Conclusion In selected families, IHBW reduces hospital stay in managing NAS, without increasing morphine dose. Concerns regarding infant welfare limit the number of infants suitable for this management pathway.

1054 NEONATAL ABSTINENCE SYNDROME: HAS THE ONSET OF SYMPTOMS CHANGED IN THE LAST DECADE?

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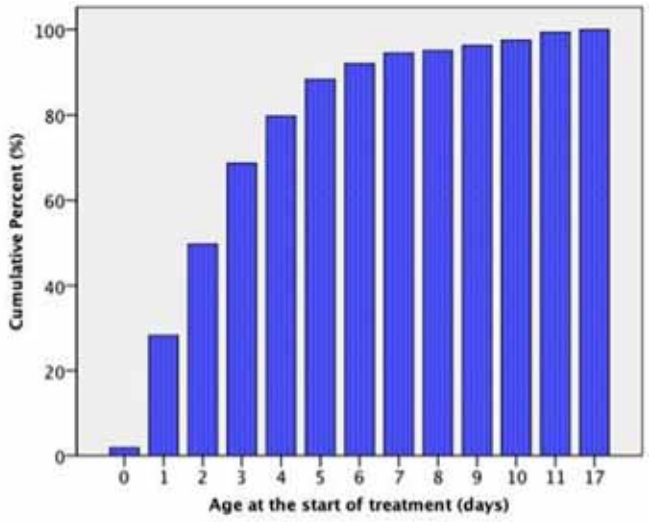
[1]C Smirk, [1]E Bowman, [1,2]LW Doyle, [1]COF Kamlin. *[1]Royal Women's Hospital, Parkville; [2]Department of Obstetrics, University of Melbourne, Melbourne, VIC, Australia*

Background and Aims Neonatal abstinence syndrome (NAS) often presents in the first 72 hours of life. Observation of at-risk infants is important to ensure prompt treatment if necessary. In 1998 at this hospital, 90% of infants requiring treatment for NAS commenced in the first week after birth. We aimed to describe the commencement of treatment for infants with NAS in the last decade.

Methods We undertook a retrospective review of babies treated pharmacologically for NAS during 2001–2010 at The Royal Women's Hospital, Melbourne. Our guidelines recommend 7 days postnatal observation for infants at risk of NAS. Infants were admitted to the neonatal unit if they were felt to require treatment or had other neonatal complications.

Results 163 infants were treated for NAS; 85% and 8% of the mothers were hepatitis C and B positive respectively. In-utero substance exposure included opioids (97%), cannabis (29%) and benzodiazepines (25%). Over 90% of infants were treated by day 7 of life, most of whom had been admitted by day 5 (Figure). There were no differences in the age of treatment if the infant was exposed to opioids alone or multiple classes of drugs in utero.



Abstract 1054 Figure 1 Infants treated for NAS by day of life

Conclusion In the last decade, the timing of first medication for NAS is unchanged. Infants of chemically dependent mothers require a minimum of 7 days of in-patient observation.

1055 NEUROIMAGING PROGNOSTIC CATEGORIZATION IN NEWBORNS WITH SYMPTOMATIC CONGENITAL CYTOMEGALOVIRUS INFECTION (SCCI)

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[1]A Alarcón, [2]M Martínez-Biarge, [2]F Cabañas, [2]J Quero, [1]A García-Alix. *[1]Neonatology, Hospital Sant Joan de Déu, Universitat de Barcelona, Esplugues de Llobregat; [2]Neonatology, Hospital Universitario La Paz, Madrid, Spain*

Background and Aims In SCCI, Noyola's neuroimaging prognostic categorization is restricted to destructive abnormalities.

Objective To ascertain the predictive ability of a classification including destructive, developmental abnormalities and white matter signal changes on MRI.

Methods Population: Patients with SCCI born between 1993–2009. Setting: La Paz Tertiary University Hospital.

Design Prospective observational. Neuroimaging (US, CT and/or MRI) findings were graded by Noyola's and our scoring system (Table).

Abstract 1055 Table 1 Classification of neuroimaging

Score	Noyola's scoring system	New scoring system
0	No abnormalities	No abnormalities
1	Single punctate calcification and/or lenticulostriate vasculopathy	Same as Noyola and/or focal white matter signal abnormality on MRI
2	Multiple discrete calcifications and/or moderate-severe ventriculomegaly	Same as Noyola and/or diffuse white matter signal abnormality on MRI
3	Extensive calcifications and/or brain atrophy	Same as Noyola, neuronal migration disorder, corpus callosum dysgenesis and/or cerebellar hypoplasia

Blinded follow-up assessment included: neurologic examination, cerebral palsy scoring (GMFCS), cognitive evaluation (BSID-III, WPPSI-III or WISC-IV), behavioral assessment (CBCL) and evaluation of seizures, hearing or visual loss.

Results Twenty-six patients were included, 3 of which died. Mean age at follow-up was 8.7±5.3y (19m–18.0y), and 15(65%) surviving patients had moderate-severe disabilities. Our neuroimaging classification showed higher predictive ability than Noyola's (AUC 0.94±0.04 vs 0.89±0.06, Table).

Abstract 1055 Table 2 Predictive values for adverse outcome, scores 2–3

Scoring system	Sensitivity	Specificity	PPV	NPV
Noyola's	61%	100%	100%	53%
Present	83%	100%	100%	72%

Conclusions In SCCI, a comprehensive neuroimaging analysis including destructive and developmental abnormalities is highly predictive of neurodevelopmental outcome.

1056 MEGA CISTERNA MAGNA DIAGNOSTIC DILEMMA

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[1]M Yar, [2]R Syed, [1]MM Abou Al-Seoud. *[1]Neonatal Division, Paediatric Department; [2]Paediatric Neurology Division, Paediatric Department, King Fahad Armed Forces Hospital, Jeddah, Saudi Arabia*

Background and Aim The prenatal diagnosis of posterior fossa dysgenesis remains challenging.

Mega-cisterna magna (MCM) is applied to prominence of the retro-cerebellar CSF space and may not be associated with abnormalities. The clinical significance of this finding varies. Diagnostic modalities of the MCM are by ultrasound and or MRI.

Our aim is to:

- Determine the Incidance of isolated dilated MCM in our population.
- Compare the accuracy of fetal ultrasound with postnatal neuroimaging.
- Report the associated central nervous system anomalies.

Method We identified retrospectively all reported cases of isolated dilated cisterna magna from 1/January 2007 till 31/7/2011.

All medical records and imaging studies were reviewed.

Results Number of Deliveries over the 5-year study period was 25443 of which 4100 (16%) were un-booked. Dilated cistern magna was diagnosed in 26 (0.12%) fetal scans (15 male and 11 females). Post natal scans were done in 20/26 (77%) and not done in 6/26 (23%) of cases.

Of the 20 post natal scans done 12 (60%) were normal and 8 (40%) were abnormal. The following abnormalities were detected: 4 (50%) dandy walker complex, 2 (25%) corpus collasum dysgenesis and 2 (25%) cerebellar hypoplasia. Neuro-developmental assessment was reported as normal in 60% of the isolated mega cistern magna patients.

Conclusion The association of mega cisterna magna with major CNS anomalies is high in our population. Post natal neuroimaging confirmation of all abnormal fetal sonography is required. Long term neurocognative assessment and follow up is essential for this population.

1057 SPECTRUM OF CRANIAL ULTRASOUND FINDINGS IN NEWBORNS UNDER 26 WEEKS GESTATION OVER 10 YEAR PERIOD IN A TERTIARY NEONATAL UNIT

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[1]J Kapur, [2]G Cattell, [1]SV Rasiah. *[1]Department of Neonatology; [2]Department of Radiology, Birmingham Women's NHS Foundation Trust, Birmingham, UK*

Background and Aims Cranial ultrasonography is an integral part of routine neonatal screening in extreme preterm neonates. To audit the spectrum of cranial ultrasound scan findings in preterms less than 26+0 weeks gestation.

Methods We reviewed all cranial ultrasound findings performed in babies less than 26+0 weeks gestation between 1999–2008. Demographic data was collected using a proforma. Information regarding cranial ultrasound scans on day 1–4, day 7 and day 28 of life for live born babies admitted to the neonatal unit was collected.

Results The results are tabulated in the tables attached. Table 1 shows the demographic details and table 2 shows the spectrum of cranial ultrasound findings.

Abstract 1057 Table 1 Demographic details

Gestation (weeks)	Number of babies	Median birth weight(grams)	Apgar at 1 minute(median)	Apgar at 5 minutes(median)
23 – 23+6	11	630	3	7
24 – 24+6	50	660	4	8
25 – 25+6	69	734	5	8

Conclusion Extremely preterm babies (23 and 24 weeks gestation) had a higher incidence of abnormal cranial ultrasound scans compared to those over 25+0 weeks gestation. This is associated with a high risk of morbidity and mortality. This information is important when counselling parents and for prognosticating outcomes.

1058 NEW SEGMENTATION METHOD SHOWS EFFECTS OF PREMATURITY ON CEREBRAL TISSUE VOLUMES AT TERM

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[1]L Gui, [2]F Lazeyras, [3]A Truttmann, [1]C Borradori Tolsa, [1]PS Hüppi. *[1]Pediatrics, Children's Hospital Geneva; [2]Radiology, Geneva University Hospital, Geneva; [3]Pediatrics, Children's Hospital Lausanne, Lausanne, Switzerland*

Background and Aim Longitudinal studies show that premature birth increases infants' risk for mental and motor development deficits. Our aim was to investigate the influence of prematurity on cerebral tissue volumes at term obtained with a novel fully automatic segmentation method.

Methods 62 preterm infants (GA 27.7±1.3wks) and 15 term-born infants (GA 40±1.1wks) were scanned at term-equivalent age (GA 40.5±1.5wks). T1 and T2 MR images were segmented with a novel atlas-free automatic method based on morphological constraints. Each brain was separated into the two hemispheres, cortical and subcortical gray matter, myelinated and unmyelinated white matter, brainstem, cerebellum and CSF.

Results Linear regression models were fitted to study the dependency of tissue volumes on GA at birth, GA at scan and intracranial volume. Models show significant dependence on GA at birth for cortical gray matter (Beta=0.270, P=0.000, R^2=0.818), unmyelinated white matter (Beta=0.196, P=0.03, R^2=0.575), cerebellum (Beta=0.348, P=0.000, R^2=0.648) and CSF (Beta= –0.329, P=0.000, R^2=0.708).

Wilcoxon Signed Ranks tests showed significantly larger unmyelinated white matter volumes in the right hemisphere compared to the left hemisphere (Z= –4.826, P=0.000), and significantly larger total volumes of the right hemisphere compared to the left hemisphere (Z= –3.486, P=0.000).

Conclusions Reliable volume assessments were derived from the new automatic segmentation. CSF volumes at term increased with lower GA at birth, while cortical gray matter, unmyelinated white matter and cerebellum volumes at term increased with GA at birth, suggesting impaired growth of these tissues associated with prematurity. Cerebral asymmetry was present at term for both preterm and term infants.

1059 MYELIN IS DIFFERENTIALLY ASSOCIATED WITH RESTING STATE FUNCTIONAL CONNECTIVITY IN ADULTS WHO WERE BORN VERY PRETERM AND CONTROLS

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[1]S Froudist Walsh, [2]SH Kolind, [1]KW Nam, [1]M Walshe, [2]J O'Muircheartaigh, [2]S Deoni, [2]SC Williams, [1]RM Murray, [1]MP Allin, [1]C Nosarti. *[1]Department of Psychosis Studies; [2]Centre for Neuroimaging Sciences, Institute of Psychiatry, King's College London, London, UK*

Background and Aims Diffuse white matter injury is the most common form of brain injury following very preterm (VPT) birth. This may reflect altered myelination, which could affect both neurodevelopment and neuronal communication. We investigated whether myelin in the corpus callosum (CC) was associated with functional connectivity; and if these associations differed between young adults born VPT and controls.

Methods 9 VPT-born adults and 13 controls (age 26–28 years) underwent resting state functional MRI (rs-fMRI), diffusion MRI and mcDESPOT, a novel neuroimaging method which provides an *in vivo* estimate of myelin water fraction (MWF). MWF was calculated along the CC. The default mode network (DMN), which

Abstract 1057 Table 2 Spectrum of cranial ultrasound findings

Gestation	Day 1–4 Normal	Day 1–4 Abnormal	No results available/died	Day 7 Normal	Day 7 Abnormal	No results available/died	Day 28 Normal	Day 28 Abnormal	No results available/ lost to follow up/died
23 – 23+6	6	5(45%)	0	4	7(63%)	0	3	7(63%)	1
24 – 24+6	24	19(38%)	7	13	23(46%)	14	15	14(28%)	23
25 – 25+6	44	17(24.6%)	8	39	18(26%)	12	28	12(17.3%)	29