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CP Research News

Monday 7 July 2008

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1: Pediatrics. 2008 Jul;122(1):119-24.

Outcomes in a population of healthy term and near-term infants with serum bilirubin levels of ≥ 325 micromol/L (≥ 19 mg/dL) who were born in Nova Scotia, Canada, between 1994 and 2000.

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OBJECTIVE: The goal was to study the incidence of kernicterus, developmental delay, autism, cerebral palsy, and hearing loss in infants with peak total serum bilirubin levels of ≥ 325 micromol/L (≥ 19 mg/dL), compared with infants with less-severe or no hyperbilirubinemia, in a population of healthy term and late preterm infants. **METHODS:** Prospectively gathered, standardized, maternal and neonatal data for infants at ≥ 35 weeks of gestation who were born between January 1, 1994, and December 31, 2000, were extracted from the Nova Scotia Atlee Perinatal Database. Infants with Rh factor isoimmunization, significant congenital or chromosomal abnormalities, or severe peripartum asphyxia were excluded. Comparisons were made on the basis of peak total serum bilirubin levels. Diagnoses were obtained through data linkage with the Medical Services Insurance Database for office visits and the Canadian Institute for Health Information Database for hospital admissions. The registration file provided information allowing calculation of follow-up times, which were determined for each separate outcome. Follow-up periods ranged from 2 to 9 years, with the end point being the first time the diagnostic code was encountered in either database. Cox proportional-hazards regression analyses were used to examine the relationships between outcomes and total serum bilirubin levels. **RESULTS:** Of 61238 infants included in the study cohort, 4010 (6.7%) did not have linkage data, which left 56019 infants for analysis. There were no cases of kernicterus and no significant differences in rates of cerebral palsy, deafness, developmental delay, or visual abnormalities between the groups. There were suggestions of associations with attention-deficit disorder in the severe hyperbilirubinemia group and with autism in the combined moderate and severe hyperbilirubinemia group. **CONCLUSIONS:** There was no increase in adverse effects reported previously to be associated with bilirubin toxicity. Associations with developmental



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delay, attention-deficit disorder, and autism were observed.

Publication Types:
Research Support, Non-U.S. Gov't

PMID: 18595994 [PubMed - in process]

2: Eur J Paediatr Neurol. 2008 Jun 30. [Epub ahead of print]

Efficacy of intrathecal baclofen therapy in children with intractable spastic cerebral palsy: A randomised controlled trial.

Hoving MA, van Raak EP, Spincemaille GH, Palmans LJ, Becher JG, Vles JS, On Behalf Of The Dutch Study Group On Child Spasticity .

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BACKGROUND: Intractable spasticity can be treated effectively with continuous infusion of intrathecal baclofen. Because evidence for its use in the treatment of children with spastic cerebral palsy is lacking, we conducted a randomised controlled trial. **AIMS:** To test whether continuous infusion of intrathecal baclofen is effective in comparison with standard treatment only. **METHODS:** Seventeen children, aged 13.2 (SD 2.8) years, with intractable spastic cerebral palsy were randomised to receive a Synchroned pump for continuous infusion of intrathecal baclofen after either 1 month (CITB group) or 6 months (Control group). Primary outcomes were the 6-month-change scores on the 0-10 visual analogue scale for individually formulated problems and the caregiver assistance scale of the Pediatric Evaluation of Disability Inventory self-care domain. One of the secondary outcome measures was health related quality of life as measured with the Child Health Questionnaire-PF50. **RESULTS:** Nine children were randomly assigned to the CITB group and eight to the Control group. The visual analogue scale for individual problems improved with 4.0 (SD 1.7) in the CITB group and changed with -0.2 (SD 1.3) in the Control group ($p=0.001$). Pediatric Evaluation of Disability Inventory scores did not change significantly. The Child Health Questionnaire-PF50 6-month-change score significantly differed in favour of the CITB group for the domains of bodily pain/discomfort ($p=0.014$), mental health ($p=0.045$), psychosocial status ($p=0.027$) and parents' personal time limitation ($p=0.043$). **CONCLUSION:** The results of this randomised controlled trial establish continuous infusion of intrathecal baclofen to be effective in carefully selected children with problems caused by intractable spastic cerebral palsy.

PMID: 18595749 [PubMed - as supplied by publisher]

3: Gait Posture. 2008 Jun 30. [Epub ahead of print]

Walking ability is related to muscle strength in children with cerebral palsy.

Eek MN, Beckung E.

Department of Paediatrics, Queen Silvia Children's Hospital, Göteborg University, Sweden.

The purpose of this study was to assess the relation between muscle strength and walking ability in children with bilateral spastic cerebral palsy at GMFCS levels I-III. 55 children (mean age 10.7, range 5-15) were tested for muscle strength in eight lower limb muscle groups with a handheld myometer. They were also tested with the Gross Motor Function Measure domains for standing and walking, running and jumping. Muscle strength in the legs was below normative predicted value in most of the children, with muscle weakness most pronounced around the ankle, followed by the hip muscles. There was a significant difference in muscle strength between GMFCS levels. There was also a moderate to high correlation between muscle strength and the GMFM, indicating that muscle weakness affects walking ability. Independently walking children had more than 50% of predicted muscle strength values.

PMID: 18595712 [PubMed - as supplied by publisher]

4: J Bone Joint Surg Br. 2008 Jul;90(7):946-51.

The outcome of surgical intervention for early deformity in young ambulant children with bilateral spastic cerebral palsy.

Gough M, Schneider P, Shortland AP.

Gait Laboratory, One Small Step Gait Laboratory Guy's and St Thomas' NHS Foundation Trust, Guy's Hospital, St Thomas' Street, London SE1 9RT, UK.

We reviewed the outcome in 24 children with bilateral spastic cerebral palsy aged seven years or younger for whom surgery was recommended between 1999 and 2005 following gait analysis. A total of 13 children (operative group) had surgery and the remaining 11 (control group) did not, for family or administrative reasons. The operative group had at least two post-operative gait analyses at yearly intervals, with eight children having a third and six children a fourth. The control group had a second analysis after a mean interval of 1.5 years (95% confidence interval 1.1 to 1.9). In the operative group, the Gillette gait index, the ranges of movement in the lower limb joint and knee extension in stance improved following surgery, and this was maintained overall at the second post-operative analysis. The minimum knee flexion in stance in the control group increased between analyses. These results suggest that surgical intervention in selected children can result in improvements in gait and function in the short to medium term compared with non-operative management.

PMID: 18591608 [PubMed - in process]

5: Eur J Paediatr Neurol. 2008 Jun 28. [Epub ahead of print]

Safety and one-year efficacy of intrathecal baclofen therapy in children with intractable spastic cerebral palsy.

Hoving MA, van Raak EP, Spincemaille GH, van Kranen-Mastenbroek VH, van Kleef M, Gorter JW, Vles JS; On behalf of the Dutch Study Group on Child Spasticity.

Department of Neurology, University Hospital Maastricht, P. Debyelaan 25, P.O. Box 5800, 6202 AZ Maastricht, The Netherlands.

BACKGROUND: Prospective studies that address both efficacy and safety of continuous infusion of intrathecal baclofen (CITB) in children with spastic cerebral palsy (CP), and that use outcome measures beyond muscle tone are lacking. **AIMS:** To study the efficacy at 12 months and safety up to 24 months after start of CITB in children with intractable spastic CP. **METHODS:** Nine girls and eight boys, aged 13.7 years (SD 2.9), received a SynchroMed pump for CITB. We prospectively recorded effects and adverse events at regular follow-up visits up to 24 months. Outcome measures included the 0-10 visual analogue scale (VAS) for individual problems, Gross Motor Function Measure (GMFM) and health related quality of life as measured with the Child Health Questionnaire-PF50. **RESULTS:** CITB for 12 months significantly improved the VAS for individual problems with 4.7 (SD 2.0; $p=0.000$), VAS for ease of care with 5.2 (SD 2.1; $p=0.000$), VAS for pain with 5.4 (SD 2.7; $p=0.002$); GMFM sitting dimension with 3.3 (range -4.0 to 22.0; $p=0.022$), GMFM goal dimension with 4.0 (range 0.0-26.0; $p=0.007$); and Child Health Questionnaire-PF50 domains of bodily pain/discomfort with 25.6 (SD 35.9; $p=0.016$) and mental health with 9.8 (SD 11.3; $p=0.007$). During a mean follow-up of 18.4 months (range 12-24), we recorded 80 adverse events. Eight adverse events were serious, but not life-threatening. **CONCLUSIONS:** CITB was effective at 12 months and safe up to 24 months for carefully selected children with intractable spastic CP. CITB relieved pain, facilitated ease of care and improved mental health. The majority of children could extend their activities and participation.

PMID: 18590974 [PubMed - as supplied by publisher]

6: Brain Res. 2008 May 27. [Epub ahead of print]**Beneficial effects of treadmill training in a cerebral palsy-like rodent model: Walking pattern and soleus quantitative histology.**

Marcuzzo S, Ferreira Dutra M, Stigger F, Severo do Nascimento P, Ilha J, Kalil-Gaspar PI, Achaval M.

Programa de Pós-Graduação em Neurociências, Instituto de Ciências Básicas da Saúde, Universidade Federal do Rio Grande do Sul, RS, Brazil; Laboratório de Histofisiologia Comparada, Departamento de Ciências Morfológicas, Instituto de Ciências Básicas da Saúde, Universidade Federal do Rio Grande do Sul, RS, Brazil.

The aim of the present study was to investigate whether treadmill locomotor training could have beneficial effects on deficits consequent to perinatal anoxia, sensorimotor restriction or a combination of both. Fifty-six newborn male Wistar rats were divided into four groups: control, anoxic, sensorimotor-restricted and anoxic-sensorimotor-restricted. Rats were exposed to anoxia in the first two postnatal days (P0 and P1) and/or hind-limb sensorimotor restriction from P2 to P28 for 16 h/day. Control and experimental rats underwent treadmill training for three weeks (from P31 to P52). Body weight and walking patterns (stride length and foot angle) were measured weekly during treadmill locomotor training. Soleus muscle cross-sectional mean area and fiber density were measured using planar morphometry. Anoxia per se did not cause gait or muscle deficits. Body weight, stride length and soleus fiber cross-sectional mean area, however, were increased in trained anoxic rats. Sensorimotor-restricted animals, either with or without perinatal anoxia, showed deficits in body weight gain, decreased stride length, wider foot angle and soleus fiber atrophy. In the sensorimotor-restricted group, treadmill training improved body weight gain and stride length, and decreased the percentage of the atrophic fibers. However, in the anoxic-sensorimotor-restricted group, training improved stride length only. Three weeks of treadmill training were able to improve stride length in restricted and anoxic-restricted animals, although body weight deficit and the degree of degradation in muscle histology were reduced only in the restricted group.

PMID: 18586228 [PubMed - as supplied by publisher]

7: Eur J Paediatr Neurol. 2008 Jun 26. [Epub ahead of print]**A review of developmental outcomes of term infants with post-asphyxia neonatal encephalopathy.**

Pin TW, Eldridge B, Galea MP.

School of Physiotherapy, The University of Melbourne, 200 Berkeley Street, Victoria 3010, Australia.

BACKGROUND/AIMS: Post-asphyxia neonatal encephalopathy (NE) is one of the main causes of disabilities in term-born infants. This review attempted to investigate the developmental outcomes of term-born infants with post-asphyxia NE. **METHOD:** An electronic search on various databases identified 13 empirical studies against the selection criteria modified from the consensus statement from the International Cerebral Palsy Task Force. **RESULTS:** The overall quality of methodology of these studies was average. The random effect meta-estimate of the proportion of infants having adverse developmental outcomes such as death, cognitive impairment, sensory-motor impairments was 47% (95% CI 36-57%). Significant heterogeneity ($I(2)=87.7\%$, $p<0.00001$) between studies indicated variations in number of subjects in studies and their characteristics. For those studies using the Sarnat grading of NE, the proportion of infants with adverse outcomes was nil in stage 1 (mild) NE, 32% in stage 2 (moderate) and almost 100% in stage 3 (severe) NE. **CONCLUSIONS:** At present, researchers are using very loose diagnostic criteria of perinatal asphyxia and post-asphyxia NE, making the study samples heterogeneous. Clinicians and researchers are urged to make use of the recent consensus statement regarding diagnostic criteria for intrapartum asphyxia and to identify these high-risk infants for early intervention.

PMID: 18585940 [PubMed - as supplied by publisher]

8: Arch Pediatr Adolesc Med. 2008 Jun;162(6):584-6.

**Comment on:
Arch Pediatr Adolesc Med. 2008 Jun;162(6):532-7.**

Context (place) matters.

Hafferty FW.

Publication Types:
Comment
Editorial

PMID: 18524752 [PubMed - indexed for MEDLINE]

9: Pediatr Phys Ther. 2008 Summer;20(2):127.

Oh Canada!

VanSant AF.

Publication Types:
Editorial
Introductory Journal Article

PMID: 18480710 [PubMed - indexed for MEDLINE]



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