Cerebral Palsy Alliance

NEWS
Cerebral Palsy Research

September 2012

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Interventions and Management

1. Dev Med Child Neurol. 2012 Sep;54 Suppl 6:1-82. doi: 10.1111/j.1469-8749.2012.04386.x.

Abstracts of the American Academy for Cerebral Palsy and Developmental Medicine 66th Annual Meeting. September 12-15, 2012. Toronto, Canada.

[No authors listed]

PMID: 22925270 [PubMed - indexed for MEDLINE]

2. Phys Occup Ther Pediatr. 2012 Sep 7. [Epub ahead of print]

Amount and Focus of Physical Therapy and Occupational Therapy for Young Children with Cerebral Palsy.

Palisano RJ, Begnoche DM, Chiarello LA, Bartlett DJ, McCoy SW, Chang HJ.

Department of Physical Therapy and Rehabilitation Sciences, Drexel University , Philadelphia, Pennsylvania , USA.

The aims of this study were to describe physical therapy (PT) and occupational therapy (OT) services for a cohort of 399 children with cerebral palsy (CP), 2-6 years old, residing in the United States and Canada. Parents completed a services questionnaire by telephone interview. Therapists classified children's Gross Motor Function Classification System (GMFCS) level. Mean minutes per month of PT and OT were greater for children receiving services in both an educational and clinic setting. Mean minutes per month of PT and OT were greater for children in levels IV-V than children in level I and greater for children in the United States than children in Canada. Parents reported that interventions focused a moderate to great extent on primary impairments, secondary impairments, activity, and structured play activities, a moderate extent on environmental modifications and equipment; and a moderate to small extent on self-care routines. The results support the importance of coordination of PT and OT services.

PMID: 22954372 [PubMed - as supplied by publisher]

3. Disabil Rehabil. 2012 Aug 28. [Epub ahead of print]

Combining strength training and botulinum neurotoxin intervention in children with cerebral palsy: the impact on muscle morphology and strength.

Williams SA, Elliott C, Valentine J, Gubbay A, Shipman P, Reid S.

School of Sport Science, Exercise & Health.

Purpose: Investigate the combination effects of strength training and Botulinum Toxin Type-A (BoNT-A) on muscle strength and morphology in children with Cerebral Palsy (CP). Methods: Fifteen children receiving BoNT-A, classified as Spastic Diplegic CP, GMFCS I-II, and aged 5-12 years were recruited for this study. Randomly allocated to 10 weeks of strength training either before or after BoNT-A, children were assessed over 6 months. Eight of the 15 children also completed a control period. The Modified Ashworth Scale measured spasticity. The Goal Attainment Scale (GAS) assessed achievement of functional goals. Magnetic Resonance Imaging assessed muscle volume (MV). Instrumented dynamometry assessed strength. Results: Spasticity was significantly reduced following BoNT-A injection (p = 0.033). Children made significant isokinetic strength gains (mean p = 0.022, ES = 0.57) in the intervention period compared to the control period (mean p = 0.15, ES = 0.56). Irrespective of timing, significant strength improvements were seen immediately (10 weeks) and over 6 months for all children. This was also the case for improvements in the GAS (immediately: mean p = 0.007, ES = 4.17, 6 months: mean p = 0.029, ES = 0.99), and improvements in MV in all assessed muscles. Conclusion: The simultaneous use of BoNT-A and strength training was successful in spasticity reduction, improving strength and achieving functional goals, over and above treatment with BoNT-A alone. Muscles targeted for BoNT-A injection should be included in strength training.

PMID: 22928803 [PubMed - as supplied by publisher]

4. J Pediatr Orthop. 2012 Sep;32 Suppl 2:S182-6.

Management of Children With Ambulatory Cerebral Palsy: An Evidence-based Review. Commentary by Hugh Williamson Gait Laboratory Staff.

Thomason P, Rodda J, Sangeux M, Selber P, Kerr Graham.

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The evaluation of complex interventions, such as Single Event Multilevel Surgery (SEMLS) requires more than randomized controlled trials. Rehabilitation following SEMLS is prolonged and the outcomes of interest may not be apparent for 5 years or more after the surgery. We suggest long term, prospective cohort studies with objective outcome measures be recognized as of equal importance to randomized controlled trials. The evidence in support of instrumented gait analysis (IGA) is also reviewed. We suggest that clinical levels of evidence are not an appropriate method to evaluate a measurement tool. Specifically, IGA should be evaluated in terms of validity, reliability and cost effectiveness. We demonstrate that the use of IGA has improved medium and long term outcomes in ambulant children with cerebral palsy in a center where IGA has been used routinely both for planning SEMLS and for monitoring outcomes.

PMID: 22890459 [PubMed - in process]

5. PLoS One. 2012;7(8):e40686. Epub 2012 Aug 16.

Transcriptional abnormalities of hamstring muscle contractures in children with cerebral palsy.

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Cerebral palsy (CP) is an upper motor neuron disease that results in a spectrum of movement disorders. Secondary to the neurological lesion, muscles from patients with CP are often spastic and form debilitating

contractures that limit range of motion and joint function. With no genetic component, the pathology of skeletal muscle in CP is a response to aberrant complex neurological input in ways that are not fully understood. This study was designed to gain further understanding of the skeletal muscle response in CP using transcriptional profiling correlated with functional measures to broadly investigate muscle adaptations leading to mechanical deficits. Biospsies were obtained from both the gracilis and semitendinosus muscles from a cohort of patients with CP (n?=?10) and typically developing patients (n?=?10) undergoing surgery. Biopsies were obtained to define the unique expression profile of the contractures and passive mechanical testing was conducted to determine stiffness values in previously published work. Affymetrix HG-U133A 2.0 chips (n?=?40) generated expression data, which was validated for selected transcripts using quantitative real-time PCR. Chips were clustered based on their expression and those from patients with CP clustered separately. Significant genes were determined conservatively based on the overlap of three summarization algorithms (n?=?1,398). Significantly altered genes were analyzed for over-representation among gene ontologies and muscle specific networks. The majority of altered transcripts were related to increased extracellular matrix expression in CP and a decrease in metabolism and ubiquitin ligase activity. The increase in extracellular matrix products was correlated with mechanical measures demonstrating the importance in disability. These data lay a framework for further studies and development of novel therapies.

PMID: 22956992 [PubMed - in process] PMCID: PMC3431909

6. Int J Pediatr. 2012;2012:976425. Epub 2012 Aug 9.

A systematic review of the clinimetric properties of habitual physical activity measures in young children with a motor disability.

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Aim. To identify and systematically review the clinimetric properties of habitual physical activity (HPA) measures in young children with a motor disability. Method. Five databases were searched for measures of HPA including: children aged <6.0 years with a neuromuscular disorder, physical activity defined as "bodily movement produced by skeletal muscles causing caloric expenditure", reported HPA as duration, frequency, intensity, mode or energy expenditure, and evaluated clinimetric properties. The quality of papers was assessed using the COSMIN-checklist. A targeted search of identified measures found additional studies of typically developing young children (TDC). Results. Seven papers assessing four activity monitors met inclusion criteria. Four studies were of good methodological quality. The Minimod had good ability to measure continuous walking but the demonstrated poor ability to measure steps during free-living activities. The Intelligent Device for Energy Expenditure and Activity and Ambulatory Monitoring Pod showed poor ability to measure activity during both continuous walking and free-living activities. The StepWatch showed good ability to measure steps during continuous walking in TDC. Interpretation. Studies assessing the clinimetric properties of measures of HPA in this population are urgently needed to allow assessment of the relationship between HPA and health outcomes in this group.

PMID: 22927865 [PubMed] PMCID: PMC3423928

7. Disabil Rehabil. 2012 Sep 20. [Epub ahead of print]

Validity evidence of the Lateral Step Up (LSU) test for adolescents with spastic cerebral palsy.

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Department of Physical Education and Sport Sciences, Laboratory of Adapted Physical Activity/Developmental and Physical Disabilities, National and Kapodistrian University of Athens , Greece.

Purpose: The present study examined the concurrent and construct validity of the Lateral Step Up (LSU) test, for adolescents with CP. Method: A total of 35 adolescents, classified as GMFCS Levels I, II and III, were examined using LSU, GMFM - 88 (D & E), other functional mobility measures (TUG, STS, TUDS), body structures and functions (strength, ROM and spasticity). Results: LSU inter-correlations with: (i) GMFM - 88 (D & E) (r = 0.656), (ii) functional mobility measures (r = -0.567 to 0.721) and (iii) body structures and functions (r = 0.155 to 0.563) were at

the appropriate range. The LSU differentiated adolescents with CP (F = 16.185, p = 0.000, η(2) = 0.503), according to their GMFCS (I > II, II > III, I > III). Finally, 50.27% of the LSU variability was explained by GMFCS differences, with 65.7% of adolescents classified correctly across the three levels. Conclusions: The LSU may be perceived as a valid instrument for assessing the functional mobility of adolescents with CP. [Box: see text].

PMID: 22991983 [PubMed - as supplied by publisher]

8. J Biomech. 2012 Sep 4. [Epub ahead of print]

How much muscle strength is required to walk in a crouch gait?

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Muscle weakness is commonly cited as a cause of crouch gait in individuals with cerebral palsy; however, outcomes after strength training are variable and mechanisms by which muscle weakness may contribute to crouch gait are unclear. Understanding how much muscle strength is required to walk in a crouch gait compared to an unimpaired gait may provide insight into how muscle weakness contributes to crouch gait and assist in the design of strength training programs. The goal of this study was to examine how much muscle groups could be weakened before crouch gait becomes impossible. To investigate this question, we first created muscle-driven simulations of gait for three typically developing children and six children with cerebral palsy who walked with varying degrees of crouch severity. We then simulated muscle weakness by systematically reducing the maximum isometric force of each muscle group until the simulation could no longer reproduce each subject's gait. This analysis indicated that moderate crouch gait required significantly more knee extensor strength than unimpaired gait. In contrast, moderate crouch gait required significantly less hip abductor strength than unimpaired gait, and mild crouch gait required significantly less ankle plantarflexor strength than unimpaired gait. The reduced strength required from the hip abductors and ankle plantarflexors during crouch gait suggests that weakness of these muscle groups may contribute to crouch gait and that these muscle groups are potential targets for strength training.

PMID: 22959837 [PubMed - as supplied by publisher]

9. Gait Posture. 2012 Aug 29. [Epub ahead of print]

Effect of fine wire electrode insertion on gait patterns in children with hemiplegic cerebral palsy.

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BACKGROUND: Fine wire electromyography (EMG) is commonly used for surgical decision making in equinovarus foot deformity. However, this invasive technique may have the unwanted effect of altering the gait of children with cerebral palsy (CP). The purpose of this study was to determine if fine wire insertion into the posterior tibialis muscle affects temporal-spatial parameters and hindfoot kinematics during gait in children with equinovarus secondary to hemiplegic CP. METHODS: 12 children with hemiplegic CP who presented with an equinovarus foot (mean age 12.5 yrs, four right-sided, eight left-sided) were recruited. Temporal-spatial parameters and 3-D segmental foot and ankle kinematic gait data were collected utilizing standard gait analysis and the Milwaukee Foot Model (MFM). Three representative trials with and without fine wire electrode insertion were compared to determine the effect of electrode placement in the posterior tibialis on temporal spatial-parameters and hindfoot sagittal, coronal and transverse plane kinematic peaks, timing of kinematic peaks, and excursions. RESULTS: No significant differences in any temporal-spatial or kinematic parameters were observed between "with wire" and "without wire" conditions. Strong correlations were observed among the gait parameters, with the exception of cadence, for the two conditions. DISCUSSION: Fine wire insertion into the posterior tibialis had no measurable effect on the gait of individuals with equinovarus secondary to hemiplegic CP. This suggests that the simultaneous collection of

segmental foot and ankle kinematics and fine wire EMG data of the posterior tibialis is acceptable for surgical decision making in this patient population.

PMID: 22939752 [PubMed - as supplied by publisher]

10. Gait Posture. 2012 Sep 5. [Epub ahead of print]

Prolonged swing phase rectus femoris activity is not associated with stiff-knee gait in children with cerebral palsy: A retrospective study of 407 limbs.

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Prolonged swing phase rectus femoris (RF) activity has been implicated as a cause of stiff-knee gait (SKG) in children with cerebral palsy (CP) and continues to be cited as an indicator for RF intervention. The purpose of this study was to determine what, if any, association exists between abnormal RF activity during preswing, initial swing and/or midswing and SKG in children with CP. This retrospective analysis involved three examiners independently reviewing sagittal plane knee kinematic and RF surface electromyographic (EMG) data from 407 affected limbs of 234 pediatric patients with CP. Five kinematic parameters were rated by each examiner as normal or pathologic: peak knee flexion, knee range of motion during initial swing, total knee range of motion, peak knee flexion timing, and rate of knee flexion. These ratings were used to classify each limb into one of three groups: SKG, Borderline SKG, or Non-SKG. From a representative EMG tracing, RF activity was examined during: the first half of preswing, the latter 2/3 of initial swing, and midswing. Chi-squared tests were used to determine if significant associations existed between SKG and RF activation during these three subphases. There was no association between SKG and prolonged RF activity during the latter 2/3 of initial swing or during midswing. However, a significant relationship between SKG and RF activity during the first half of preswing was found ($p<0.001$). Neither prolonged RF activity during initial swing, nor the presence of RF activity during midswing, were associated with SKG, thus refuting these commonly held associations.

PMID: 22959561 [PubMed - as supplied by publisher]

11. Dev Med Child Neurol. 2012 Aug 28. doi: 10.1111/j.1469-8749.2012.04419.x. [Epub ahead of print]

Functional electrical stimulation in children and adolescents with cerebral palsy.

VAN DER Linden M.

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PMID: 22924527 [PubMed - as supplied by publisher]

12. Orthop Traumatol Surg Res. 2012 Aug 30. [Epub ahead of print]

Neuro-orthopaedic evaluation of children and adolescents: A simplified algorithm.

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Orthopaedic surgeons are often the first physicians to evaluate paediatric patients in the event of delayed walking,

gait abnormalities, or parental concern about motor abilities. Therefore, orthopaedic surgeons must be thoroughly familiar with the normal neurodevelopmental stages. Neurological disorders are often first recognised during an orthopaedic evaluation. Minimal neurological abnormalities should be taken as warning signs that require additional investigations. Consequently, the evaluation must follow a strict protocol, even in children referred for apparently trivial functional disorders. We have developed an original physical examination protocol in which the largest possible number of signs is sought in each body position to ensure that the examination is both systematic and rapid. About ten minutes are required when all findings are normal. This protocol is extremely helpful for identifying the cause of the problem that motivated the evaluation or for reassuring the child and family. The main causes of paediatric orthopaedic disorders are cerebral palsy, spinal dysraphism, myopathies, peripheral neuropathies, motor neuron diseases, and intraspinal tumours. In some instances, no definitive diagnosis can be established clinically. In this situation, appropriate orthopaedic treatment can be initiated, although considerable caution is in order when establishing the indications. The cause may be detected only much later, when the clinical manifestations become more prominent.

PMID: 22939865 [PubMed - as supplied by publisher]

13. Spine (Phila Pa 1976). 2012 Aug 24. [Epub ahead of print]

Growing Rods for the Treatment of Scoliosis in Children With Cerebral Palsy: A Critical Assessment.

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Study Design. Retrospective analysis.Objective. To evaluate, in children with cerebral palsy (CP), the following aspects of growing rod (GR) treatment for scoliosis: structural effectiveness, effect of pelvic fixation, hospital stay duration, and complications. Summary of Background Data. Children with CP frequently develop severe spinal deformity and pelvic obliquity (PO). Growth-preserving strategies are attractive, but comorbidities raise the risk/benefit ratio. To our knowledge, no previous studies have focused on growth-preserving spine surgery in these children. Methods. From our multicenter patient group, we identified 27 children with CP treated with GRs (single rod in 4; dual rods in 23 [15 extending to the pelvis]). We collected radiographic, surgical, hospital stay, and major complication data. We compared Cobb angle and PO improvement between patients with and without pelvic instrumentation via Student's t test (significance, P = 0.05). No patient required anterior spinal fusion. Results. Average improvements for all patients (preoperative to latest follow-up) were: Cobb angle, 35° ± 23°; PO, 14° ± 19°; T1 to S1 length, 7.9 ± 4.4 cm; and space available for lung ratio, 0.17 ± 0.21. For the 8 patients who underwent fusion, average improvements (preoperative to postfusion) were: Cobb angle, 43° ± 28°; PO, 2° ± 21°; T1 to S1 length, 9.5 ± 6.0 cm; and space available for lung ratio, 0.26 ± 0.28. Pelvic GR fixation produced better PO correction (P < 0.001) but similar Cobb angle correction (P = 0.556). Hospital stays averaged 8.7 ± 12.1 days after initial surgery, 1.4 ± 2.5 days after lengthening (45% were outpatient procedures), and 13.4 ± 6.2 days after fusion. The most common complication was deep wound infection (30%).Conclusion. GRs via a posterior-only approach are effective. Constructs extending to the pelvis better control PO. However, 30% of patients experienced deep wound infection.

PMID: 22926278 [PubMed - as supplied by publisher]

14. J Pediatr Orthop. 2012 Sep;32 Suppl 2:S172-81.

Management of Children With Ambulatory Cerebral Palsy: An Evidence-based Review.

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This article reviews the current best evidence for musculoskeletal interventions in children with ambulatory cerebral palsy (CP). The effectiveness of interventions in CP must first consider what CP and its associated pathophysiology are and take into account the heterogeneity and natural history of CP to put definitions of "effectiveness" into perspective. This article reviews the current standards of the definition and classification of CP, discusses the natural history and specific goals for the management of ambulatory CP, as well as the outcome measures available to measure these goals. The current best evidence of effectiveness is reviewed for specific interventions in children with ambulatory CP including spasticity management with botulinum toxin A injections and selective dorsal rhizotomy; multilevel orthopaedic surgery to address contractures and bony deformity; and the role of gait analysis for surgical decision-making before orthopaedic surgery.

PMID: 22890458 [PubMed - in process]

15. Acta Med Iran. 2012 Jul;50(7):463-7.

Late sequelae of hip septic arthritis in children.

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Septic arthritis of the hip in children has multiple sequelae and may result in severe disability. Significant morbidity can be prevented by early recognition and treatment. The authors reviewed 13 children with 14 hips with sequelae of septic arthritis of the hip. All of children had history of hip septic arthritis before age of 4 years. Six were male subjects, and 7 were female subjects. We evaluated the history, clinical findings and radiographs of all children who had been treated at the Imam Khomeini hospital between 1986 and 2001 for septic arthritis of the hip. Final results of operations in patients include range of motion, presence or absence pain, joint stability, limb-length discrepancy were assessed. Three hips had mild pain in usual daily activities and one patient with cerebral palsy experienced hip instability. Most of patients (80%) had flexion contracture about 10-15 degrees . Final results showed average limb length discrepancy was about 2.8 cm. Septic arthritis of the hip in children may result in a spectrum of residual problems and the significant complications can be averted by early detection and treatment. Treatment in younger age cause better outcome.

PMID: 22930377 [PubMed - in process]

16. Dev Med Child Neurol. 2012 Aug 27. doi: 10.1111/j.1469-8749.2012.04401.x. [Epub ahead of print]

Acceptability and potential effectiveness of a foot drop stimulator in children and adolescents with cerebral palsy.

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Aim: Ankle-foot orthoses are the standard of care for foot drop in cerebral palsy (CP), but may overly constrain ankle movement and limit function in those with mild CP. Functional electrical stimulation (FES) may be a less restrictive and more effective alternative, but has rarely been used in CP. The primary objective of this study was to conduct the first trial in CP examining the acceptability and clinical effectiveness of a novel, commercially available

device that delivers FES to stimulate ankle dorsiflexion. Method: Twenty-one individuals were enrolled (Gross Motor Function Classification System [GMFCS] levels I and II, mean age 13y 2mo). Gait analyses in FES and non-FES conditions were performed at two walking speeds over a 4 month period of device use. Measures included ankle kinematics and spatiotemporal variables. Differences between conditions were revealed using repeated measures multivariate analyses of variance. Results: Nineteen individuals (nine females, 10 males; mean age 12y 11mo, range 7y 5mo to 19y 11mo; 11 at GMFCS level I, eight at level II) completed the FES intervention, with all but one choosing to continue using FES beyond that phase. Average daily use was 5.6 hours (SD 2.3). Improved dorsiflexion was observed during swing (mean and peak) and at foot-floor contact, with partial preservation of ankle plantarflexion at toe-off when using the FES at self-selected and fast walking speeds. Gait speed was unchanged. Interpretation: This FES device was well accepted and effective for foot drop in those with mild gait impairments from CP.

PMID: 22924431 [PubMed - as supplied by publisher]

17. J Pediatr Orthop B. 2012 Sep 16. [Epub ahead of print]

Percutaneous pelvic osteotomy and intertrochanteric varus shortening osteotomy in nonambulatory GMFCS level IV and V cerebral palsy patients: preliminary report on 30 operated hips.

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This study evaluated the outcome of severe cerebral palsy patients (Gross Motor Function Classification System level IV and V) treated by simultaneous percutaneous pelvic osteotomy and intertrochanteric varus shortening osteotomy for hip subluxation or dislocation between 2002 and 2011. Twenty-four patients (30 hips) with an average age of 9.4 years (5-16.5) were reviewed at a mean follow-up of 35.9 months (6-96). Percutaneous pelvic osteotomy lasted on average 30 min/patient per side (25-40) and was always performed through a skin incision of 2 -3 cm. The migration percentage and acetabular angle were assessed on plain radiographs. The mean Reimers' migration percentage improved from 67.1% (42-100) preoperatively to 7.7% (0-70) at the last follow-up and the mean acetabular angle improved from 31.8° (22-48) to 15.7° (5-27). Five patients presented complications: one redislocation, one bone graft dislodgement, and three with avascular necrosis of the femoral head. This study should be considered as a pilot study. These results indicate that this combined approach is an effective, reliable, and minimally invasive alternative method for the treatment of spastic dislocated hips in severe cerebral palsy patients with an outcome similar to standard techniques reported in the literature.

PMID: 22990440 [PubMed - as supplied by publisher]

18. Pediatr Phys Ther. 2012 Winter;24(4):308-12.

Comparison of articulated and rigid ankle-foot orthoses in children with cerebral palsy: a systematic review.

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Rehabilitation Sciences Department, Universidade Nove de Julho, São Paulo, Brazil (Drs Neto and Santos Oliveira and Ms Collange Grecco); Bioengineering Department, Politecnico di Milano, Milan, Italy (Dr Galli).

PURPOSE: The aim of this review was to compare the effects of rigid and articulated ankle-foot orthoses on gait in children with cerebral palsy (CP). METHOD: A systematic review was carried out in 4 databases. The papers identified were evaluated on the basis of the following inclusion criteria: (1) design-controlled clinical trial; (2) population-children and adolescents with CP; (3) intervention-rigid or articulated ankle-foot orthoses; and (4) outcome-improved motor function and gait performance. RESULTS: Seven controlled studies comparing the effects of different ankle-foot orthoses were found. Studies achieved PEDro scores of 3 and 4 for methodological quality.

CONCLUSION: There is evidence supporting the use of an articulated ankle-foot orthosis by children with CP, because of the improved function this type of orthosis provides. However, other studies point out the advantages of a rigid orthosis for children with greater impairment related to spasticity and contractures.

PMID: 22965199 [PubMed - in process]

19. Pediatr Phys Ther. 2012 Winter;24(4):302-7.

Importance of orthotic subtalar alignment for development and gait of children with cerebral palsy.

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PURPOSE: This case report addresses the assumption that ankle and foot orthoses assist children with cerebral palsy. KEY POINTS: Outcome research reports are not consistent. Clinical observations and research studies suggest that inappropriate fit and design of orthoses may contribute to poor outcomes. In particular, problems occur when the subtalar joint is out of alignment as children often compensate with unwanted movement patterns that affect progress, development, and function. Four cases are presented to demonstrate problems that can occur when ankle-foot or supramalleolar orthoses are not cast in subtalar neutral. CONCLUSION: Physical therapists can use their clinical observation skills to evaluate the proper fit and alignment of orthoses for children with cerebral palsy.

PMID: 22965198 [PubMed - in process]

20. Dev Neurorehabil. 2012;15(3):202-8.

Validation of the relation between the type and amount of seating support provided and Level of Sitting Scale (LSS) scores for children with neuromotor disorders.

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OBJECTIVES: To assess the construct validity of the Level of Sitting Scale (LSS) by examining the relationship between LSS scores and the type and amount of seating supports. METHODS: Secondary analysis of the data for 114 children ≤18 years, with neuromotor disorders who participated in a responsiveness study of the Seated Postural Control Measure. RESULTS: A significant inverse relationship (Spearman rho = -0.42, $p < 0.05$) was found between LSS scores and amount of seating support provided. Statistically significant differences were also revealed between LSS levels of sitting ability ($p < 0.004$) and pelvic, thigh, trunk and head seating components and type of seating system, using Kruskal-Wallis test. CONCLUSION: This study provides evidence of construct validity for the LSS in use as a discriminative measure of sitting ability in children with neuromotor disorders. Further validation is justified. Clinically intuitive associations between sitting ability and seating interventions were confirmed.

PMID: 22582851 [PubMed - indexed for MEDLINE]

21. Phys Ther. 2012 Sep 6. [Epub ahead of print]

The Impact of Body-Scaled Information on Reaching.

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BACKGROUND: Environmental and task modifications are powerful methods used to affect action in rehabilitation and are frequently used by therapists. OBJECTIVE: The purpose of this study was to examine and quantify the relationship between hand size (person characteristics) and object size (environmental characteristics) and the effect of this relationship on the emergent reaching patterns for typically developing children and adults. DESIGN: This is a cross-sectional prospective study. METHODS: Seventeen children and 20 adults were included and required to reach and grasp ten pairs of different sizes of cubes. The dimensionless ratios were calculated by dividing the cube size by the aperture between index finger and thumb to quantify emergent reach and grasp patterns. A critical ratio was used to establish the shift from a one-handed to an exclusive two-handed reach pattern. RESULTS: The results demonstrated no significant difference in the mean critical ratios between the two groups. However, a two-handed reach was used more frequently than a one-handed reach at a significantly smaller ratio for children in comparison to adults. LIMITATIONS: The relational metrics between the cube and hand is only one contribution to the emergent reaching and grasping patterns. CONCLUSIONS: Children had more variability of reaching patterns than adults. A personal constraint such as experience, and a task constraint of accuracy may account for the variability. The results encourage further research on body-scaled information for individuals with different personal constraints, e.g., children with cerebral palsy, and the impact of body-scaled information on emergent actions.

PMID: 22956428 [PubMed - as supplied by publisher]

22. Clin Rehabil. 2012 Sep 5. [Epub ahead of print]

Effect of therapist-based constraint-induced therapy at home on motor control, motor performance and daily function in children with cerebral palsy: a randomized controlled study.

Chen CL, Kang LJ, Hong WH, Chen FC, Chen HC, Wu CY.

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Objective: To determine the effect of therapist-based constraint-induced therapy at home on motor performance, daily function and reaching control for children with cerebral palsy. Design: A single-blinded, randomized controlled trial. Subjects: Forty-seven children (23 boys; 24 girls) with unilateral cerebral palsy, aged 6-12 years, were randomized to constraint-induced therapy (n = 24) or traditional rehabilitation (n = 23).Interventions:Constraint-induced therapy involved intensive functional training of the more affected arm while the less affected arm was restrained. Traditional rehabilitation involved functional unilateral and bilateral arm training. Both groups received individualized therapist-based interventions at home for 3.5-4 hours/day, two days a week for four weeks. Main measures: Motor performance and daily function were measured by the Peabody Developmental Motor Scale, Second Edition and the Pediatric Motor Activity Log. Reaching control was assessed by the kinematics of reaction time, movement time, movement unit and peak velocity. Results: There were larger effects in favour of constraint-induced therapy on motor performance, daily function, and some aspects of reaching control compared with traditional rehabilitation. Children receiving constraint-induced therapy demonstrated higher scores for Peabody Developmental Motor Scale, Second Edition - Grasping (pretest mean ± SD, 39.9 ± 3.1; posttest, 44.1 ± 2.8; $P < 0.001$), Pediatric Motor Activity Log (pretest, 1.8 ± 0.3; posttest, 2.5 ± 0.3; $P < 0.001$) and shorter reaction time, normalized movement time ($P < 0.001$) and higher peak velocity ($P = 0.004$) of reaching movement. Conclusions: Constraint-induced therapy induced better grasping performance, daily function, and temporal and spatiotemporal control of reaching in children with unilateral cerebral palsy than traditional rehabilitation.

PMID: 22952304 [PubMed - as supplied by publisher]

23. Res Dev Disabil. 2012 Aug 30;34(1):183-197. [Epub ahead of print]

How does brain activation differ in children with unilateral cerebral palsy compared to typically developing children, during active and passive movements, and tactile stimulation? An fMRI study.

Van de Winckel A, Klingels K, Bruyninckx F, Wenderoth N, Peeters R, Sunaert S, Van Hecke W, De Cock P, Eyssen M, De Weerdt W, Feys H.

Department of Rehabilitation Sciences, Faculty of Kinesiology and Rehabilitation Sciences, KU Leuven, Belgium. The aim of the functional magnetic resonance imaging (fMRI) study was to investigate brain activation associated with active and passive movements, and tactile stimulation in 17 children with right-sided unilateral cerebral palsy (CP), compared to 19 typically developing children (TD). The active movements consisted of repetitive opening and closing of the hand. For passive movements, an MRI-compatible robot moved the finger up and down. Tactile stimulation was provided by manually stroking the dorsal surface of the hand with a sponge cotton cloth. In both groups, contralateral primary sensorimotor cortex activation (SM1) was seen for all tasks, as well as additional contralateral primary somatosensory cortex (S1) activation for passive movements. Ipsilateral cerebellar activity was observed in TD children during all tasks, but only during active movements in CP children. Of interest was additional ipsilateral SM1 recruitment in CP during active movements as well as ipsilateral S1 activation during passive movements and tactile stimulation. Another interesting new finding was the contralateral cerebellum activation in both groups during different tasks, also in cerebellar areas not primarily linked to the sensorimotor network. Active movements elicited significantly more brain activation in CP compared to TD children. In both groups, active movements displayed significantly more brain activation compared to passive movements and tactile stimulation.

PMID: 22940170 [PubMed - as supplied by publisher]

24. Disabil Rehabil. 2012 Sep 20. [Epub ahead of print]

Exploration of the relationship between the Manual Ability Classification System and hand-function measures of capacity and performance.

Ohrvall AM, Krumlinde-Sundholm L, Eliasson AC.

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Purpose: To further investigate the construct of Manual Ability Classification System (MACS) by evaluating the relationship between children's designated MACS levels and their outcomes on two different tests of hand function, measuring capacity and performance, respectively. Another aim was to use the International Classification of Functioning, Disability and Health-Child and Youth version (ICF-CY) as a framework to explore the uniqueness of the assessments. Method: Ninety-one children with cerebral palsy in MACS levels I-V, aged 5-17 years (mean 9.8, SD 3.0) participated. Data were collected using MACS, ABILHAND-Kids and Box and Block Test. Results: A strong association between MACS and ABILHAND-Kids ($r(s) = -0.88$, $p < 0.05$) and MACS and Box and Block Test ($r(s) = -0.81$, $p < 0.05$) was demonstrated. Children's performance differed significantly between the different MACS levels (ABILHAND-Kids $F(4:86) = 103.86$, $p < 0.001$, Box and Block Test $F(4:86) = 59.18$, $p < 0.001$). The content comparison with ICF-CY, as a frame of reference, showed that these instruments capture fine hand use in the activity and participation component. The linking of the instruments to various ICF-CY categories demonstrated conceptual differences between the instruments. MACS had the broadest representation of ICF-CY domains. Conclusions: This study strengthens the construct, and thereby the validity, of MACS as a classification of children's hand function, expressed by the handling of objects in everyday activities in their daily environments. [Box: see text].

PMID: 22992179 [PubMed - as supplied by publisher]

25. Dev Neurorehabil. 2012 Sep 4. [Epub ahead of print]

Studies comparing the efficacy of constraint-induced movement therapy and bimanual training in children with unilateral cerebral palsy: A systematic review.

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Objective: To review studies comparing the efficacy of constraint-induced movement therapy (CIMT) and bimanual training (BIT) in improving the hemiplegic arm functioning and overall functional performance for children with

unilateral cerebral palsy (CP). Methods: Systematic searches of electronic databases, reference lists and journals identified seven studies that met pre-determined inclusion criteria. These studies were analysed in terms of participants, treatment activities and regime, outcome measures and results of intervention. Results: Both CIMT and BIT produced similar improvements in the bimanual and unimanual capacities of the affected arm and overall functional performance. Conclusions: CIMT yields more improvements in the unimanual capacity of the impaired arm compared with BIT. A potential benefit of BIT is that participants may see more improvement in both bimanual performance and self-determined overall life goals. A combination of CIMT and BIT could be an option on improving arm function for children with unilateral CP in future.

PMID: 22946588 [PubMed - as supplied by publisher]

26. J Pediatr Rehabil Med. 2012;5(2):117-24.

Modified constraint induced movement therapy enhanced by a neuro-development treatment-based therapeutic handling protocol: two case studies.

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Modified Constraint Induced Movement Therapy (CIMT) and Neuro-Developmental Treatment (NDT) are both intervention strategies that focus on active practice to optimize function. CIMT involves constraint of the less involved upper extremity during function and NDT includes facilitation of optimal postural control and symmetry to enhance the ability to complete a given motor function. The purpose of this article is to describe an intervention protocol for children with hemiplegia that integrates key NDT and CIMT principles. Two children participated in a modified CIMT (mCIMT)/NDT program 2 hours a day for two months. The children wore a constraint on the less involved arm and participated in guided play with early intervention members and parents. Play was individualized to developmental level and incorporated principles of NDT. Function was measured pre- and post-intervention using the PDMS-2, QUEST, ACQUIRE Therapy Motor Patterns, and ACQUIRE Functional Activities. Both children demonstrated motor skill acquisition, improved quality of functional use, and increased frequency of bilateral hand use. Parents found the protocol challenging but manageable in their daily routines. The inclusion of NDT principles within a mCIMT protocol may be an effective intervention to maximize functional motor skill acquisition in children with hemiplegia. Additional research is warranted to support this intervention.

PMID: 22699102 [PubMed - indexed for MEDLINE]

27. Exp Brain Res. 2012 Sep 14. [Epub ahead of print]

The influence of spatial working memory on ipsilateral remembered proprioceptive matching in adults with cerebral palsy.

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Somatosensation is frequently impaired in individuals with Cerebral Palsy (CP). This includes the sense of proprioception, which is an important contributor to activities of daily living. One means of determining proprioceptive deficits in CP has been use of an Ipsilateral Remembered (IR) position matching test. The IR test requires participants to replicate, without vision, memorized joint/limb positions previously experienced by the same (i.e. ipsilateral) effector. Given the memory component inherent to this task, the present study sought to determine the extent to which IR proprioceptive matching might be influenced by known spatial working memory deficits. Eleven adults with CP underwent IR elbow position matching, where blindfolded individuals were given either a short (2 s) or long (15 s) duration to memorize the target elbow angle. A standard clinical measure of spatial working memory (i.e. Corsi block-tapping task) was also administered. The results showed that the directional (i.e. constant) error produced across trials did not differ between the short and long target duration conditions. However, it was found that participants were significantly more consistent in their matches (i.e. had smaller variable errors)

when given more time to encode proprioceptive targets in the long duration condition. The benefit of having more time was greatest for those individuals with the highest variable errors in the short target condition, and a significant association was seen between improvements in variable error and greater performance on 4/5 spatial working memory measures. These findings provide the best evidence to date that IR position matching tests are influenced by spatial working memory.

PMID: 22975865 [PubMed - as supplied by publisher]

28. Otol Neurotol. 2012 Oct;33(8):1347-52.

Pediatric cochlear implants: additional disabilities prevalence, risk factors, and effect on language outcomes.

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OBJECTIVE: To determine the prevalence of additional disabilities in a pediatric cochlear population, to identify medical and radiologic conditions associated with additional disabilities, and to identify the effect of additional disabilities on speech perception and language at 12 months postoperatively. STUDY DESIGN: Retrospective case review. SETTING: Tertiary referral center and cochlear implant program. PATIENTS: Records were reviewed for children 0 to 16 years old inclusive, who had cochlear implant-related operations over a 12-month period. INTERVENTIONS: diagnostic and rehabilitative. MAIN OUTCOME MEASURES: Additional disabilities prevalence; medical history and radiologic abnormalities; and the effect on Categories of Auditory Performance (CAP) score at 12 months postoperatively. RESULTS: Eighty-eight children having 96 operations were identified. The overall prevalence of additional disabilities (including developmental delay, cerebral palsy, visual impairment, autism and attention deficit disorder) was 33%. The main conditions associated with additional disabilities were syndromes and chromosomal abnormalities (87%), jaundice (86%), prematurity (62%), cytomegalovirus (60%), and inner ear abnormalities including cochlea nerve hypoplasia or aplasia (75%) and semicircular canal anomalies (56%). At 12 months postoperatively, almost all (96%) of the children without additional disabilities had a CAP score of 5 or greater (speech), compared with 52% of children with additional disabilities. Children with developmental delay had a median CAP score of 4, at 12 months compared with 6 for those without developmental delay. CONCLUSION: Additional disabilities are prevalent in approximately a third of pediatric cochlear implant patients. Additional disabilities significantly affect the outcomes of cochlear implants.

PMID: 22975903 [PubMed - in process]

29. NeuroRehabilitation. 2012 Jan 1;31(2):117-29.

Botulinum toxin use in neuro-rehabilitation to treat obstetrical plexus palsy and sialorrhea following neurological diseases: A review.

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In neuro-rehabilitation, botulinum toxin (BTX) as adjunct to other interventions can result in a useful therapeutic tool treating disabled people. Other than spasticity, numerous motor and non motor disorders can complicate clinical course and hamper rehabilitative process of neurological impaired patients. A review of BTX use in treating muscular imbalance of children with obstetrical brachial plexus palsy and in reducing sialorrhea following neurological diseases including amyotrophic lateral sclerosis (ASL), Parkinson disease and cerebral palsy (CP) is provided. Clinicians have to face unique and difficult to treat clinical conditions such as ulcers, sores and abnormal posture and movement disorders due to neurological affections. BTX effectiveness in treating some of these conditions is also provided. Since, neurologically disabled subjects can show complex dysfunction, prior to initiating BTX therapy, specific functional limitations, goals and expected outcomes of treatment should be evaluated and discussed with family and caregivers.

PMID: 22951705 [PubMed - in process]

30. Dev Med Child Neurol. 2012 Sep 5. doi: 10.1111/j.1469-8749.2012.04370.x. [Epub ahead of print]

Salivary gland botulinum toxin injections for drooling in children with cerebral palsy and neurodevelopmental disability: a systematic review.

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Aim: The aim of this paper was to systematically review the efficacy and safety of botulinum toxin (BoNT) injections to the salivary glands to treat drooling in children with cerebral palsy and neurodevelopmental disability. Method A systematic search of The Cochrane Central Register of Controlled Trials, PubMed, CINAHL (Cumulative Index to Nursing and Allied Health Literature), EMBASE, and the Physiotherapy Evidence Database (PEDro) was conducted (up to 1 October 2011). Data sources included published randomized controlled trials (RCTs) and prospective studies. Results Sixteen studies met inclusion criteria. Three outcome measures support the effectiveness of BoNT for drooling. One RCT found an almost 30% reduction in the impact of drooling on patients' lives, as measured by the Drooling Impact Scale (mean difference -27.45; 95% confidence interval [CI] -35.28 to -19.62). There were sufficient data to pool results on one outcome measure, the Drooling Frequency and Severity Scale, which supports this result (mean difference -2.71; 95% CI -4.82 to -0.60; p<0.001). There was a significant reduction in the observed number of bibs required per day. The incidence of adverse events ranged from 2 to 41%, but was inconsistently reported. One trial was terminated early because of adverse events. Interpretation BoNT is an effective, temporary treatment for sialorrhoea in children with cerebral palsy. Benefits need to be weighed against the potential for serious adverse events. More studies are needed to address the safety of BoNT and to compare BoNT with other treatment options for drooling.

PMID: 22946706 [PubMed - as supplied by publisher]

31. Br J Oral Maxillofac Surg. 2012 Aug 30. [Epub ahead of print]

Ultrasound-guided injection of botulinum toxin A into the submandibular gland in children and young adults with sialorrhoea.

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Hypersalivation is a common and distressing complaint in children with neuromuscular disorders such as cerebral palsy. Complications associated with severe drooling include daily changes of clothing, perioral dermatitis, dental problems, dehydration, and aspiration pneumonia, which potentially have a detrimental effect on the quality of life of the patient and carer. In this paper we update our previous work to show the potential benefits of ultrasound-guided injection of botulinum toxin A (BTX-A) into the submandibular gland and report on new patients and follow-up data on the existing group.

PMID: 22939893 [PubMed - as supplied by publisher]

32. J Acoust Soc Am. 2012 Sep;132(3):2089.

Second-formant locus patterns in dysarthric speech.

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Second-formant (F2) locus equations represent a linear relationship between F2 measured at the vowel onset following stop release and F2 measured at the vowel midpoint in a consonant-vowel (CV) sequence. Prior research has used the slope and intercept of locus equations as indices to coarticulation degree and the consonant's place of articulation. This presentation addresses coarticulation degree and place of articulation contrasts in dysarthric speech, by comparing locus equation measures for speakers with cerebral palsy and control speakers. Locus equation data are extracted from the Universal Access Speech (Kim et al. 2008). The data consist of CV sequences with labial, alveolar, velar stops produced in the context of various vowels that differ in backness and thus in F2. Results show that for alveolars and labials, slopes are less steep and intercepts are higher in dysarthric speech compared to normal speech, indicating a reduced degree of coarticulation in CV transitions, while for front and back velars, the opposite pattern is observed. In addition, a second-order locus equation analysis shows a reduced separation especially between alveolars and front velars in dysarthric speech. Results will be discussed in relation to the horizontal tongue body positions in CV transitions in dysarthric speech.

PMID: 22979801 [PubMed - in process]

33. J Pediatr Gastroenterol Nutr. 2012 Sep 13. [Epub ahead of print]

Increased Prevalence of Antibodies Against Dietary Proteins In Children And Young Adults With Cerebral Palsy.

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OBJECTIVES: Undernourishment is common in children with cerebral palsy (CP) but the reasons are unknown. We previously reported elevated levels of immunoglobulin (Ig) A and IgG antibodies against gliadin (AGA) and tissue transglutaminase (tTG) in 99 children and young adults with CP without characteristic findings of gluten enteropathy in small bowel biopsies. Our aim was to perform a case-control study of IgG-antibodies against other dietary antigens, AGA, anti-tTG and IgE-antibodies against wheat and gluten. METHODS: Sera from 99 CP-cases and 99 healthy, age- and sex-matched controls were analysed with fluorescence enzyme-linked immunosorbent assay (FEIA) for detection of IgG-antibodies against beta-lactoglobulin, casein, egg white, IgG- and IgA-AGA, IgA-anti-tTG and IgE antibodies against gluten and wheat. RESULTS: Compared with controls, the odds ratio (OR) in CP cases for having elevated levels of IgG antibodies against beta-lactoglobulin was 17.0 (95% CI 2.3-128), against casein 11.0 (95% CI 2.6-46.8) and against egg white 7.0 (95% CI 1.6-30.8). The IgE-responses for wheat/gluten were generally low. The tetraplegic (TP) and dyskinetic (DK) CP-subtypes had significantly higher frequencies of elevated levels for all tested antibodies except IgG against egg white, and IgA-anti- tTG. A significantly lower weight was seen in CP-cases with positive versus negative serology. CONCLUSION: Elevated levels of IgG against dietary antigens were more frequent in the CP-group compared with controls, and particularly in the TP and DK CP-subtypes with the most severe neurologic handicap and undernourishment. Hypothetically, malnourishment may cause increased intestinal permeability and thus immunization against dietary antigens.

PMID: 22983381 [PubMed - as supplied by publisher]

34. Spec Care Dentist. 2012 Sep;32(5):210-7. doi: 10.1111/j.1754-4505.2012.00267.x.

Integrated approach to outpatient dental treatment of a patient with cerebral palsy: a case report.

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The large number of oral manifestations associated with motor disorders in patients with cerebral palsy (CP) makes the dentist an indispensable member of the multidisciplinary team caring for this population. This case report presents an 11-year-old girl with spastic CP who had severe motor impairment, and a description of her care illustrates the importance of integrated care for patients with CP who are receiving outpatient dental treatment. It was determined that the use of adaptations based on knowledge of CP supported the outpatient dental treatment. The integrated approach used during dental treatment enabled the application of knowledge from the fields of dentistry, physical therapy, and speech therapy to provide for a better quality of life for the patient and, consequently, the caregiver through the improvement in the patient's oral and general health.

PMID: 22943774 [PubMed - in process]

35. J Adolesc Health. 2012 Sep;51(3):272-8. Epub 2012 Mar 3.

Assessing the health, functional characteristics, and health needs of youth attending a noncategorical transition support program.

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PURPOSE: To assess the health, functional characteristics, and health care service needs of youth and young adults with special health care needs attending a comprehensive, noncategorical transition program. METHODS: A self-administered survey was developed from national health surveys and clinical experience to assess concepts identified as important for successful transition to adulthood. Surveys were mailed to 198 parents of youth and young adults with special health care needs attending the transition clinic. Parents were asked about the youth's health, functional status, and health care services needed. The clinical database provided demographic and patient health characteristics. Results were compared against the 2005-2006 National Survey of Children with Special Health Care Needs. RESULTS: Forty-four percent of surveys were returned. Average age of youth was 17.5 (11-22) years old and diagnoses included cerebral palsy (36%), spina bifida (10%), developmental delay or Down syndrome (17%), and autism (6%). Most youth needed assistance with personal care (69%) and routine needs (91%) and used assistive devices (59%). Compared with the 2005-2006 National Survey of Children with Special Health Care Needs, parents reported higher needs for all services except mental health care and tobacco or substance use counseling. Forty three percent reported at least one unmet health need. Few parents reported the need for counseling on substance use (1%), sexual health screening (16%), nutrition (34%), and exercise (41%). CONCLUSIONS: Youth attending our transition program had more functional limitations, poorer reported health status, different diagnosis distribution, and higher levels of needed health services. Few parents identified needs for other recommended adolescent preventive services. Transition programs should assess patient health characteristics and service needs to design effective patient-centered services.

PMID: 22921138 [PubMed - in process]

36. J Pediatr Urol. 2012 Aug 21. [Epub ahead of print]

Relationship of bladder dysfunction with upper urinary tract deterioration in cerebral palsy.

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Although lower urinary tract dysfunction (LUTD) in patients with cerebral palsy (CP) has been previously documented by clinical observations and urodynamic tests, its correlation with upper urinary tract deterioration (UUTD) has not been demonstrated. This paper documents symptoms and urodynamic findings of LUTD and their relationship with UUTD in 33 children with CP. By sonography, 4 of these children were found to have UUTD. Age was found to correlate with UUTD, but gender difference and mental or motor functions did not. When comparing urinary symptoms with UUTD, incontinence (n = 31) did not correlate, but on the other hand symptoms of detrusor sphincter dyssynergia (interrupted voiding, urinary retention, hesitancy; n = 5) and culture proven febrile urinary tract infections (n = 4) did. Abnormal urodynamics findings were not diagnostic. We conclude that, apart from incontinence, dysfunctional voiding symptoms and febrile urinary tract infections are valuable indicators of UUTD.

PMID: 22921013 [PubMed - as supplied by publisher]

37. J Thorac Cardiovasc Surg. 2012 Sep 6. [Epub ahead of print]

Clinical outcome score predicts the need for neurodevelopmental intervention after infant heart surgery.

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OBJECTIVE: Our goal was to determine if a clinical outcome score derived from early postoperative events is associated with 18- to 24-month Psychomotor Developmental Index (PDI) score among infants undergoing cardiopulmonary bypass surgery. METHODS: We included infants aged =6 weeks who underwent surgery during 2002-2006, all of whom were referred for neurodevelopmental evaluation at age 18 to 24 months. We excluded children with chromosomal abnormalities, hearing loss, cerebral palsy, or a Bayley III assessment. The prespecified clinical outcome score had a range of 0 to 7. Lower scores indicated a more rapid postoperative recovery. Patients requiring extracorporeal membrane oxygenation were assigned a score of 7. RESULTS: Ninety-nine subjects were included. Surgical procedures were arterial switch (n = 36), Norwood (n = 26), repair of total anomalous pulmonary venous connection (n = 16), and other (n = 21). Four subjects had postoperative extracorporeal membrane oxygenation. Clinical outcome scores were highest in the Norwood group (mean 4.1 ± 1.4) compared with the arterial switch group (1.9 ± 1.6) (P < .001), total anomalous pulmonary venous connection group (1.6 ± 2.0) (P < .001), and other group (3.3 ± 1.6, P = not significant). A mean decrease in PDI of 10.9 points (95% confidence interval, 4.9-16.9; P = .0005) was observed among children who had a clinical outcome score =3, compared with those with a clinical outcome score <3. Time until lactate =2.0 mmol/L increased with increasing clinical outcome score (P = .0003), as did highest 24-hour inotrope score (P < .0001). CONCLUSIONS: Clinical outcome scores of =3 were associated with a significantly lower PDI at age 18 to 24 months. This score may be valuable as an end point when evaluating novel potential therapies for this high-risk population.

PMID: 22959319 [PubMed - as supplied by publisher]

38. Scand J Caring Sci. 2012 Aug 24. doi: 10.1111/j.1471-6712.2012.01071.x. [Epub ahead of print]

Psychological distress and perceived support among Jordanian parents living with a child with cerebral palsy: a cross-sectional study.

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Background: Cerebral palsy, with a prevalence in Europe of 2-2.5 per 1000 live births, is the most common severe physical disability affecting children. While many parents have positive perceptions of their disabled children, caring for a child with disability can be exhausting and stressful, and social support is an important coping resource. There is little evidence about how having a child with cerebral palsy affects Jordanian parents. Aim: The purpose of this study was to provide insight into the psychological distress and perceived support among Jordanian parents living with a child with cerebral palsy. Method: In 2010, a cross-sectional, descriptive, correlational design was used with a nonprobability sample of 204 Jordanian parents. Both mothers and fathers, interviewed individually rather than in pairs, were recruited from health care centres that provided comprehensive care for children with cerebral palsy in Jordan and from designated schools for special education. The Gross Motor Function Classification System, the Perceived Stress Scale (PSS), the Beck Depression Inventory, the Strengths and Difficulties Questionnaire and the Multidimensional Scale of Perceived Social Support (MSPSS) were administered to parents. Descriptive statistical analysis was applied. Bivariate correlation analysis was undertaken to examine the relationship between variables. Results: More than 60% of parents often felt nervous and stressed. The mean score on the PSS was 27.0 (SD = 9.33), and the mean score on the MSPSS was 58.9 (SD = 15.1). Severe disability in the child was associated with high mental distress in the parent and linked to low support from friends. There was a significant negative correlation between parental stress, depression and social support. Parents with the most psychological distress were the least well supported. Conclusion: This study has implications for health professionals in terms of developing strategies for reducing parental stress. There are implications for policy to provide support for parents and to develop family-centred services. The findings will inform an intervention study to investigate multi-professional support.

PMID: 22924549 [PubMed - as supplied by publisher]

39. Res Dev Disabil. 2012 Sep 15;34(1):344-352. doi: 10.1016/j.ridd.2012.08.018. [Epub ahead of print]

Description and psychometric properties of the CP QOL-Teen: A quality of life questionnaire for adolescents with cerebral palsy.

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To assess the measurement properties of a new QOL instrument, the Cerebral Palsy Quality of Life Questionnaire-Teen (CP QOL-Teen), in adolescents with cerebral palsy (CP) aged 13-18 years, examining domain structure, reliability, validity and adolescent-caregiver concordance. Based on age, 695 eligible families were invited to participate by mail. Questionnaires were returned by 112 primary caregivers (71.8% of questionnaires sent). 87 adolescents aged 12-18 years also completed the questionnaires. CP QOL-Teen, generic QOL instruments (KIDSCREEN, Pediatric Quality of Life Inventory), functioning (Gross Motor Function Classification System) and a condition-specific instrument (PedsQL-CP) were used. Principal components analysis produced seven scales: wellbeing and participation; communication and physical health; school wellbeing; social wellbeing; access to services; family health; feelings about functioning. Cronbach's alphas for the derived scales ranged from 0.81 to 0.96 (primary caregiver report) and 0.78 to 0.95 (adolescent report). Test-retest reliability (4 weeks) ranged from 0.57 to 0.88 for adolescent self-report and 0.29 to 0.83 for primary caregiver report. Moderate correlations were observed with other generic and condition specific measures of QOL, indicating adequate construct validity. Moderate correlations were observed between adolescent self-report and primary caregiver proxy report. This study demonstrates acceptable psychometric properties of both the adolescent self-report and the primary caregiver

proxy report versions of the CP QOL-Teen.

PMID: 22989577 [PubMed - as supplied by publisher]

40. Res Dev Disabil. 2012 Sep 15;34(1):266-275. doi: 10.1016/j.ridd.2012.08.017. [Epub ahead of print]

Patterns and predictors of participation in leisure activities outside of school in children and adolescents with Cerebral Palsy.

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This study analyzed the patterns and predictors of participation in leisure activities outside of school of Spanish children and adolescents with Cerebral Palsy (CP). Children and adolescents with CP (n=199; 113 males and 86 females) participated in this cross-sectional study. Their mean age was 12.11 years (SD=3.02; range 8-18 years), and they were evaluated using the Spanish version of the Children's Assessment of Participation and Enjoyment (CAPE). Means, standard deviations and percentages were used to characterize the profile of participation, and linear regression analyses were employed to assess associations between the variables (child, family and environmental factors) and the diversity, intensity and enjoyment of participation. Children and adolescents with CP reported low diversity and intensity of participation and high levels of enjoyment. Participation in leisure activities outside of school was determined more by child and environmental factors than by family ones.

PMID: 22989575 [PubMed - as supplied by publisher]

41. Res Dev Disabil. 2012 Aug 29;34(1):157-167. [Epub ahead of print]

Physical activity in a total population of children and adolescents with cerebral palsy.

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The aims of this study were to describe the participation in physical activity of children with cerebral palsy (CP) at school and during leisure time and to identify characteristics associated with physical activity. The frequency of receiving physiotherapeutic interventions were described as a variable of interest. A total population of 364 children with verified CP aged 7-17 years living in the Skåne region in Sweden was studied using cross-sectional data from the CP follow-up programme (CPUP). Proportional odds ratios showed the most severe gross motor limitations Gross Motor Function Classification System Expanded and Revised (GMFCS-E&R) to be a characteristic for low participation in physical education at school (PE) and GMFCS-E&R level III to be a characteristic for low participation in regular physical leisure activity. The age group of 7-11 years and obesity were characteristics associated with high participation in PE, whereas thinness was associated with low participation in regular physical leisure time activities. The highest proportion of children receiving physiotherapeutic interventions was found in GMFCS-E&R level III, while mental retardation, especially if moderate or severe, proved to be an independent characteristic associated with low frequency of physiotherapeutic interventions. Gender and epilepsy did not influence the odds for participation in physical activities. Special considerations are needed when planning interventions for increased physical activity in children with CP, as the individual prerequisites differ, even among children with the same gross motor function level according to the GMFCS-E&R.

PMID: 22940169 [PubMed - as supplied by publisher]

42. Epilepsia. 2012 Sep 7. doi: 10.1111/j.1528-1167.2012.03639.x. [Epub ahead of print]

Bone mineral density in a population of children and adolescents with cerebral palsy and mental retardation with or without epilepsy.

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Purpose: The present study aimed to assess bone mineral density (BMD) in a population of children and adolescents with cerebral palsy and mental retardation with or without epilepsy. Methods: One hundred thirteen patients (63 male and 50 female) were recruited for evaluation. Patients were divided in three groups: 40 patients (group 1) were affected by cerebral palsy and mental retardation; 47 (group 2) by cerebral palsy, mental retardation, and epilepsy; and 26 (group 3) by epilepsy. The control group consisted of 63 healthy children and adolescents. Patients underwent a dual-energy x-ray absorptiometry (DEXA) scan of the lumbar spine (L1-L4), and z-score was calculated for each patient; t-score was considered for patients 18 years of age and older. Key Findings: Abnormal BMD by DEXA was found in 17 patients (42.5%) in group 1, in 33 (70.2%) in group 2, and in 3 (11.5%) in group 3. In groups 1 and 2, tetraparesis and severe/profound mental retardation were related to a significantly abnormal BMD ($p = 0.003$). The multivariate analysis of independent factors on BMD (z-score) revealed a significant correlation between BMD (z-score) and age ($p = 0.04$), body mass index (BMI; $p = 0.002$), severe/profound mental retardation ($p = 0.03$), and epilepsy ($p = 0.05$). Significance: A significantly lower BMD z-score value was found in patients with cerebral palsy, mental retardation, and epilepsy compared with those without epilepsy. The epileptic disorder appears to be an aggravating factor on bone health when comorbid with cerebral palsy and mental retardation.

PMID: 22958083 [PubMed - as supplied by publisher]

43. Fiziol Zh. 2012;58(3):77-84.

Effects of intermittent normobaric hypoxia on the state of the CNS and cerebral circulation in children with cerebral palsy.

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We studied the effects of intermittent normobaric hypoxia (INH) on the processes of CNS functions and cerebral circulation recovery in children with cerebral palsy (CP). Altogether, 87 patients (from 8.5 months to 12 years) with CP were examined and received the course of treatment. Clinico-neurophysiological examination was performed before the treatment and immediately after termination of the therapeutic course. Patients were divided into two groups; age and sex distributions and clinical manifestations of CP were randomized. The comparison group was formed from 34 children who received the course of the generally accepted complex therapy (medicamental treatment, massage, Bobat-therapy, Vojta-therapy at al). The main group included 53 patients who, in addition to the same therapy, were exposed to INH using an individual apparatus for artificial mountain air, Borey-M, made in the Scientific Medico-Engineering Center NORT (Ukrainian National Academy of Sciences, Kyiv). Children of the main group were exposed to the dosed normobaric sanogenetic level hypoxia intermittently once per day. For this purpose, we used a normobaric gas hypoxic mixture (12% O2 + 88% N2). Each cycle included a 15-min-long episode of breathing with the gas mixture alternated by a 5-min-long episode of breathing an ambient atmospheric air. The number of hypoxic cycles was gradually increased (from one to three). The entire course of treatment included, on average, 10 sessions. After complex therapy the stable positive effects on the motor status were observed in 94% of patients of the main group (exposed to INH) and in 74% of patients of the comparison group (unexposed to INH). EEG examination showed that positive dynamics of spectral EEG components were in 70% of patients of the main group and in 56% of children of the comparison group. Doppler examination showed that brain hemodynamics was normalized in 85% of patients of the main group and in 59% of children of the comparison group. In the course of ophthalmoscopic examination, we found that the dynamics of indices of the state of the eye

fundus were expressed more clearly in children of the main group than in patients of the comparison group (in 32 and 12% of patients, respectively).

PMID: 22946316 [PubMed - in process]

44. Med Wieku Rozwoj. 2012;16(2):81-88.

Assessment of somatic development and body composition in the 7th year of life in children born as extremely low birth weight infants (=1000g); a multi-centre cross-sectional study of a cohort born between 2002 and 2004 in the Malopolska voivodship [Article in Polish]

Kwinta P, Klimek M, Grudzien A, Piatkowska E, Kralisz A, Nitecka M, Profus K, Gasinska M, Pawlik D, Lauterbach R, Olechowski W, Drozdz D, Pietrzyk JJ.

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Children born with extremely low birth weight often present delayed growth in the first years of their lives: they remain shorter and weigh less than their peers. Current reports published worldwide state that later in life these children are at an increased risk of cardiac and vascular diseases, diabetes and obesity. Abnormal distribution and the excess of fat tissue predispose them to develop the metabolic syndrome. The aim of the study was to evaluate the somatic development of seven-year-old children born with birth-weight =1000 g (ELBW) in the Malopolska voivodship and to estimate the content and distribution of fat tissue. Moreover, the risk factors of disturbed somatic development were evaluated. Materials and methods: Two hundred and four live newborns with birth weight =1000 g were born in the Malopolska voivodship between 1.09.2002 and 31.08.2004. One hundred and fifteen of these children (56%) died in early infancy. The study included 81 children in the 7th year of life out of the 89 surviving ones. Their mean gestational age at birth was 27.3 weeks. (SD: 2.1 weeks) and their mean birth-weight was 840 g (SD: 130 g). All the children underwent anthropometric measurements and the thickness of the skin fold over the triceps was measured. Body mass index (BMI) was calculated and the body composition was assessed by multifrequency bioimpedance. The control group consisted of 39 children born at term chosen randomly from the general population and matched with regard to age and sex. Results: The ELBW children in the 7th year of life were shorter (z-score: -1.06±1.4 p<0.001), had lower body mass (z-score: -0.57±0.9; p=0.01), smaller head circumference (z-score: -1.2±1.3; p<0.001), lower BMI (z-score: -0.99±1.6; p<0.001) as compared to their peers. Fat tissue mass was lower in the ELBW group than in the control group (11% vs 16%; p<0.01). The most retarded somatic development was observed in the group of children suffering from cerebral palsy. Conclusions: 1. Children born with ELBW, at 7 years of life, present significantly retarded somatic development as compared with their full-term peers. 2. The most important risk factor of somatic development disturbances is cerebral palsy. 3. Children born with low birth weight and ELBW, need long term follow up.

PMID: 22971650 [PubMed - as supplied by publisher]

45. Int J Integr Care. 2012 Jan;12:e9. Epub 2012 Mar 6.

A web-based communication system for integrated care in cerebral palsy: experienced contribution to parent-professional communication.

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INTRODUCTION: To improve communication in the integrated care setting of children with cerebral palsy, we developed a web-based system for parent-professional and inter-professional communication. The present study aimed to evaluate parents' experiences regarding the system's contribution to their communication with professionals during a six-months pilot in three Dutch care regions. In addition, factors associated with parents' system use and non-use were analyzed. THEORY AND METHODS: The system's functional specifications were based on key elements of the Chronic Care Model and quality dimensions formulated by the Institute of Medicine. At baseline, parents completed a T0-questionnaire on their experiences regarding sufficiency of contact,

accessibility of professionals, timeliness of information exchange, consistency of information and parents' role as messenger of information and/or care coordinator. After the pilot, parents completed a T1-questionnaire on their experiences regarding the system's contribution to each of these aspects. RESULTS: Of the 30 participating parents 21 had used the system, of which 20 completed the T1-questionnaire. All these parents indicated that they had experienced a contribution of the system to parent-professional communication, especially with respect to accessibility of professionals, sufficiency of contact and timeliness of information exchange, and to a lesser extent consistency of information and parents' messenger/coordinator role. In comparison with non-users, users had less positive baseline experiences with accessibility and a higher number of professionals in the child's care network. CONCLUSIONS: All users indicated a contribution of the system to parent-professional communication, although the extent of the experienced contribution varied considerably. Based on the differences found between users and non-users, further research might focus on the system's value for complex care networks and problematic access to professionals.

PMID: 22977435 [PubMed - in process]

46. BMC Res Notes. 2012 Sep 11;5(1):498. [Epub ahead of print]

Paediatric palliative home care in areas of Germany with low population density and long distances: a questionnaire survey with general paediatricians.

Kremeike K, Eulitz NK, Jünger S, Sander A, Geraedts M, Reinhardt D.

BACKGROUND: In 2007, the patient's right to specialised palliative home care became law in Germany. However, childhood palliative care in territorial states with low patient numbers and long distances requires adapted models to ensure an area-wide maintenance. Actually, general paediatricians are the basic care providers for children and adolescents. They also provide home care. The aim of this study was to improve the knowledge about general paediatrician's involvement in and contribution to palliative care in children. FINDINGS: To evaluate the current status of palliative home care provided by general paediatricians and their cooperation with other paediatric palliative care providers, a questionnaire survey was disseminated to general paediatricians in Lower Saxony, a German federal state with nearly eight million inhabitants and a predominantly rural infrastructure. Data analysis was descriptive. One hundred forty one of 157 included general paediatricians completed the questionnaire (response rate: 89.8%). A total of 792 children and adolescents suffering from life-limiting conditions were cared for by these general paediatricians in 2008. Severe cerebral palsy was the most prevalent diagnosis. Eighty-nine per cent of the general paediatricians stated that they had professional experience with paediatric palliative care. Collaboration of general paediatricians and other palliative care providers was stated as not well developed. The support by a specialised team including 24-hour on-call duty and the intensification of educational programs were emphasised. CONCLUSIONS: The current regional infrastructure of palliative home care in Lower Saxony can benefit from the establishment of a coordinated network of palliative home care providers.

PMID: 22967691 [PubMed - as supplied by publisher]

47. Int J Palliat Nurs. 2012 Jul;18(7):355-9.

Application of the M technique to two severely disabled children in Belarus.

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Following the early-morning explosion of reactor four at the Chernobyl nuclear plant on 26 April 1986, radioactive fallout fell over 80% of Belarus. More than 2.2 million people were affected, including thousands of children. As a result, there are now over 50,000 children in 600 orphanages in Belarus. Many of the orphanages are without basic amenities and are operating in dire circumstances. This article outlines two case studies of orphaned children with profound disabilities in one of these orphanages. The first author, a nurse volunteer from Ireland, used a method of touch called the 'M technique' to calm and soothe the children. The M technique is a gentle repetitive method of touch that can be learnt in a few hours. The results suggest that even when the situation appears very challenging, simple touch can have a beneficial effect.

PMID: 22885968 [PubMed - indexed for MEDLINE]

Prevention and Cure

48. J Matern Fetal Neonatal Med. 2012 Oct;25 Suppl 4:21-3.

Chorioamnionitis and prematurity: a critical review.

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Chorioamnionitis is the inflammatory response to an acute inflammation of the membranes and chorion of the placenta. We provide a critical review of the relationship between chorioamnionitis and the risk of prematurity and adverse maternal-fetal outcome. Chorioamnionitis results as a major risk factor for preterm birth and its incidence is strictly related to gestational age. It is associated with a significant maternal, perinatal and long-term adverse outcomes. The principal neonatal complications are neonatal sepsis, pneumonia, bronchopulmonary dysplasia, perinatal death, cerebral palsy and intraventricular hemorrhage. The role in neonatal outcome is still controversial and more conclusive studies could clarify the relationship between chorioamnionitis and adverse neonatal outcome. Maternal complications include abnormal progression of labour, caesarean section, postpartum hemorrhage, abnormal response after use of oxytocin and placenta abruption. Prompt administration of antibiotics and steroids could improve neonatal outcomes.

PMID: 22958008 [PubMed - in process]

49. J Inflamm Res. 2012;5:67-75. Epub 2012 Jul 30.

Placental-mediated increased cytokine response to lipopolysaccharides: a potential mechanism for enhanced inflammation susceptibility of the preterm fetus.

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BACKGROUND: Cerebral palsy is a nonprogressive motor impairment syndrome that has no effective cure. The etiology of most cases of cerebral palsy remains unknown; however, recent epidemiologic data have demonstrated an association between fetal neurologic injury and infection/inflammation. Maternal infection/inflammation may be associated with the induction of placental cytokines that could result in increased fetal proinflammatory cytokine exposure, and development of neonatal neurologic injury. Therefore, we sought to explore the mechanism by which maternal infection may produce a placental inflammatory response. We specifically examined rat placental cytokine production and activation of the Toll-like receptor 4 (TLR4) pathway in response to lipopolysaccharide exposure at preterm and near-term gestational ages. METHODS: Preterm (e16) or near-term (e20) placental explants from pregnant rats were treated with 0, 1, or 10 μg/mL lipopolysaccharide. Explant integrity was assessed by lactate dehydrogenase assay. Interleukin-6 and tumor necrosis alpha levels were determined using enzyme-linked immunosorbent assay kits. TLR4 and phosphorylated nuclear factor kappa light chain enhancer of activated B cells (NF?B) protein expression levels were determined by Western blot analysis. RESULTS: At both e16 and e20, lactate dehydrogenase levels were unchanged by treatment with lipopolysaccharide. After exposure to lipopolysaccharide, the release of interleukin-6 and tumor necrosis alpha from e16 placental explants increased by 4-fold and 8-9-fold, respectively ($P < 0.05$ versus vehicle). Conversely, interleukin-6 release from e20 explants was not significantly different compared with vehicle, and tumor necrosis alpha release was only 2-fold higher ($P < 0.05$ versus vehicle) following exposure to lipopolysaccharide. Phosphorylated NF?B protein expression was significantly increased in the nuclear fraction from placental explants exposed to lipopolysaccharide at both e16 and e20, although TLR4 protein expression was unaffected. CONCLUSION:
Lipopolysaccharide induces higher interleukin-6 and tumor necrosis alpha expression at e16 versus e20, suggesting that preterm placentas may have a greater placental cytokine response to lipopolysaccharide infection. Furthermore, increased phosphorylated NF?B indicates that placental cytokine induction may occur by activation of the TLR4 pathway.

PMID: 22924006 [PubMed - in process] PMCID: PMC3422858

50. Epilepsy Res Treat. 2012;2012:747565. Epub 2012 Jul 12.

Epileptic encephalopathy in children with risk factors for brain damage.

Ricardo-Garcell J, Harmony T, Porras-Kattz E, Colmenero-Batallán MJ, Barrera-Reséndiz JE, Fernández-Bouzas A, Cruz-Rivero E.

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In the study of 887 new born infants with prenatal and perinatal risk factors for brain damage, 11 children with West syndrome that progressed into Lennox-Gastaut syndrome and another 4 children with Lennox-Gastaut syndrome that had not been preceded by West syndrome were found. In this study we present the main findings of these 15 subjects. In all infants multifactor antecedents were detected. The most frequent risk factors were prematurity and severe asphyxia; however placenta disorders, sepsis, and hyperbilirubinemia were also frequent. In all infants MRI direct or secondary features of periventricular leukomalacia were observed. Followup of all infants showed moderate to severe neurodevelopmental delay as well as cerebral palsy. It is concluded that prenatal and perinatal risk factors for brain damage are very important antecedents that should be taken into account to follow up those infants from an early age in order to detect and treat as early as possible an epileptic encephalopathy.

PMID: 22957240 [PubMed] PMCID: PMC3420497

51. Congenit Anom (Kyoto). 2012 Sep;52(3):147-54. doi: 10.1111/j.1741-4520.2012.00375.x.

Pluripotent stem cells are protected from cytomegalovirus infection at multiple points: Implications of a new pathogenesis for congenital anomaly caused by cytomegalovirus.

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In humans, the cytomegalovirus (CMV) is the most significant cause of intrauterine infections that cause congenital anomalies. Intrauterine infection with human CMV is thought to be responsible for a variety of abnormalities, including mental retardation, microcephaly, developmental delay, seizure disorders, and cerebral palsy, depending on the timing of the fetal infection, the infectious route, and the virulence of the virus. In addition to the adaptive immune system, the embryo has potential resistance to CMV during early embryogenesis. Embryonic stem (ES) cells are more resistant to CMV than most other cell types, although the mechanism responsible for this resistance is not well understood. ES cells allow approximately 20-fold less murine CMV (MCMV) DNA to enter the nucleus than mouse embryonic fibroblasts (MEFs), and this inhibition occurs in a multistep manner. In situ hybridization showed that ES cell nuclei had significantly less MCMV DNA than MEF nuclei. This finding appears to be supported by the fact that ES cells express less heparan sulfate, ß1-integrin, and vimentin and have fewer nuclear pores than differentiated cells such as MEF. This may reduce the ability of MCMV to attach to and enter the cellular membrane, translocate to the nucleus, and cross the nuclear membrane in pluripotent stem cells (ES-induced pluripotent stem cells). This finding may indicate a new pathogenesis for the congenital anomaly caused by CMV.

PMID: 22925215 [PubMed - in process]

52. Neuropediatrics. 2012 Aug 29. [Epub ahead of print]

Head Circumference Growth Function as a Marker of Neurological Impairment in a Cohort of Microcephalic Infants and Children.

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Our aim was to investigate the correlations between head circumference (HC) growth and neurological impairment in microcephalic patients.HC charts of 3,269 patients from a tertiary pediatric neurology section were reviewed and 136 microcephalic participants were selected. Standardized HC Minimum, HC Drop, and HC Catch-up variables were defined. Children with evidence of significant learning disability and/or significant cerebral palsy were classified within the neurologically impaired group and the rest of participants within the normal group.Using discriminant analysis, we found that HC Minimum and HC Drop were relevant markers of neurological impairment. A positive HC Catch-up was significantly linked to a better outcome although this variable did not add significant information to HC Minimum and HC Drop. A Fisher linear discrimination cutoff function (C-function) was obtained as C = HC Minimum + HC Drop with a cutoff level of C = -4.28 standard deviations (SD).In our cohort, the addition of the lowest HC z-score to the preceding HC z-score drop was below -4.28 SD in 6 out of 10 neurologically impaired patients , whereas in the normal group, the result was over -4.28 SD in 9 out of 10 participants.

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53. Pediatrics. 2012 Sep;130(3):390-6. Epub 2012 Aug 29.

Neurologic disorders among pediatric deaths associated with the 2009 pandemic influenza.

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OBJECTIVE: The goal of this study was to describe reported influenza A (H1N1)pdm09 virus (pH1N1)-associated deaths in children with underlying neurologic disorders. METHODS: The study compared demographic characteristics, clinical course, and location of death of pH1N1-associated deaths among children with and without underlying neurologic disorders reported to the Centers for Disease Control and Prevention. RESULTS: Of 336 pH1N1-associated pediatric deaths with information on underlying conditions, 227 (68%) children had at least 1 underlying condition that conferred an increased risk of complications of influenza. Neurologic disorders were most frequently reported (146 of 227 [64%]), and, of those disorders, neurodevelopmental disorders such as cerebral palsy and intellectual disability were most common. Children with neurologic disorders were older (P = .02), had a significantly longer duration of illness from onset to death (P < .01), and were more likely to die in the hospital versus at home or in the emergency department (P < .01) compared with children without underlying medical conditions. Many children with neurologic disorders had additional risk factors for influenza-related complications, especially pulmonary disorders (48%). Children without underlying conditions were significantly more likely to have a positive result from a sterile-site bacterial culture than were those with an underlying neurologic disorder (P < .01). CONCLUSIONS: Neurologic disorders were reported in nearly two-thirds of pH1N1-associated pediatric deaths with an underlying medical condition. Because of the potential for severe outcomes, children with underlying neurologic disorders should receive influenza vaccine and be treated early and aggressively if they develop influenza-like illness.

PMID: 22931899 [PubMed - in process]

54. Eur J Obstet Gynecol Reprod Biol. 2012 Sep 1. [Epub ahead of print]

Independent effects of pregnancy induced hypertension on childhood development: a retrospective cohort study.

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OBJECTIVE: To assess whether maternal hypertension in pregnancy was independently associated with additional support needs in children. STUDY DESIGN: Retrospective cohort study using linkage of birth records of all singleton deliveries occurring in primigravidae between 1995 and 2008 in Aberdeen Maternity and Neonatal Databank with the Support Needs System (SNS) dataset in Grampian. Crude and adjusted odds ratios with 95% confidence intervals of having a record in SNS in the presence of maternal pregnancy induced hypertension were calculated using logistic regression taking account of confounders such as preterm birth and low birth weight. RESULTS: After adjusting for confounding factors, neither pre-eclampsia {Adj OR 0.80 (95% CI 0.60, 1.07)} nor gestational hypertension {Adj OR 1.16 (95% CI 0.99, 1.36)} showed statistically significant associations with additional support needs. An association of pre-eclampsia with cerebral palsy seen on univariate analysis also disappeared on adjusting for confounders {Adj OR 1.26 (95% CI 0.43, 3.68)}. Birth before 32 weeks gestation and birthweight below 1500g were independently associated with additional support needs in children. CONCLUSIONS: While maternal hypertension was not found to be independently associated with special needs in children, very preterm birth and very low birthweight showed an association.

PMID: 22948131 [PubMed - as supplied by publisher]

55. Acta Med Iran. 2012 Jul;50(7):473-6.

Intraventricular hemorrhage in premature infants and its association with pneumothorax.

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Intraventricular hemorrhage (IVH) is one of the major causes of the cerebral palsy and mental retardation. Prevention and early management of these neurologic developmental problems will require determining the perinatal risk factors associated with this clinical entity. Pneumothorax increase the risk of IVH, and cause of pneumothorax has an important effect in severity of IVH. This is a prospective cross sectional study in 2010. This study includes 150 preterm neonates. Cranial ultrasound was performed in all neonates in age 3, 7, 30, 60, just after pneumothorax and every 2 week until chest tube discontinuation. Then prevalence of IVH and pneumothorax was calculated in preterm infant and severity of IVH was investigated before and after development of pneumothorax, and this comparison was divided by different causes of pneumothorax with SPSS version 11.5. Prevalence of IVH and pneumothorax in preterm infants were 30% and 10% respectively. Pneumothorax was not a risk factor of IVH (P>0.05), but prevalence of pneumothorax caused by RDS was a risk factor of development of IVH (P=0.01). Also pneumothorax in patients with birth weight less than 1000 g and gestational age less than 28 week was a risk factor of IVH pneumothorax (P=0.008, P=0.01 respectively). Our study discusses the differences in previous studies about association of pneumothorax and IVH. Also we suggest the hypothesis that lack of cerebral autoregulation in neonates with gestational age less than 28 week can cause IVH development after hypotension induces by pneumothorax.

PMID: 22930379 [PubMed - in process]

56. Pediatrics. 2012 Sep 3. [Epub ahead of print]

EEG for Predicting Early Neurodevelopment in Preterm Infants: An Observational Cohort Study.

Hayashi-Kurahashi N, Kidokoro H, Kubota T, Maruyama K, Kato Y, Kato T, Natsume J, Hayakawa F, Watanabe K, Okumura A.

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OBJECTIVE: To clarify the prognostic value of conventional EEG for the identification of preterm infants at risk for subsequent adverse neurodevelopment in the current perinatal care and medicine setting. METHODS: We studied 780 EEG records of 333 preterm infants born <34 weeks' gestation between 2002 and 2008. Serial EEG recordings were conducted during 3 time periods; at least once each within days 6 (first period), during days 7 to 19 (second period), and days 20 to 36 (third period). The presence and the grade of EEG background abnormalities were assessed according to an established classification system. Neurodevelopmental outcomes were assessed at a corrected age of 12 to 18 months. RESULTS: Of the 333 infants, 33 (10%) had developmental delay and 34 (10%) had cerebral palsy. The presence of EEG abnormalities was significantly predictive of developmental delay and cerebral palsy at all 3 time periods: the first period (n = 265; odds ratio [OR], 4.5; 95% confidence interval [CI], 2.2-9.4), the second period (n = 278; OR, 7.6; 95% CI, 3.6-16), and the third period (n = 237; OR, 5.9; 95% CI, 2.8-13). The grade of EEG abnormalities correlated with the incidence of developmental delay or cerebral palsy in all periods (P < .001). After controlling for other clinical variables, including severe brain injury, EEG abnormality in the second period was an independent predictor of developmental delay (OR, 3.2; 95% CI, 1.1-9.7) and cerebral palsy (OR, 6.8; 95% CI 2.0-23). CONCLUSIONS: EEG abnormalities within the first month of life significantly predict adverse neurodevelopment at a corrected age of 12 to 18 months in the current preterm survivor.

PMID: 22945413 [PubMed - as supplied by publisher]

57. Pediatrics. 2012 Sep 10. [Epub ahead of print]

Incidence of Chronic Bilirubin Encephalopathy in Canada, 2007-2008.

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BACKGROUND AND OBJECTIVES: Despite the implementation of screening guidelines to identify infants at risk for hyperbilirubinemia, chronic bilirubin encephalopathy (CBE) continues to be reported worldwide in otherwise healthy infants. The incidence of CBE in Canada is unknown. The objectives of this study were to establish the incidence of CBE in Canada and identify epidemiological and medical risk factors associated with its occurrence. METHODS: Data on infants were collected prospectively through the Canadian Pediatric Surveillance Program. Infants born between January 1, 2007 and December 31, 2008 were included if they either had symptoms of CBE and a history of hyperbilirubinemia, or if they presented in the newborn period with severe hyperbilirubinemia and an abnormal MRI finding as per the reporting physician. RESULTS: During the study period, 20 cases were identified; follow-up data were available for 14 of these. The causes for the hyperbilirubinemia included glucose-6-phosphate dehydrogenase deficiency (n = 5), sepsis (n = 2), ABO incompatibility and other red blood cell antibodies (n = 7). Fifteen infants had abnormal brain MRI findings during the neonatal period. At follow-up, 5 infants developed classic choreoathetoid cerebral palsy, 6 had spectrum of neurologic dysfunction and developmental delay (as described by the reporting physician), and 3 were healthy. CONCLUSIONS: CBE continues to occur in Canada at an incidence that appears to be higher than previously reported.

PMID: 22966025 [PubMed - as supplied by publisher]

58. J Pediatr. 2012 Aug 31. [Epub ahead of print]

Normal Imaging in Patients with Cerebral Palsy: What Does It Tell Us?

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OBJECTIVE: To identify distinctive clinical features characterizing children with cerebral palsy (CP) and normal-appearing magnetic resonance imaging (MRI) findings. STUDY DESIGN: Using a population-based CP registry, the Registre de la Paralysie Cérébrale au Québec (Quebec Cerebral Palsy Registry), various antenatal, perinatal, and postnatal predictor variables, as well as current phenotype, were compared in patients with normal-appearing MRI findings and those with abnormal MRI findings. RESULTS: Of the 213 patients evaluated, 126 (60%) had MRI imaging results available and were included in our analysis. Of these 126 patients, 90 (71%; 51 males, 39 females) had abnormal findings and 36 (29%; 17 males and 19 females) had normal-appearing findings. Compared with other CP variants, normal-appearing MRI was more prevalent (P = .001) in dyskinetic CP (72.7%; 8 of 11) and less prevalent (P = .002) in spastic hemiplegic CP (10%; 4 of 40). There were no significant differences between the 2 groups (P > .05) in terms of the prevalence of perinatal or postnatal clinical features or clinical outcomes. Furthermore, 42% (15 of 36) of the children with normal-appearing MRI exhibited a high degree of functional disability (Gross Motor Functional Classification System IV-V), compared with 33% (30 of 90) with abnormal MRI. CONCLUSION: No clinical features, except a higher prevalence of dyskinetic CP, was identified in the children with normal-appearing MRI. More refined imaging techniques may be needed to evaluate patients with normal-appearing MRI findings. Furthermore, genetic or functional, rather than gross structural lesions, may underlie the pathophysiology of CP in this cohort. Finally, the high proportion of substantial functional disability underscores the importance of continuous follow-up even in the absence of early structural abnormalities on imaging.

PMID: 22944004 [PubMed - as supplied by publisher]

59. AJNR Am J Neuroradiol. 2012 Sep 13. [Epub ahead of print]

Diffusion Tensor Imaging-Demonstrated Differences between Hemiplegic and Diplegic Cerebral Palsy with Symmetric Periventricular Leukomalacia.

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BACKGROUND AND PURPOSE: Patients with cerebral palsy have variable clinical presentations such as hemiplegic, diplegic, or quadriplegic patterns though they have PVL on conventional MR images. The authors investigated whether DTT can differentiate between hemiplegic and diplegic CP in patients presenting with symmetric PVL on conventional MR images. MATERIALS AND METHODS: One hundred thirteen consecutive pediatric patients with definite hemiplegic (59 patients; 30 boys, 29 girls; mean age, 34.19 months; range, 24-52 months) or diplegic (54 patients; 27 boys, 27 girls; mean age, 31.07 months; range, 24-48 months) symptoms and bilateral symmetric PVL on conventional brain MR imaging were recruited. The states of CSTs were examined by using DTT, and the asymmetries of right and left CSTs in the hemiplegic and diplegic groups were compared by using asymmetric anisotropy indexes and asymmetric mean diffusivity indexes. RESULTS: All patients in the hemiplegic group with asymmetric results exhibited disrupted integrities of more affected CSTs and sparing of less affected CSTs. However, diplegic patients revealed symmetric disrupted findings of the right and left CSTs at the upper periventricular level. Asymmetric anisotropy index and asymmetric mean diffusivity index values were significantly higher in the hemiplegic group than in the diplegic group (P < .05), and these results of DTT significantly corresponded with their typical clinical manifestation. CONCLUSIONS: DTT may be very useful for the detailed estimation of the CST state in patients with bilateral symmetric PVL.

PMID: 22976239 [PubMed - as supplied by publisher]

60. Am J Obstet Gynecol. 2012 Sep;207(3):192.e1-9. Epub 2012 Jul 7.

Brain damage in preterm newborns and maternal medication: the ELGAN Study.

Tyler CP, Paneth N, Allred EN, Hirtz D, Kuban K, McElrath T, O'Shea TM, Miller C, Leviton A; ELGAN Study Investigators.

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OBJECTIVE: We sought to evaluate the association between maternal medication use during pregnancy and cerebral white matter damage and cerebral palsy (CP) among very preterm infants. STUDY DESIGN: This analysis of data from the Extremely Low Gestational Age Newborns (ELGAN) Study included 877 infants born <28 weeks' gestation. Mothers were interviewed, charts were reviewed, placentas were cultured and assessed histologically, and children were evaluated at 24 months corrected age. A diagnostic algorithm classified neurologic findings as quadriparetic CP, diparetic CP, hemiparetic CP, or no CP. RESULTS: After adjustment for the potential confounding of disorders for which medications might have been indicated, the risk of quadriparetic CP remained elevated among the infants of mothers who consumed aspirin (odds ratio [OR], 3.0; 95% confidence interval [CI], 1.3-6.9) and nonsteroidal antiinflammatory drugs (NSAIDs) (OR, 2.4; 95% CI, 1.04-5.8). The risk of diparetic CP was also associated with maternal consumption of an NSAID, but only if the consumption was not approved by a physician (OR, 3.5; 95% CI 1.1-11.0). CONCLUSION:
The possibility that aspirin and NSAID use in pregnancy could lead to perinatal brain damage cannot be excluded.

PMID: 22939723 [PubMed - in process] PMCID: PMC3432943 [Available on 2013/9/1]

61. J Physiol. 2012 Sep 10. [Epub ahead of print]

Reduced Corticomotor Excitability and Motor Skills Development in Children Borm Preterm.

Pitcher JB, Schneider LA, Burns NR, Drysdale JL, Higgins RD, Ridding MC, Nettelbeck TJ, Haslam RR, Robinson JS.

University of Adelaide

The mechanisms underlying the altered neurodevelopment commonly experienced by children born preterm, but without brain lesions, remain unknown. While individuals born the earliest are at most risk, late preterm children also experience significant motor, cognitive and behavioural dysfunction from school age, and reduced income and educational attainment in adulthood. We used transcranial magnetic stimulation and functional assessments to examine corticomotor development in 151 non-cerebral palsy children aged 10-13 years and born after gestations of 25 - 41 completed weeks. We hypothesised that motor cortex and corticospinal development are altered in preterm children and underpins at least some of their motor dysfunction. We report for the first time that every week of reduced gestation is associated with a reduction in corticomotor excitability that remains evident in late childhood. This reduced excitability was associated with poorer motor skill development, particularly manual dexterity. However, child adiposity, sex and socio-economic factors regarding the child's home environment soon after birth were also powerful influences on motor skills development. Preterm birth was also associated with reduced left hemisphere lateralisation, but without increasing the likelihood of being left-handed per se. These corticomotor findings have implications for normal motor development, but also raise questions regarding possible longer-term consequences of preterm birth on motor function.

PMID: 22966161 [PubMed - as supplied by publisher]

62. Bone Marrow Transplant. 2012 Sep 10. doi: 10.1038/bmt.2012.169. [Epub ahead of print]

Rescuing the neonatal brain from hypoxic injury with autologous cord blood.

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Brain injury resulting from perinatal hypoxic-ischemic encephalopathy (HIE) is a major cause of acute mortality in infants and chronic neurologic disability in surviving children. Recent multicenter clinical trials demonstrated the effectiveness of hypothermia initiated within the first 6 postnatal hours to reduce the risk of death or major neurological disabilities among neonates with HIE. However, in these trials, approximately 40% of cooled infants died or survived with significant impairments. Therefore, adjunct therapies are required to improve the outcome in neonates with HIE. Cord blood (CB) is a rich source of stem cells. Administration of human CB cells in animal models of HIE has generally resulted in improved outcomes and multiple mechanisms have been suggested including anti-inflammation, release of neurotrophic factors and stimulation of endogenous neurogenesis. Investigators at Duke are conducting studies of autologous CB infusion in neonates with HIE and in children with cerebral palsy. These pilot studies indicate no added risk from the regimens used, but results of ongoing placebo-controlled trials are needed to assess efficacy. Meanwhile, further investigations are warranted to determine the best strategies, that is, timing, dosing, route of delivery, choice of stem cells and ex vivo modulations, to attain long-term benefits of CB stem cell therapy.

PMID: 22964590 [PubMed - as supplied by publisher]

63. Brain. 2012 Sep 10. [Epub ahead of print]

Genotype-phenotype correlations in spastic paraplegia type 7: a study in a large Dutch cohort.

van Gassen KL, van der Heijden CD, de Bot ST, den Dunnen WF, van den Berg LH, Verschuuren-Bemelmans CC, Kremer HP, Veldink JH, Kamsteeg EJ, Scheffer H, van de Warrenburg BP.

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Spastic paraplegia type 7 is an autosomal recessive neurodegenerative disorder mainly characterized by progressive bilateral lower limb spasticity and referred to as a form of hereditary spastic paraplegia. Additional disease features may also be observed as part of a more complex phenotype. Many different mutations have already been identified, but no genotype-phenotype correlations have been found so far. From a total of almost 800 patients referred for testing, we identified 60 patients with mutations in the SPG7 gene. We identified 14 previously unreported mutations and detected a high recurrence rate of several earlier reported mutations. We were able to collect detailed clinical data for 49 patients, who were ranked based on a pure versus complex phenotype, ataxia versus no ataxia and missense versus null mutations. A generally complex phenotype occurred in 69% of all patients and was associated with a younger age at onset (trend with P = 0.07). Ataxia was observed in 57% of all patients. We found that null mutations were associated with the co-occurrence of cerebellar ataxia (trend with P = 0.06). The c.1409 G > A (p.Arg470Gln) mutation, which was found homozygously in two sibs, was associated with a specific complex phenotype that included predominant visual loss due to optical nerve atrophy. Neuropathology in one of these cases showed severe degeneration of the optic system, with less severe degeneration of the ascending tracts of the spinal cord and cerebellum. Other disease features encountered in this cohort included cervical dystonia, vertical gaze palsy, ptosis and severe intellectual disability. In this large Dutch cohort, we seem to have identified the first genotype-phenotype correlation in spastic paraplegia type 7 by observing an association between the cerebellar phenotype of spastic paraplegia type 7 and SPG7 null alleles. An overlapping phenotypic presentation with its biological counterpart AFG3L2, which when mutated causes spinocerebellar ataxia type 28, is apparent and possibly suggests that abnormal levels of the SPG7 protein impact the function of the mitochondrial ATPases associated with diverse cellular activities-protease complex (formed by SPG7 and AFG3L2) in the cerebellum. In addition, a missense mutation in exon 10 resulted in predominant optical nerve atrophy, which might suggest deleterious interactions of this SPG7 variant with its substrate OPA1, the mutated gene product in optic atrophy type 1. Functional studies are required to further investigate these interactions.

PMID: 22964162 [PubMed - as supplied by publisher]

64. Gynecol Obstet Fertil. 2012 Sep 17. pii: S1297-9589(12)00232-9. doi: 10.1016/j.gyobfe.2012.08.005. [Epub ahead of print]

Use of magnesium sulfate in obstetrics [Article in French]

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Magnesium sulfate (MgSO(4)) is the best treatment of eclampsia, reduces the risk of recurrence better than other anticonvulsants and is recommended as first line in cases of eclampsia. In cases of severe pre-eclampsia and especially when prodromes are present, MgSO(4) reduces better than conventional anticonvulsants the risk of eclampsia. More recently, MgSO(4) was used in cases of preterm delivery to reduce the risk of cerebral palsy in premature infants. Three large randomized trials have obtained convergent results which all tended to show a neuroprotective effect of MgSO(4). These trials were included in three meta-analyzes that showed a 30% reduction in the incidence of cerebral palsy before 32weeks gestation suggesting that this drug should be used in cases of preterm birth. A protocol using low doses associated with a well-conducted maternal surveillance reduces of maternal hypermagnesemia and the risk of maternal toxicity.

PMID: 22995056 [PubMed - as supplied by publisher]

65. Z Geburtshilfe Neonatol. 2012 Aug;216(4):173-6. Epub 2012 Aug 27.

Intrauterine inflammation and its sequelae: does chorioamnionitis really matter for outcome of very low birth weight infants? [Article in German]

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Infections in utero and chorioamnionitis are major risk factors for spontaneous, very early premature birth. Thus chorioamnionitis contributes significantly to prematurity-associated morbidity and mortality. Evidence for a gestation -independent effect of chorioamnionitis on the outcome of very low birth weight infants is much more difficult to obtain as most of the studies addressing this issue lack a normal "control group", as prematurity is mostly associated with some kind of prenatal pathology with a potential influence on neonatal outcome. Moreover, major advances in perinatal and neonatal care for this high-risk group have mitigated the impact of chorioamnionitis on morbidity and mortality of very low birth weight infants. Histological chorioamnionitis is associated with a lower incidence and severity of respiratory distress syndrome. However, short-term maturational effects on the lung are associated with a higher susceptibility for postnatal noxious events, such as mechanical ventilation, thus contributing to the risk of bronchopulmonary dysplasia. Data regarding the importance of chorioamnionitis for brain damage of the very premature infant are inconsistent although meta-analyses have shown an increased risk of cystic periventricular leukomalacia and cerebral palsy after exposure to inflammation in utero. Very recent epidemiological studies suggest a role of chorioamnionitis in the aetiology and pathogenesis of retinopathy of prematurity.

PMID: 22926817 [PubMed - in process]

66. Arch Med Res. 2012 Sep 6. [Epub ahead of print]

Hearing Loss, Auditory Neuropathy, and Neurological Comorbidity in Children with Birthweight <750 g.

Martínez-Cruz CF, Alonso-Themann PG, Poblano A, Ochoa-López JM.

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BACKGROUND AND AIMS: The current literature considers a birthweight <1,500 g as a risk factor for sensorineural hearing loss (SNHL, hearing threshold >25 decibels), auditory neuropathy (AN), and several neurological sequelae. The aim of the study was to determine the frequency and risk factors associated with SNHL, AN, and neurological morbidity in a group of children with birthweights of <750 g treated at a neonatal care unit and recruited into a long-term follow-up study. METHODS: A case-control study was carried out. Inclusion criteria were birthweight <750 g and born between the years 2000 and 2010. We performed brainstem auditory-evoked potentials (BAEP), evoked otoacoustic emissions (EOAE) and free-field audiometry (FFA) in this population. eonatal variables and procedures were compared between children with SNHL and children with normal bilateral hearing (NBH). RESULTS: A total of 93 children with a mean age of 4 years were included in the follow-up. Six children (6.4%) had SNHL and 87 had NBH. We were unable to identify AN in the sample. Mean weight for this sample was 673 ± 68 g and gestational age 27.5 ± 2 weeks. Variables reflecting differences between groups included days under mechanical ventilation, furosemide treatment, and bronchopulmonary dysplasia. In the SNHL group, three patients had periventricular leukomalacia, two had hydrocephalus, and one patient had cerebral palsy. CONCLUSIONS: Frequency of SNHL in children with birthweights <750 g was higher than in other premature infants and was related with mechanical ventilation, furosemide application, and bronchopulmonary dysplasia. Association with other neurological morbidities was frequent. Early diagnosis and intervention are required.

PMID: 22960856 [PubMed - as supplied by publisher]

67. J Matern Fetal Neonatal Med. 2012 Oct;25 Suppl 4:86-8.

Therapeutic hypothermia in the prevention of hypoxic-ischaemic encephalopathy: new categories to be enrolled.

Gancia P, Pomero G.

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Therapeutic hypothermia is now the standard of care for brain injury control in term infants with perinatal hypoxic ischemic encephalopathy (HIE). Accumulated evidence shows a reduction in mortality and long-term neurodevelopmental disability at 12-24 months of age, with more favourable effects in the less severe forms of HIE. Only few trials recruited newborns <36 weeks gestational age, or mild-to-moderate encephalopathy with base deficit (BD) <16. The new categories of patients to be enrolled should include (late) preterm infants, neonates with unexpected postnatal collapse, and newborns with stroke. Preterm HIE: Therapeutic hypothermia shows a good safety profile in clinical studies, and no adverse effects were noted in the preterm fetal animal model. Recently, it has been shown that mild hypothermia in preterm newborns with necrotizing enterocolitis (NEC) and multiple organ dysfunction syndrome (MODS) does not increase mortality, bleeding, infection, or need for inotropes in cooled newborns. A pilot study (NCT00620711) is currently recruiting newborns of > 32 but < 36 weeks gestation with standard criteria for HIE. Postnatal Collapse: The postnatal collapse (PNC) is a rare (0.03-0.5/1000 live births) but life-threatening hypoxic-ischemic event. No clinical trials of therapeutic hypothermia have specifically addressed to PNC. Nevertheless, a beneficial effect of brain cooling is expectable, and it has been proposed to include in brain hypothermia trials the infants with PNC fulfilling the entry criteria for HIE. Stroke: Perinatal arterial ischemic stroke is the most common cause of cerebral palsy (CP) in term and near-term newborn. In a systematic review and meta-analysis of animal studies of focal cerebral ischemia, hypothermia reduced the infarct size by 44%. No specific neuroprotective interventions are available for the management of acute perinatal stroke. Hypothermia may decrease seizures in newborns with encephalopathy and a focal infarct, potentially improving the long-term outcome for these infants. Concluding remarks: Future studies of therapeutic hypothermia should include the categories of newborns excluded from the published clinical trials, that is infants <36 weeks gestation, PNC or stroke, or admitted outside of the established 6-hour window, and with encephalopathy not imputable to HIE. New entry criteria will allow significant number of newborns to benefit from the treatment.

PMID: 22958032 [PubMed - in process]

68. J Community Health. 2012 Aug 29. [Epub ahead of print]

Cerebral Palsy Among Children Seen in the Neurology Clinic of Federal Medical Centre (FMC), Asaba.

Okike CO, Onyire BN, Ezeonu CT, Agumadu HU, Adeniran KA, Manyike PC.

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Cerebral palsy (CP) is a non-progressive disorder of motor function caused by irreversible damage to the immature brain. The disorder may be associated with seizure, mental retardation, visual and hearing defects. This study was designed to determine the types of CP, the risk factors and the co-morbidities associated with the disorder. Records of patients who were seen in the neurology clinic were kept for two years (June 2009-July 2011). Medical history and examination were essentially used to determine risk factors, antenatal care and co-morbidities. Data was analyzed using SPSS soft-ware. CP made up 45 % of 60 neurological cases and 0.006 % of 4,873 patients seen in the clinic with a male to female ratio of 1.1:1. Birth asphyxia was the commonest risk factor for the development of the disorder while seizure disorder among others was the commonest co-morbid state.

PMID: 22926682 [PubMed - as supplied by publisher]

69. Semin Reprod Med. 2012 Apr;30(2):84-91. Epub 2012 Apr 27.

Adverse perinatal events associated with ART.

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Since the advent of ART, much research has focused on the potential adverse for resultant harm. Prematurity, low birth-weight, PIH, congenital malformations, and CP are closely tied to multiple gestation. With the increase in elective single embryo transfer, there will be a reduction in adversity related to multiple birth. It is understood that underlying causes of infertility, including advanced maternal age, PCOS, thyroid disease, and uterine fibroids, predispose to adverse outcomes. However, imprinting abnormalities do not appear to stem from multiple births, and thus the need to consider the association between fertility treatment and methylation disorders remains essential. These, as well as risks of multi-fetal gestation, must be discussed with patients when considering using assisted reproduction.

Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

PMID: 22549708 [PubMed - indexed for MEDLINE]

70. J Genet Couns. 2012 Sep 8. [Epub ahead of print]

On the Precarious Cusp of Genetic Medicine.

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This is the story of two brothers at the dawn of genetic medicine, the first severely disabled by cerebral palsy, the other an MD scientist who happens to uncover the genetic cause of his brother's condition. A test confirms their mother's carrier status. But what about their only sister-is she a carrier as well? The question would send the author down a path she never dreamed she would take.

PMID: 22961238 [PubMed - as supplied by publisher]

71. No To Hattatsu. 2012 May;44(3):221-4.

The present status and problems of compensation system for birth troubles [Article in Japanese]

Sugai K, Aso K.

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PMID: 22712223 [PubMed - indexed for MEDLINE]

72. Nurs Law Regan Rep. 2012 Jul;53(2):4.

Mom smoked while pregnant: sued for cerebral palsy & injury to fetus. Case on point: Armagost v. Gunderson Clinic, Inc., 2011 AP522 (5/31/2012) -WI.

[No authors listed]

PMID: 22919780 [PubMed - in process]

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