluthation-peroxidase, GSH-Px) activity, surfactant proteins (SP-B, SP-C) concentration and histological analysis were performed. Mean±SD, ANOVA, p<0.05. *vs. Control, #vs.SF-bolus group.

Results After 60min of treatment, animals in SF-Aero and SF-Bolus groups, significantly improved C_{dyn} and V_T in comparison to control group, being improvement persistent until the end of the experiment.

Abstract 408 Table 1 Biochemical lung analysis

	CONTROL	SF-BOLUS	SF-AERO
Catalase (U/ugDNA)	6±1	9±2*	8±5
SOD (U/ugDNA)	10±5	14±11	9±5
GSH-PX (U/ugDNA)	0.02±0.01	0.03±0.01	0.04±0.01
IL-8 (pg/mgproteine)	18.7±5.2	11.1±6.5	11.3±3.1*
SP-B (ng/mgproteine)	3.0±0.6	3.7±0.9	3.4±0.6
SP-C (ng/mgproteine)	10.4±4.1	12.7±4.8	15.9±4.2*

Conclusion Surfactant delivered as an aerosol produce a similar response in terms of pulmonary mechanics to bolus instillation, and result in less lung damage.

409 PREDICTIVE VALUE OF THE BAYLEY SCALES OF INFANT DEVELOPMENT ON DEVELOPMENT OF VERY PRETERM/ VERY LOW BIRTH WEIGHT CHILDREN: A META-ANALYSIS

doi:10.1136/archdischild-2012-302724.0409

[1]ES Luttikhuizen dos Santos, [2]JF de Kieviet, [2]M Königs, [1,3]RM van Elburg, [2]J Oosterlaan. *[1]Paediatrics, VU University Medical Center; [2]Clinical Neuropsychology, VU University, Amsterdam; [3]Danone Research Centre for Specialized Nutrition, Wageningen, The Netherlands*

Background and Aims The Bayley Scales of Infant Development (BSID) is the most widely used measure to assess neurodevelopment of very preterm (gestational age ≤32 weeks) and very low birth weight (VLBW, ≤1500grams) infants in the first three years of life. This meta-analysis determines the predictive value of the mental subscale (MDI) and motor subscale (PDI) of the BSID for later (≥36 months) motor and cognitive development in very preterm/ VLBW children.

Methods PubMed, PsychINFO and CINAHL were searched for English-language peer-reviewed studies published before April 2012. Studies were included if they reported odds ratios or correlations between the MDI/PDI scores obtained in the first three years of life, and standardized intelligence or motor assessment in childhood (≥36 months of age). Meta-analytic methods were applied to aggregate available data.

Results A total of 16 studies met inclusion criteria. Across 15 studies encompassing 1335 very preterm/VLBW children, MDI scores were strongly predictive for later cognitive development, r=0.61 (95%CI: 0.57–0.64), p<0.001. The relationship between MDI scores and later cognitive development was not mediated by birth weight (p=0.56), gestational age (p=.70), and time interval between assessments (p=0.55). Across four studies including 465 very preterm/ VLBW children, PDI scores were moderately predictive for later motor function, r=0.32 (95%CI: 0.22–0.40), p<0.001.

Conclusions In very preterm/VBLW children, MDI scores explain 37% of the variance in later cognitive functioning, whereas PDI scores explain 10% of later motor development. Thus a large proportion of the variance remains unexplained, underlining the importance of enhancing prediction of developmental outcomes.

410 PERINATAL INFECTION AND NEURODEVELOPMENTAL OUTCOME IN VERY PRETERM AND VERY LOW BIRTHWEIGHT INFANTS: A META-ANALYSIS

doi:10.1136/archdischild-2012-302724.0410

[1]EOG van Vliet, [2]JF de Kieviet, [2]J Oosterlaan, [1,3]RM van Elburg. *[1]Neonatology, VU University Medical Center; [2]Clinical Neuropsychology, VU University Amsterdam, Amsterdam; [3]Danone Research Center for Specialised Nutrition, Wageningen, The Netherlands*

Backgrounds Very preterm birth and very low birth weight (VLBW) is associated with adverse neurodevelopmental outcome. Many very preterm/VLBW infants develop perinatal infections. This quantitative meta-analysis summarizes studies evaluating the effect of perinatal infections on neurodevelopmental outcome in this population.

Methods We searched Medline, PsychInfo, EMBASE and Web of Knowledge for studies on infections and neurodevelopmental outcome measured with Bayley Scales of Infant Development 2nd edition (BSID-II) scores in very preterm/VLBW infants. Two authors independently reviewed, rated and abstracted data from each article.

Abstract 408 Table 2 Lung injury score

	Atelectasis	Necrosis	Edema	Alveolar inflammation	Insterstitial inflammation	Alveolar hemorrhage	Interstitial hemorrhage	TOTAL
Control	1.7(1–3)	0	0	1.73(0–3)	1.14(0–2)	0.77(0–2)	0.95(0–1)	6.25(4–9)
SF-BOLUS	1.0(0–3)*	0	0	1.19(0–3)	1.06(0–2)	1.63(0–3)*	1.13(0–2)	5.93(2–11)
SF-AERO	0.67(0–2)*	0	0	0.62(0–2)*#	0.75(0–2)*	1.04(0–2)#	1.0(0–2)	4.0(1–7)*#