Cerebral Palsy INSTITUTE

CP Research News

Monday 25 October 2010

Interventions

1. Dev Med Child Neurol. 2010 Oct 21. doi: 10.1111/j.1469-8749.2010.03819.x. [Epub ahead of print]

Determinants of intensity of participation in leisure and recreational activities by children with cerebral palsy.

Palisano RJ, Chiarello LA, Orlin M, Oeffinger D, Polansky M, Maggs J, Bagley A, Gorton G; AND THE CHILDREN'S ACTIVITY AND PARTICIPATION GROUP.

Department of Physical Therapy and Rehabilitation Sciences, Drexel University, Philadelphia, PA, USA Shriners Hospitals for Children, Philadelphia, PA, USA Shriners Hospitals for Children, Lexington, KY, USA School of Public Health, Drexel University, Philadelphia, PA, USA Shriners Hospitals for Children, Sacramento, CA, USA Shriners Hospitals for Children, Springfield, MA, USA.

Aim: To test a model of child, family, and service determinants of intensity of participation in leisure and recreational activities by children with cerebral palsy (CP). Method: Participants were 288 children with CP, age range 6 to 12 years (mean 9y 8mo, SD 2y), and their parents from seven children's hospitals. The sample comprised 166 (57.6%) males and 122 (42.4%) females, and between 40 (13.9%) and 74 (25.7%) children in each of the five levels of the Gross Motor Function Classification System. Children completed the Children's Assessment of Participation and Enjoyment by interview. Parents completed the Pediatric Outcomes Data Collection Instrument, Family Environment Scale, Coping Inventory, Measure of Processes of Care, and two questionnaires. Structural equation modeling was used to test the model. Results: Fit statistics indicated a good model fit. The model explains 32% of the variance in intensity of participation. Path coefficients ($p \leq 0.05$) indicate that higher gross motor function, higher enjoyment, more effective adaptive behavior, younger age, and higher family activity orientation are associated with higher intensity of participation. The path between services and participation was not significant. Interpretation: Intensity of participation of children with CP is influenced by multiple child and family determinants. Children's gross motor function and behavior in life situations are important for participation; knowledge of activities the child and family enjoy has implications for opportunities for participation. Professionals are encouraged to address priorities for leisure and recreation identified by children with CP and their families.

PMID: 20964676 [PubMed - as supplied by publisher]

2. Dev Med Child Neurol. 2010 Oct 21. doi: 10.1111/j.1469-8749.2010.03797.x. [Epub ahead of print]

Factor- and item-level analyses of the 38-item Activities Scale for Kids-performance.

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Springfield, MA, USA. Seattle Children's Hospital, Seattle, WA, USA. Children's Hospital of Philadelphia, Philadelphia, PA, USA. Gillette Children's Specialty Healthcare, St. Paul, MN, USA. Hospital for Sick Children, Toronto, Ontario, Canada. Temple University, Philadelphia, PA, USA.

Aim: Children and adolescents highly value their ability to participate in relevant daily life and recreational activities. The Activities Scale for Kids-performance (ASKp) instrument measures the frequency of performance of 30 common childhood activities, and has been shown to be valid and reliable. A revised and expanded 38-item ASKp (ASKp38) version has been reported in recent literature and is currently used in clinical research. The aim of this paper is to assess the factor structure and item-level statistics of the ASKp38. Method: Our study used factor analyses and Rasch analyses to determine the item-set dimensionality and to calculate item-level statistics respectively, for existing ASKp38 data from 200 children (104 males; 96 females; mean age 12y 7mo; SD 2y 8mo; range 6-20y) with physical disabilities. The children had a variety of physical impairments including cerebral palsy (n=105; range 8-13y), limb salvage (n=18; range 11-20y), arthrogryposis (n=13; 6-17y), and other, including individuals with spina bifida and spinal cord injury (n=64; 8-19y). Results: A two-factor model, with components of activities of daily living and play, most optimally fit the data. Item-fit statistics based on this two-factor model demonstrated adequate fit and content coverage. Interpretation: The ASKp38 appears to consist of two factors, defined as (1) activities of daily living and (2) play, and may be used to measure the frequency of activity performance on two corresponding subscales.

PMID: 20964671 [PubMed - as supplied by publisher]

3. Phys Occup Ther Pediatr. 2010 Oct 21. [Epub ahead of print]

A Multivariate Model of Determinants of Change in Gross-Motor Abilities and Engagement in Self-Care and Play of Young Children With Cerebral Palsy.

Chiarello LA, Palisano RJ, Bartlett DJ, McCoy SW.

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A multivariate model of determinants of change in gross-motor ability and engagement in self-care and play provides physical and occupational therapists a framework for decisions on interventions and supports for young children with cerebral palsy and their families. Aspects of the child, family ecology, and rehabilitation and community services may influence children's activity and participation. Aspects of the child include primary and secondary impairments, associated and comorbid health conditions, and adaptive behaviors. Literature support for the model is reviewed. A clinical scenario illustrates the use of the model as a framework for practice. The model encourages therapists to broaden the focus of rehabilitation services for young children with CP to include not only development of motor abilities but also comprehensive interventions and supports to enhance participation in daily activities and routines. Therapists are encouraged to consider how child, family, and service factors interact when planning interventions and evaluating outcomes.

PMID: 20964514 [PubMed - as supplied by publisher]

4. Adapt Phys Activ Q. 2010 Oct;27(4):275-93.

Inclusion understood from the perspectives of children with disability.

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This study explored the perspectives of children with disabilities regarding the concept of inclusion in physical activ-

ity. Participants were children (two girls, nine boys, Mage = 10 years, five months, age range: 8-12 years) with disabilities, including cerebral palsy, fine and gross motor delays, developmental coordination disorder, muscular dystrophy, nemaline myopathy, brachial plexus injury, and severe asthma. Children's perspectives on inclusion in physical activity (e.g., sports, games, and play) were explored through semistructured interviews. Interviews were digitally audio taped and transcribed verbatim. Data were analyzed through content analysis. Three themes emerged from the data: gaining entry to play, feeling like a legitimate participant, and having friends. These themes were associated with feeling included to varying degrees in sports, games, and play. In essence, it was the actions of others that were the prominent features identified by children that contributed to feeling more or less included in physical activity contexts. These results are discussed in relation to inclusion in physical education, recreation, and unstructured free play.

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5. Dev Med Child Neurol. 2010 Oct 21. doi: 10.1111/j.1469-8749.2010.03789.x. [Epub ahead of print]

Gastrostomy feeding in cerebral palsy: enough and no more.

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Aim: Gastrostomy feeding children with spastic quadriplegic cerebral palsy (SQCP) improves weight gain but may cause excess deposition of body fat. This study was designed to investigate whether weight gain could be achieved without an adverse effect on body composition by using a low-energy feed in gastrostomy-fed children with SQCP. Method: Fourteen children (seven male; seven female; median age 2y; range 10mo-11y) with SQCP were studied, 13 of whom were classified as Gross Motor Function Classification Score (GMFCS) level V and one as GMFCS level IV. Children were eligible for the study if they weighed between 8 and 30kg with a diagnosis of severe SQCP and significant feeding difficulties in whom a clinical decision had been made to insert a gastrostomy feeding tube. The feed used in the study had an energy concentration of 0.75kcal/mL (Nutrini Low Energy Multi Fibre). Assessments were performed before gastrostomy insertion (baseline) and after 6 months, and included body composition, growth, nutritional intake, and gastrointestinal symptoms. Results: There was a significant increase in weight (median difference 1.9kg; 95% confidence interval [CI] 0.85-3.03kg; p=0.012), mid-upper arm circumference (median difference 1.45cm; 95% CI -0.36cm to 3.47cm; p=0.043), and lower leg length (median difference 1.62cm; 95% CI 0.44-3.95cm; p=0.012) over the 6 months. There was no significant increase in fat mass index (median diff 1.21, 95% CI -1.15 to 2.94, p=0.345) or fat free mass index (median diff -1.43, 95% CI -1.15 to 2.94, p=0.249). Micronutrient levels remained within reference ranges with the exception of elevated chromium. The median percentage intake of the estimated average requirements for energy (kcal) was 43% at the beginning of the study and 48.8% after 6 months on the low-energy feed. Interpretation: Children with SQCP who are fed a low-energy, micronutrient-complete, high-fibre feed continue to grow even with energy intakes below 75% of the estimated average requirements. This was not associated with a disproportionate rise in fat mass or fat percentage, and the majority of micronutrient levels remained within the reference range.

PMID: 20964670 [PubMed - as supplied by publisher]

6. Phys Occup Ther Pediatr. 2010 Oct 18. [Epub ahead of print]

Feeding Interventions for Children With Cerebral Palsy: A Review of the Evidence.

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ada. Vasiliki Darsaklis, BSc (OT) is a graduate student in Rehabilitation Sciences, School of Physical & Occupational Therapy, Faculty of Medicine, McGill University, Montreal, Quebec, Canada.

Aim: To examine the evidence of the effectiveness of different feeding interventions for children with cerebral palsy. Methods: A search of 12 electronic databases identified all relevant studies. For each study, the quality of the methods was assessed according to the study design. A total of 33 articles were retrieved, and 21 studies were included in the final analysis. Results: Feeding interventions were separated into five main categories: oral sensorimotor facilitation, food consistency, positioning, oral appliances, and adaptive equipment. Five studies were randomized controlled trials. Outcomes were mainly reported on feeding safety and efficiency. One study documented positive results in height and weight change. Nineteen of the 21 studies presented positive outcomes in eating efficiency and/or safety. Interpretation: Feeding interventions demonstrate potential benefits for children with cerebral palsy. However, the current level of evidence is poor, and empirical data are lacking. Methodologically, rigorous studies are required particularly investigating multimodal approaches.

PMID: 20950250 [PubMed - as supplied by publisher]

7. Eur J Orthod. 2010 Oct 18. [Epub ahead of print]

Prevalence and determinant factors of malocclusion in children with special needs.

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Careful attention to malocclusion in children with special needs leads to a considerable improvement in the quality of life. The present study analysed the prevalence of malocclusion in children with Down syndrome (DS) and cerebral palsy (CP) as well as associations with individual, socio-economic, and behavioural factors. A cross-sectional study was carried out that included 181 mothers and their children with DS and CP (aged 3-12 years) at two institutions for individuals with special needs in Rio de Janeiro, Brazil. Data were collected using a questionnaire administered to the mothers and a dental examination of the children. Clinical examination recorded the following: anterior/posterior crossbite and anterior openbite (AOB). The control variables were the mother's level of education as well as the gender and age of the child. Statistical analysis of the data was performed using the chi-square test and multiple logistic regression. An anterior crossbite was present in 20.4 per cent, a posterior crossbite in 21.5 per cent, and an AOB in 29.8 per cent. The presence of DS, bottle feeding, and non-nutritive sucking habits for 24 months or more was determinant factors for an anterior crossbite and the presence of DS, bottle feeding and non-nutritive sucking habits for 24 months or more, and respiratory infection in the previous 6 months was determinant factors for a posterior crossbite. The presence of CP and non-nutritive sucking habits for 24 months or more was determinant factors for an AOB. Thus, the prevalence of malocclusion in children with special needs was associated with the type of disability, use of bottle feeding and non-nutritive sucking habits for 24 months or more, and respiratory infection in the previous 6 months.

PMID: 20956386 [PubMed - as supplied by publisher]

8. Phys Ther. 2010 Oct 21. [Epub ahead of print]

A Comparison of Interventions for Children With Cerebral Palsy to Improve Sitting Postural Control: A Clinical Trial.

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Background: The ability to sit independently is fundamental for function but delayed in infants with cerebral palsy (CP). Studies of interventions directed specifically toward sitting in infants with CP have not been reported. Objective: The purpose of this study was to compare 2 interventions for improving sitting postural control in infants with CP. Design: For this randomized longitudinal study, infants under 2 years of age and at risk for CP were recruited for intervention directed toward sitting independence. Setting: The intervention was conducted at home or at an out-

patient facility. Patients and Intervention Fifteen infants with typical development (mean age at entry=5 months, SD=0.5) were followed longitudinally as a comparison for postural variables. Thirty-five infants with delays in achieving sitting were recruited. Infants with delays were randomly assigned to receive a home program (1 time per week for 8 weeks; mean age=15.5 months, SD=7) or a perceptual-motor intervention (2 times per week for 8 weeks; mean age=14.3 months, SD=3). Measurement: The primary outcome measure was center-of-pressure (COP) data, from which linear and nonlinear variables were extracted. The Gross Motor Function Measure (GMFM) sitting subsection was the clinical outcome measure. RESULTS: There was a main effect of time for the GMFM sitting subscale and for 2 of the COP variables. Interaction of group × time factors indicated significant differences between intervention groups on 2 COP measures, in favor of the group with perceptual-motor intervention. Limitations The small number of infants limits the ability to generalize the findings. CONCLUSIONS: Although both groups made progress on the GMFM, the COP measures indicated an advantage for the group with perceptual-motor intervention. The COP measures appear sensitive for assessment of infant posture control and quantifying intervention response.

PMID: 20966212 [PubMed - as supplied by publisher]

9. Ann Phys Rehabil Med. 2010 Oct 15. [Epub ahead of print]

Influence of clinical and gait analysis experience on reliability of observational gait analysis (Edinburgh Gait Score Reliability).

Viehweger E, Pfund LZ, Hélix M, Rohon MA, Jacquemier M, Scavarda D, Jouve JL, Bollini G, Loundou A, Simeoni MC.

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OBJECTIVES: Treatment complexity of cerebral palsy (CP) patients imposes outcome evaluation studies, which may include objective technical analysis and more subjective functional evaluation. The Edinburgh Gait Score (EGS) was proposed as an additive or alternative when complex instrumented three-dimensional gait analysis is not available. Our purposes were to apply a translated EGS to standard video recordings of independent walking spastic diplegic CP patients, to evaluate its intraobserver and interobserver reliability with respect to gait analysis familiar and not familiar observers. METHODS: Ten standard video recordings acquired during routine clinical gait analysis were examined by eight observers gait analysis interpretation experienced or not, out of various specialities, two times with a two weeks interval. Kappa statistics and intraclass correlation coefficient were calculated. RESULTS: Better reliability was observed for foot and knee scores than in proximal segments with significant differences between stance and swing phase. Significantly better results in gait analysis trained observers underlines the importance to either be used to clinical gait analysis interpretation, or to benefit of video analysis training before observational scoring. CONCLUSION: Visual evaluation may be used for outcome studies to explore clinical changes in CP patients over time and may be associated to other validated evaluation tools.

PMID: 20952267 [PubMed - as supplied by publisher]

10. Mymensingh Med J. 2010 Oct;19(4):533-8.

Baker's Method in the Management of Equinus Deformity in Cerebral Palsy.

Datta NK, Kaiser MS, Saha BK, Ahammed SU, Choudhury AI.

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This prospective study was conducted in the department of orthopedic surgery in Bangabandhu Sheikh Mujib Medical University (BSMMU) Dhaka, Bangladesh, from January 2005 to December 2007. Total number of 20 patients

with 37 feet of equinus deformity due to cerebral palsy was managed by Baker's method. Equinus deformity in cerebral palsy is not uncommon in our outpatient department. Before operation patient walks on tip toes and after operation by Baker's method by apponeurotic lengthening of gastrocnemius muscle, with extensive physiotherapy, patients can able to walk normally in plantigrade feet. Among 20 patients only the spastic diplegic or hemiplegic equinus deformity in cerebral palsy was between 3 years to 12 years with a mean age of 5 years 9.6 months (SD+/- 2 years 4.97 months). There were 3(15%) unilateral and 17(85%) bilateral cases. Among 20 cases, 13(65%) were male and 7(35%) were female. All cases were followed up for period ranging from 4 month to 28 months. Final clinical outcome was satisfactory (excellent and good) in 34(92%) feet and unsatisfactory (fair plus poor) in 3(8%) feet ($p<0.001$).

PMID: 20956895 [PubMed - in process]

11. Eur J Clin Pharmacol. 2010 Oct 20. [Epub ahead of print]

Drug-to-drug interaction between sodium valproate and trihexyphenidyl in a child with extrapyramidal cerebral palsy and epilepsy.

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PMID: 20959970 [PubMed - as supplied by publisher]

12. J Orthop Sci. 2010 Sep;15(5):647-53. Epub 2010 Oct 16.

Preoperative botulinum toxin test injections before muscle lengthening in cerebral palsy.

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BACKGROUND: Muscle weakening is a well-known side effect of muscle-tendon lengthening. Botulinum toxin A (BTX-A) weakens the muscle temporarily by blocking the neuromuscular junction. Hence application of the drug is a logical step to test whether weakness deteriorates function prior to an operation. In the present study, BTX-A application is used to test preoperatively whether the gait pattern depends on the strength of the tested muscle. Since 1999, instrumented gait analysis, including kinematic, kinetic, and dynamic electromyographic data, is routinely used to define the individual surgical program. METHODS: In our series of 110 consecutive patients with cerebral palsy (CP) considered for surgical muscle lengthening from 1999 to 2008, BTX-A was applied to identify patients at risk for functional deterioration. Gait analysis was repeated 6 weeks (maximum effect of BTX-A) and 12 weeks (follow-up) after the test injection to check for loss of joint control (excessive ankle dorsiflexion, knee flexion, increased anterior pelvic tilt). RESULTS: In all, 20.9% (n = 23) showed deterioration in gait after preoperative BTX-A test injections (n = 112, two patients had two test trials) in all muscles considered for lengthening. As a consequence, their lengthening surgery was canceled. A total of 68 patients underwent surgery as planned, and in none of them did gait function deteriorate. These clinical data were compared to those of a historical group (n = 105) before this test, where 18% showed functional deterioration after surgery. The similar percentage of patients filtered out by the test suggests that there could be a context to the number of poor results in the historical group. CONCLUSIONS: We conclude that preoperative BTX-A test injection is a reliable tool for filtering out patients with risk of deterioration after muscle lengthening surgery in patients with CP and can be helpful to avoid poor outcomes.

PMID: 20953926 [PubMed - in process]

13. Res Dev Disabil. 2010 Oct 16. [Epub ahead of print]

The influence of motor impairment on autonomic heart rate modulation among children with cerebral palsy.

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The study of heart rate variability is an important tool for a noninvasive evaluation of the neurocardiac integrity. The present study aims to evaluate the autonomic heart rate modulation in supine and standing positions in 12 children diagnosed with cerebral palsy and 16 children with typical motor development (control group), as well as to relate the level of motor impairment in children with cerebral palsy, as classified by to the Gross Motor Function Classification System, to the heart rate variability indices. The heart rate variability was analyzed by linear model in the frequency domain, at low and high frequency bands in normalized units and low and high frequency ratio. The results indicate that children with cerebral palsy present lower heart rate variability indices, indicating sympathovagal imbalance. The decrease of heart rate variability in children with cerebral palsy is related to the motor impairment level.

PMID: 20956067 [PubMed - as supplied by publisher]

Epidemiology / Aetiology / Diagnosis & Early Treatment

Please note: This is not yet a comprehensive outline of cerebral palsy prevention literature. It is expected that more research will be included when the search terms are expanded to include key terms other than "cerebral palsy". It is a work-in-progress and it will be expanded in coming months.

14. Health Policy. 2010 Oct 15. [Epub ahead of print]

Prevalence and lifetime healthcare cost of cerebral palsy in South Korea.

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OBJECTIVES: This study examined the prevalence of cerebral palsy (CP) in South Korea, and the attributable lifetime medical cost according to physiological types and extent of involvement.
METHODS: The number of medical service use and medical cost of CP were obtained from the national health insurance review and assessment (HIRA) service. The prevalence was calculated from the number of five-year-old patients who used medical services between 2004 and 2008. The lifetime medical cost of CP was calculated from the data and discount rate of 3%. RESULTS: The prevalence of CP in South Korea was 2.6 per 1000 children. The attributable lifetime medical cost of CP in South Korea was calculated to be 26,383 US dollars, which is 1.8 times the basic lifetime medical cost of the general population (14,579 US dollars). Spastic CP showed the highest attributable medical cost, followed by dyskinetic and ataxic CP. Spastic diplegia showed 1.4 times of the attributable lifetime medical cost of spastic hemiplegia. CONCLUSIONS: The prevalence of CP in South Korea is comparable to that in other countries. CP is a disease with wide range of clinical features, and the medical cost according to the physiological types and extent of involvement should be considered.

PMID: 20952086 [PubMed - as supplied by publisher]

15. Pediatrics. 2010 Oct 18. [Epub ahead of print]

Multiple Courses of Antenatal Corticosteroids for Preterm Birth Study: 2-Year Outcomes.

Asztalos EV, Murphy KE, Hannah ME, Willan AR, Matthews SG, Ohlsson A, Kelly EN, Saigal S, Ross S, Delisle MF, Amankwah K, Guselle P, Gafni A, Lee SK, Armson BA, Sananes R, Tomat L; for the Multiple Courses of Antenatal Corticosteroids for Preterm Birth Study Collaborative Group.

Departments of aNewborn and Developmental Paediatrics and.

Objective: The aim of this study was to determine the effects of repeated courses of prenatal corticosteroid therapy versus placebo on death or neurologic impairment among the children enrolled in the Multiple Courses of Antenatal Corticosteroids for Preterm Birth Study, at 18 to 24 months of age. Methods: A total of 2305 infants were eligible for follow-up evaluation; 2104 infants (1069 in the prenatal corticosteroid therapy group and 1035 in the placebo group) were monitored. The primary outcome was death or neurologic impairment, defined as either cerebral palsy or cognitive delay, at 18 to 24 months of age. The secondary outcomes were measurements of growth (height, weight, and head circumference). Results: Children exposed to multiple courses of prenatal corticosteroid therapy had similar rates of death or neurologic impairment, compared with children exposed to placebo (148 children [13.8%] vs 142 children [13.7%]; odds ratio: 1.001[95% confidence interval: 0.75-1.30]; P = .95). They had a mean weight of 11.94 kg, compared with 12.14 kg in the placebo group (P = .04), a mean height of 85.51 cm, compared with 85.46 cm (P = .87), and a mean head circumference of 48.18 cm, compared with 48.25 cm (P = .45). Conclusions: Multiple courses of prenatal corticosteroid therapy, given every 14 days, did not increase or decrease the risk of death or neurologic impairment at 18 to 24 months of age, compared with a single course of prenatal corticosteroid therapy. Continued follow-up monitoring of these children is necessary to assess neurobehavioral function, school performance, and possible susceptibility to disease.

PMID: 20956409 [PubMed - as supplied by publisher]

16. Stem Cells Dev. 2010 Oct 22. [Epub ahead of print]

implanted neurosphere-derived precursors promote recovery after neonatal excitotoxic brain injury.

Titomanlio L, Bouslama M, Le Verche V, Dalous J, Kaindl A, Tsenkina Y, Lacaud A, Peineau S, Elghouzzi V, Lelievre V, Gressens P.

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Brain damage through excitotoxic mechanisms is a major cause of cerebral palsy in infants. This phenomenon usually occurs during the fetal period in human, and often leads to lifelong neurological morbidity with cognitive and sensorimotor impairment. However, there is currently no effective therapy. Significant recovery of brain function through neural stem cell implantation has been shown in several animal models of brain damage, but remains to be investigated in detail in neonates. In the present study, we evaluated the effect of cell therapy in a well-established neonatal mouse model of cerebral palsy induced by excitotoxicity (ibotenate treatment on postnatal day 5). Neurosphere-derived precursors (NDPs) or control cells (fibroblasts) were implanted into injured and control brains contralateral to the site of injury, and the fate of implanted cells was monitored by immunohistochemistry. Behavioral tests were performed in animals that received early (4 hrs after injury) or late (72 hrs after injury) cell implants. We show that NDPs implanted into the injured brains of 5 day-old pups migrated to the lesion site remained undifferentiated at day 10, differentiated into oligodendrocyte and neurons at day 42. Although grafted cells finally die there few weeks later, this procedure triggered a reduction in lesion size and an improvement in memory performance compared to untreated animals, both 2 weeks and 5 weeks after treatment. While further studies are warranted, cell therapy could be a future therapeutic strategy for neonates with acute excitotoxic brain injury.

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17. J Hum Genet. 2010 Oct 21. [Epub ahead of print]

Methylenetetrahydrofolate reductase gene polymorphisms and cerebral palsy in Chinese infants.

Cheng X, Li T, Wang H, Zhu D, Ma C, Ma B, Wang Y, Zhang J, Guo L, Wang L, Yun L, Chen S, Jiang Z, He L, Zhu C, Xing Q.

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Genetic polymorphisms of methylenetetrahydrofolate reductase (MTHFR) have been suggested as being associated with cerebral palsy (CP) but the evidence is uncertain. The purpose of this study was to investigate whether MTHFR gene polymorphisms contribute to the development of CP in Chinese infants. For this study, 169 health controls and 159 infants with CP including 43 cases also suffering from mental retardation (MR) were recruited. Genomic DNA was prepared from venous blood and all five single nucleotide polymorphisms in MTHFR (rs4846049, rs1476413, rs1801131, rs1801133 and rs9651118) were genotyped using TaqMan technology. There were no significant differences in allele or genotype frequencies between the CP patients and controls at any of the five genetic polymorphisms. Subgroup analysis found statistically significant difference in allele and genotype frequencies between cases with both CP and MR (CP + MR) compared with both CP-only cases and controls at rs4846049, rs1476413 and rs1801131. The frequencies of the T alleles of rs4846049, rs1476413 and the G allele of rs1801131 were greater in the CP + MR patients than in the CP-only patients and controls. This study provides the first evidence pointing to a MTHFR gene polymorphism as a potential risk factor for CP combined with MR.Journal of Human Genetics advance online publication, 21 October 2010; doi:10.1038/jhg.2010.127.

PMID: 20962791 [PubMed - as supplied by publisher]

18. J Neurol. 2010 Oct 16. [Epub ahead of print]

Magnetic resonance imaging, risk factors and co-morbidities in children with cerebral palsy.

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Cerebral palsy (CP) continues to be a major problem in India. The present study provides an insight into the various clinical and neuroradiological correlates of CP. The study included 102 children with CP and was subjected to magnetic resonance imaging (MRI) of the brain. Forty-seven (46%) patients belonged to the 1-3 years age group and 84 (82%) were born at term. Of 102 children, 39 (38%) were delivered at home. Based on their tone and topographic pattern of weakness, it was found that 47 (46%) had spastic diplegia and 35 (34%) spastic quadriplegia. Hemiplegic, dystonic, and atonic CP accounted for the remaining 20%. The occurrence of severe birth asphyxia, which is rarely seen in developed countries, continues to be a major problem in developing countries, and accounted 64 (62%) of the patients. Cognitive delay (82%) was the most common co-morbidity, followed by seizure disorder (52%), feeding difficulties (22%) and visual abnormalities (29%). Ninety-one (89%) children had an abnormal MRI. Periventricular white matter injury (PWMI) was observed in 48 (47.1%), followed by diffuse encephalopathy (29%). Focal lesions (6%) and malformations (3%) were less common. In children with spastic diplegia, PWMI was the most common MRI abnormality, whereas in spastic quadriplegia, diffuse encephalopathy was most common. MRI scans help in revealing the pathologic basis of CP and had strong correlations with clinical findings.

PMID: 20953790 [PubMed - as supplied by publisher]