

Monday 28 March 2011

This free weekly bulletin lists the latest research on cerebral palsy (CP), as indexed in the NCBI, PubMed (Medline) and Entrez (GenBank) databases. These articles were identified by a search using the key term "cerebral palsy".

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Interventions

1. *Dev Med Child Neurol.* 2011 Mar 24. doi: 10.1111/j.1469-8749.2011.03953.x. [Epub ahead of print]

Upper limb function and deformity in cerebral palsy: a review of classification systems.

McConnell K, Johnston L, Kerr C.

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Aim: To review classification systems for the upper limb in children with cerebral palsy (CP), and evaluate their validity, reliability, and clinical utility to make recommendations for clinical practice and future research. **Method:** We comprehensively searched electronic databases to identify upper limb classification tools and associated evidence of psychometric testing. Two independent reviewers assessed the quality of the psychometric studies, and rated the clinical utility of each system using previously published tools. **Results:** Eighteen classification systems were eligible for inclusion, with two primary functions: classification of function or deformity. Published evidence of psychometric testing was available for fewer than half of the identified systems. Reliability studies were frequently limited by sample size, rater blinding, representativeness, and the number of observers. The Manual Ability Classification System (MACS) demonstrated content validity and interrater reliability. The original and modified House functional, House thumb, swan-neck, and Zancolli systems had evidence of reliability; the modified House functional system also demonstrated criterion-related validity. **Interpretation:** This review supports the use of the MACS and modified House functional system to classify upper limb function in children with CP. Similarly, the House thumb and Zancolli systems are recommended to classify thumb, and hand and wrist deformity respectively.

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PMID: 21434888 [PubMed - as supplied by publisher]

2. *Neurorehabil Neural Repair.* 2011 Mar 22. [Epub ahead of print]

Equivalent Retention of Gains at 1 Year After Training With Constraint-Induced or Bimanual Therapy in Children With Unilateral Cerebral Palsy.

Sakzewski L, Ziviani J, Abbott DF, Macdonell RA, Jackson GD, Boyd RN.

OBJECTIVES: To determine retention of treatment outcomes at 52 weeks following a matched-pairs randomized comparison trial of constraint-induced movement therapy (CIMT) and bimanual training (BIM). **METHODS:** Sixty-four children (mean age = 10.2 ± 2.7 years, 52% male) were included. The Melbourne Assessment of Unilateral Upper Limb Function (MUUL), Assisting Hand Assessment (AHA), and Canadian Occupational Performance Measure (COPM) were the primary outcome measures. Evaluations were at baseline and at 26 and 52 weeks. **RESULTS:** There were no baseline differences between groups on any measure. No significant differences were found between groups on primary outcomes at 52 weeks. Both groups retained the significant gains made from

baseline to 26 weeks at the 1-year follow-up assessment for unimanual capacity on the MUUL, for bimanual performance on the AHA, and on the COPM. **CONCLUSION:** . Intensive unimanual and bimanual training can both lead to long-term significant improvements in unimanual capacity, bimanual performance, and individualized outcomes. Gains established at 26 weeks were maintained at 12 months postintervention despite most children receiving no direct therapy during that time.

PMID: 21427273 [PubMed - as supplied by publisher]

3. Res Dev Disabil. 2011 Mar 21. [Epub ahead of print]

Effects of home-based constraint-induced therapy versus dose-matched control intervention on functional outcomes and caregiver well-being in children with cerebral palsy.

Lin KC, Wang TN, Wu CY, Chen CL, Chang KC, Lin YC, Chen YJ.

School of Occupational Therapy, College of Medicine, National Taiwan University, Taipei, Taiwan; Division of Occupational Therapy, Department of Physical Medicine and Rehabilitation, National Taiwan University Hospital, Taipei, Taiwan.

This study compared home-based constraint-induced therapy (CIT) with a dose-matched home-based control intervention for children with cerebral palsy (CP). The differences in unilateral and bilateral motor performance, daily functions, and quality of parental well-being (i.e., the stress level of their parents) were evaluated. The study included 21 children with CP (age range, 48-119 months) who were randomly assigned to the CIT or control group. All participants received individualized home-based interventions, 3.5-4h a day, twice a week for 4weeks. Primary outcomes were measured by the Peabody Developmental Motor Scales II (PDMS-2) and the Bruininks-Oseretsky Test of Motor Proficiency (BOTMP) is the whole name of the assessment. All first letters of this instrument title should be in upper case. Secondary outcome measures were the Pediatric Motor Activity Log (PMAL), the Caregiver Functional Use Survey (CFUS), and the Parenting Stress Index-Short Form (PSI). Outcome measures were performed at baseline (pretreatment), 4weeks (post treatment), and 6-month (follow-up). Compared with the control group, the CIT group exhibited significantly better performance in grasping control as measured by the PDMS-2, unilateral/bilateral motor efficacy as measured by the BOTMP, and unilateral hand function as measured by the PMAL immediately after the treatment. At the 6-month follow-up, CIT had beneficial effects on grasping control assessed by PDMS-2 and on unilateral/bilateral functional performance measured by the PMAL and CFUS. Parents in both groups reported comparable stress levels at the 6-month follow-up, although the parent-child dysfunctional interaction deteriorated more immediately after CIT than after the control intervention. The follow-up of this randomized controlled trial suggested beneficial effects of home-based CIT on unilateral grasping skills and unilateral/bilateral functional performance at 6 months. The higher stress level reported by the parents in the CIT group than in the control group at posttreatment is temporary and could be alleviated at a longer period of time. Home-based CIT is a feasible and effective alternative to the intervention administered at clinics.

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PMID: 21429706 [PubMed - as supplied by publisher]

4. Clin Rehabil. 2011 Mar 22. [Epub ahead of print]

Efficacy of gait trainer as an adjunct to traditional physical therapy on walking performance in hemiparetic cerebral palsied children: a randomized controlled trial.

Gharib NM, Abd El-Maksoud GM, Rezk-Allah SS.

Department of Physical Therapy for Neuromuscular Disorders and its Surgery, Faculty of Physical Therapy, Cairo University, Giza, Egypt.

Objective: To assess the effects of additional gait trainer assisted walking exercises on walking performance in children with hemiparetic cerebral palsy. **Design:** A randomized controlled study. **Setting:** Paediatric physical therapy outpatient clinic. **Subjects:** Thirty spastic hemiparetic cerebral palsied children of both sexes (10-13 years - 19 girls and 11 boys). **Methods:** Children were randomly assigned into two equal groups; experimental and control groups.

Participants in both groups received a traditional physical therapy exercise programme. Those in the experimental group received additional gait trainer based walking exercises which aimed to improve walking performance. Treatment was provided three times per week for three successive months. Main measures: Children received baseline and post-treatment assessments using Biodex Gait Trainer 2 assessment device to evaluate gait parameters including: average step length, walking speed, time on each foot (% of gait cycle) and ambulation index. Results: Children in the experimental group showed a significant improvement as compared with those in the control group. The ambulation index was 75.53 ± 7.36 (11.93 ± 2.89 change score) for the experimental group and 66.06 ± 5.48 (2.13 ± 4.43 change score) for the control group ($t = 3.99$ and $P = 0.0001$). Time of support for the affected side was 42.4 ± 3.37 (7 ± 2.20 change score) for the experimental group and 38.06 ± 4.63 (3.33 ± 6.25 change score) for the control group ($t = 2.92$ and $P = 0.007$). Also, there was a significant improvement in step length and walking speed in both groups. Conclusion: Gait trainer combined with traditional physiotherapy increase the chance of improving gait performance in children with spastic hemiparetic cerebral palsy.

PMID: 21427153 [PubMed - as supplied by publisher]

5. Gait Posture. 2011 Mar 18. [Epub ahead of print]

Video analysis software increases the interrater reliability of video gait assessments in children with cerebral palsy.

Borel S, Schneider P, Newman CJ.

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The aim of this study was to determine the effect of using video analysis software on the interrater reliability of visual assessments of gait videos in children with cerebral palsy. Two clinicians viewed the same random selection of 20 sagittal and frontal video recordings of 12 children with cerebral palsy routinely acquired during outpatient rehabilitation clinics. Both observers rated these videos in a random sequence for each lower limb using the Observational Gait Scale, once with standard video software and another with video analysis software (Dartfish®) which can perform angle and timing measurements. The video analysis software improved interrater agreement, measured by weighted Cohen's kappas, for the total score (κ 0.778→0.809) and all of the items that required angle and/or timing measurements (knee position mid-stance κ 0.344→0.591; hindfoot position mid-stance κ 0.160→0.346; foot contact mid-stance κ 0.700→0.854; timing of heel rise κ 0.769→0.835). The use of video analysis software is an efficient approach to improve the reliability of visual video assessments.

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6. Dev Med Child Neurol. 2011 Mar 21. doi: 10.1111/j.1469-8749.2010.03910.x. [Epub ahead of print]

Measurement of habitual physical activity performance in adolescents with cerebral palsy: a systematic review.

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Aim: This systematic review compares the validity, reliability, and clinical use of habitual physical activity (HPA) performance measures in adolescents with cerebral palsy (CP). Method: Measures of HPA across Gross Motor Function Classification System (GMFCS) levels I-V for adolescents (10-18y) with CP were included if at least 60% of items reported HPA performance in the domains of intensity, frequency, duration, and mode. Results: Seven measures of HPA performance met the criteria: StepWatch, pedometers, Uptimer, heart rate flex method, accelerometers, and self-report measures including the Children's Activity Participation and Enjoyment (CAPE) scale and the Physical Activity Questionnaire for Adolescents. The CAPE scale had the strongest validity and reliability but was

limited by its inability to measure activity intensity. No study was identified that evaluated the psychometric properties of physical activity measures in non-ambulant adolescents with CP (GMFCS levels IV and V). Interpretation: When deciding on an appropriate measure of HPA in adolescents with CP, clinicians need to consider their research question including the domains of HPA they are evaluating and the population they wish to assess. Accelerometers provide the most robust information about the patterns of HPA, with some evidence of validity but limited data on reliability. Further research is needed to compare the use of tri- and uniaxial accelerometers.

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7. Dev Med Child Neurol. 2011 Mar;53(3):200-1. doi: 10.1111/j.1469-8749.2010.03894.x.

Physiotherapy in high-risk infants--a motor learning facilitator or not?

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Research Department, The Social Insurance Institution, Helsinki, Finland.

Comment on:

Dev Med Child Neurol. 2011 Mar;53(3):e8-15.

PMID: 21291463 [PubMed - indexed for MEDLINE]

8. J Contin Educ Health Prof. 2011 Dec;31(1):28-33. doi: 10.1002/chp.20098.

Knowledge brokering in children's rehabilitation organizations: Perspectives from administrators.

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INTRODUCTION: Administrators must balance the demands of delivering therapy services with the need to provide staff with educational opportunities promoting evidence-based practice. Increasingly, the use of multifaceted, interactive knowledge translation strategies, such as knowledge brokering, is suggested as an effective way to encourage clinician behavior changes and implement new knowledge. The purpose of this qualitative study is to describe administrators' perceptions of the successes and challenges in using a knowledge broker (KB) to promote the use of evidence-based measures of motor function for children with cerebral palsy. **METHODS:** Administrators from 27 pediatric facilities completed a semi-structured telephone interview following 6 months of knowledge brokering within their organizations. Using thematic analysis, interview transcripts were reviewed to identify common themes. **RESULTS:** Six interview themes were identified: "Efficient and Effective," "Stimulating Peer-to-Peer Learning Environment," "Committed and Respected Knowledge Brokers," "Sharing Beyond," "Organizational Beliefs and Values," and "The Dilemma of Moving Forward". Administrators were positive about the KB experience, acknowledging its efficiency and effectiveness. They commented on the stimulating peer-to-peer and interdisciplinary learning environment that the KB process encouraged. Administrators referred to their organizational beliefs and values when discussing their need to make priorities for limited resources, which influenced their decisions about whether to continue with a KB after the study was completed. **DISCUSSION:** Although administrators were philosophically supportive of knowledge brokering, they identified funding and resource constraints and the absence of evidence of the effectiveness of knowledge brokering as major barriers to the continuation of a KB role in their facility.

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9. J Intellect Disabil Res. 2011 Mar 25. doi: 10.1111/j.1365-2788.2011.01409.x. [Epub ahead of print]**Development of non-verbal intellectual capacity in school-age children with cerebral palsy.**

Smits DW, Ketelaar M, Gorter JW, van Schie PE, Becher JG, Lindeman E, Jongmans MJ.

Centre of Excellence for Rehabilitation Medicine Utrecht, Rehabilitation Centre De Hoogstraat, Utrecht, The Netherlands Department of Rehabilitation, Nursing Science and Sports, Rudolf Magnus Institute of Neuroscience, University Medical Centre Utrecht, The Netherlands NetChild Network for Childhood Disability Research in The Netherlands, Utrecht, The Netherlands CanChild Centre for Childhood Disability Research, McMaster University, Hamilton, Canada Department of Rehabilitation Medicine, VU University Medical Center, Amsterdam, The Netherlands EMGO Institute for Health and Care Research, VU University Medical Center, Amsterdam, The Netherlands Department of Special Education, Utrecht University, Utrecht, The Netherlands Department of Paediatric Psychology, Wilhelmina Children's Hospital, University Medical Centre Utrecht, The Netherlands.

Background: Children with cerebral palsy (CP) are at greater risk for a limited intellectual development than typically developing children. Little information is available which children with CP are most at risk. This study aimed to describe the development of non-verbal intellectual capacity of school-age children with CP and to examine the association between the development of non-verbal intellectual capacity and the severity of CP. **Methods:** A longitudinal analysis in a cohort study was performed with a clinic-based sample of children with CP. Forty-two children were assessed at 5, 6 and 7 years of age, and 49 children were assessed at 7, 8 and 9 years of age. Non-verbal intellectual capacity was assessed by Raven's Coloured Progressive Matrices (RCPM). Severity of CP was classified by the Gross Motor Function Classification System, type of motor impairment and limb distribution. **Results:** manova for repeated measurements was used to analyse time effects and time \times group effects on both RCPM raw scores and RCPM intelligence quotient scores. Results: The development of non-verbal intellectual capacity was characterised by a statistically significant increase in RCPM raw scores but no significant change in RCPM intelligence quotient scores. The development of RCPM raw scores was significantly associated with the severity of CP. Children with higher levels of gross motor functioning and children with spastic CP showed greater increase in raw scores than children with lower levels of gross motor functioning and children with dyskinetic CP. **Conclusions:** Children with CP aged between 5 and 9 years show different developmental trajectories for non-verbal intellectual capacity, which are associated with the severity of CP. The development of non-verbal intellectual capacity in children with less severe CP seems to resemble that of typically developing children, while children with more severe CP show a limited intellectual development compared to typically developing children.

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PMID: 21435067 [PubMed - as supplied by publisher]

10. Child Care Health Dev. 2011 Mar 24. doi: 10.1111/j.1365-2214.2011.01222.x. [Epub ahead of print]**Social participation of youths with cerebral palsy differed based on their self-perceived competence as a friend.**

Kang LJ, Palisano RJ, King GA, Chiarello LA, Orlin MN, Polansky M.

Department of Physical Therapy and Rehabilitation Sciences, Drexel University Shriners Hospitals for Children Department of Epidemiology and Biostatistics, Drexel University, Philadelphia, PA, USA, and Bloorview Research Institute, Toronto, ON, Canada.

Background: Social participation with friends fosters development of meaningful relationships, life skills and psychosocial well-being. Youths with cerebral palsy (CP) face challenges to establishing social relationships with friends. The aim of this study was to explore whether social participation with friends differs among youths with CP based on their self-perceived competence as a friend. **Methods:** A total of 135 youths with CP, 13-21 years old (mean age 16 years, 50% were male), completed the measures Fulfillment in Social Roles and Children's Assessment of Participation and Enjoyment. Youths were assigned to high, middle and low groups defined by their self-perceived competence as a friend. Differences among the three groups in the number, total frequency and enjoyment of activities done with friends was examined by Kruskal-Wallis one-way analyses of variance. Post hoc analysis of significant effects was performed using a Mann-Whitney U-test or Kolmogorov-Smirnov test. **Results:** The number ($\chi^2 = 17.07$, d.f. = 2, $P < 0.001$) and total frequency ($\chi^2 = 18.35$, d.f. = 2, $P < 0.001$) of activities done with friends

differed based on youths' self-perceived competence as a friend. Youths with high self-perceived competence as a friend did the greatest number of activities and participated most often with friends. Youths with low self-perceived competence did the fewest activities and participated least often with friends. No differences were found in the enjoyment of activities done with friends among the three groups ($\chi(2) = 1.86$, d.f. = 2, $P > 0.05$). Conclusions: For youths with CP, the number and frequency of activities done with friends differed based on self-perceived competence as a friend, but not enjoyment of activities. The results suggest a positive link between social participation and self-perceived competence. Healthcare providers have a role to support youths' efforts to engage with friends by enhancing community opportunities, developing and providing interventions in natural social environments and incorporating peer support into service delivery.

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PMID: 21434964 [PubMed - as supplied by publisher]

11. Chest. 2011 Mar 24. [Epub ahead of print]

Oropharyngeal Aspiration and Silent Aspiration in Children.

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BACKGROUND: Limited information exists about the nature of, and factors associated with oropharyngeal aspiration (OPA) and silent aspiration (SA) in children. A prospective study was undertaken to determine factors associated with fluoroscopically identified OPA and SA. **METHODS:** Three hundred children presenting with feeding difficulties underwent a videofluoroscopic swallow study (VFSS) for evaluation of swallowing. Swallowing performance on each food and fluid consistency was rated using the Penetration-Aspiration Scale and children were classified into groups including OPA, SA, overt-aspiration (OA) and no-aspiration (NA). **RESULTS:** OPA occurred in 34% of children; of these 81% had SA. SA was significantly associated with neurological impairment (OR 4.65; 95%CI 2.26, 9.54), developmental delay (OR 4.62; 95%CI 2.28, 9.35), aspiration lung disease (OR 3.22; 95%CI 1.29, 8.05) and having enteral feeding (OR 2.03; 95%CI 1.04, 3.62). Similar results were found for OPA. Children with SA were more likely to have neurological disease (OR 4.1; 95%CI 1.1, 15.8) than those with OA. Age or gender differences, gastroesophageal reflux disease, recurrent respiratory tract infections and asthma were no more likely to occur in children with OPA, SA or OA. **CONCLUSIONS:** SA is very common in children with feeding difficulties and most likely to occur in children with a neurological problem. Limited medical diagnoses distinguished between aspirators (OPA, SA) and non-aspirators. VFSS should be performed in children with feeding difficulties and diagnoses of neurological impairment, cerebral palsy, aspiration lung disease and/or enteral feeding due to the increased likelihood of SA as demonstrated in this study.

PMID: 21436244 [PubMed - as supplied by publisher]

12. Assist Technol. 2010 Winter;22(4):223-35.

Text entry via character stroke disambiguation for an adolescent with severe motor impairment and cortical visual impairment.

Leung B, Yates M, Duez P, Chau T.

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This study proposed a single-switch text entry system by hierarchical scanning of character strokes for an 11-year-old girl with severe physical disabilities and low vision. She could only perceive magnified straight line segments and chords presented against high-contrast, colored backgrounds. In a descriptive case study, the participant used the proposed system in the community for 8 months. Assessment included theoretical evaluation of text entry performance and empirical evaluation of the participant's proficiency. The proposed system had a lower error-free text entry rate but comparable proneness to user error as a real-world implementation of row-column virtual scanning keyboard with character frequency layout. The participant's proficiency, in terms of mean number of single-switch activations and time to type one character, showed statistically significant improvements as the case study pro-

gressed. The proposed system feasibly addressed the participant's typing needs, in a context where traditional row-column scanning and codeword-based text entry systems were not successful.

PMID: 21306068 [PubMed - indexed for MEDLINE]

13. Aust Occup Ther J. 2011 Apr;58(2):132-3. doi: 10.1111/j.1440-1630.2011.00925.x.

Botulinum toxin A in conjunction with occupational therapy reduces spasticity and improves upper limb function and goal attainment in children with cerebral palsy.

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PMID: 21418237 [PubMed - in process]

14. Clin Neurol Neurosurg. 2011 Mar 18. [Epub ahead of print]

Efficacy of vagal nerve stimulation in patients with cerebral palsy: Emerging corroborative evidence.

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PMID: 21420784 [PubMed - as supplied by publisher]

Epidemiology / Aetiology / Diagnosis & Early Treatment

15. Dev Med Child Neurol. 2011 Mar 21. doi: 10.1111/j.1469-8749.2011.03914.x. [Epub ahead of print]

Adults with a diagnosis of cerebral palsy: a mapping review of long-term outcomes.

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Aim: Cerebral palsy (CP) is recognized as a lifespan condition. This mapping review identifies outcomes that have been measured in adults with CP between 1970 and 2010 to determine if either the outcomes evaluated or the research methodologies have changed substantially. **Method:** We performed a literature review. For studies to be included, participants had to be 16 years or older and 80% of the sample had to have a diagnosis of CP. Articles were grouped by decade, and outcomes were categorized using the International Classification of Functioning, Disability and Health (ICF) framework and terminology. **Results:** Fifty-eight articles were included in the mapping review. Both the number of studies and the types of outcomes investigated increased from 1970 to 2010. Outcomes representing the ICF component of Body Function and Structure were present across the period reviewed, whereas interest in contextual (personal or environmental) factors has primarily emerged since 2000. **Interpretation:** Gaps were identified by the mapping review. Large age ranges and heterogeneity of sample populations made it difficult to determine if the outcomes reported were due to ageing or the long-term consequences of CP. In addition, most reviewed articles described outcomes categorically, with few papers providing explanations or solutions to reported outcomes.

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16. Dev Med Child Neurol. 2011 Mar 21. doi: 10.1111/j.1469-8749.2011.03940.x. [Epub ahead of print]

The forward parachute reaction and independent walking in infants with brain lesions.

Romeo DM, Ricci D, Baranello G, Pagliano E, Brogna C, Olivieri G, Contaldo I, Mazzone D, Quintiliani M, Torrioli MG, Romeo MG, Mercuri E.

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Aim: The aim of this study was to assess the onset of forward parachute reaction (FPR) in infants with brain lesions and its correlation with age of walking. **Method:** FPR was assessed at 6, 9, and 12 months in 140 infants with brain lesions (78 males, 62 females; mean gestational age 31wks; SD 3.6wks; mean birthweight 1450g, SD 252g). On cranial ultrasound 62 infants had mild and 78 had major abnormalities; 86 developed cerebral palsy. All were followed for 5 years, and the age at which each child achieved independent walking was recorded. Infants who had been born small for gestational age (weight <10th centile) were excluded, as were those who had major congenital malformations, severe postnatal infectious diseases, or metabolic or haematological complications. **Results:** A complete FPR was present in eight infants at 6 months, in 42 at 9 months, and in 71 at 12 months. At 12 months, 29 infants presented incomplete FPR and 40 presented absent FPR. Seventy-three infants were able to walk independently between the ages of 11 months and 60 months (67 with complete FPR and six with incomplete FPR at 12mo). A complete FPR at 12 months was a good predictor of independent walking. The age at onset of complete FPR was also a good predictor of age of walking. **Interpretation:** The late acquisition of a complete FPR appears to be an early sign of a more general delayed maturation of functional abilities.

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PMID: 21418202 [PubMed - as supplied by publisher]

17. J Forensic Leg Med. 2011 Apr;18(3):97-100. Epub 2011 Feb 1.

Obstetric malpractice litigation and cerebral palsy in term infants.

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Despite the recognition by many researchers that cerebral palsy (CP) is rarely related to obstetric malpractice, there are many instances where obstetricians face litigation when a child is diagnosed with cerebral palsy following a difficult delivery. The aim of this paper is to review relevant research papers to aid practitioners involved in obstetric malpractice litigation. It is also prudent to question the feasibility of costs for long-term care for children with disabilities being met through the legal process.

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PMID: 21420644 [PubMed - in process]

18. Lancet Neurol. 2011 Apr;10(4):372-82.**Treatment advances in neonatal neuroprotection and neurointensive care.**

Johnston MV, Fatemi A, Wilson MA, Northington F.

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Knowledge of the nature, prognosis, and ways to treat brain lesions in neonatal infants has increased remarkably. Neonatal hypoxic-ischaemic encephalopathy (HIE) in term infants, mirrors a progressive cascade of excitotoxic events that unfold in the brain after an asphyxial insult. In the laboratory, this cascade can be blocked to protect brain tissue through the process of neuroprotection. However, proof of a clinical effect was lacking until the publication of three positive randomised controlled trials of moderate hypothermia for term infants with HIE. These results have greatly improved treatment prospects for babies with asphyxia and altered understanding of the theory of neuroprotection. The studies show that moderate hypothermia within 6 h of asphyxia improves survival without cerebral palsy or other disability by about 40% and reduces death or neurological disability by nearly 30%. The search is on to discover adjuvant treatments that can further enhance the effects of hypothermia.

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PMID: 21435600 [PubMed - in process]

19. Ceska Gynekol. 2010 Oct;75(5):455-61.**Changes in the developmental outcome of very low and extremely low birth weight infants at 24 months' corrected age born in 1997-2007 [Article in Czech]**

Zoban P, Borek I, Budosová H, Dortová E, Hálek J, Hitka P, Kubinová H, Pisová M, Podesvová H, Pudíková R, Tesárová B, Zlatohlávková B.

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OBJECTIVE: To describe the incidence of developmental impairments (DI) among very low birth weight (VLBW) infants at 24 months' corrected age, born in perinatal centers in 1997-2007, and evaluate their changing prognosis of intact development. **DESIGN:** Prospective epidemiological study. **SETTING:** Follow-up clinics of neonatal centers level III. **METHODS:** Live birth rate, in-hospital mortality, neonatal morbidity, DI and quality of survival were assessed. Neonatal morbidity was analyzed in periods 2000/2, 2003/5, and 2006/7 by the data of Institute of Health Informatics and Statistics. DI and quality of survival were evaluated in cohorts of VLBW infants born in 1997/9 (period I), 2000/2 (period II), 2003/5 (period III) and 2006/7 (period IV). **RESULTS:** Live birth rate of VLBW newborns in 1997-2007 increased in total of 39.5%, in-hospital mortality decreased, significantly in 1997-9 (fall of 10%). Neonatal morbidity, except infections, also declined. Significant decrease in DI-CP and visual impairment, was observed after period II, in category 1000-1499 g of 7/1.5%, in infants <1000 g of 8/7% resp. After period II, the prevalence of impaired children 1000-1499 g decreased of 5%, whereas in category < 1000 g only small decrease of 2% occurred in period III. Number of children without impairment increased gradually in both categories. **CONCLUSIONS:** The study showed significant increase in surviving VLBW infants, especially in category <1000 g. Increased survival rate at concurrent fall in severe neonatal morbidity (except infections) was not accompanied with worsened prognosis of an intact development.

PMID: 21374924 [PubMed - indexed for MEDLINE]