Cerebral Palsy ALLIANCE

NEWS
Cerebral Palsy Research

Monday 12 August 2013

Cerebral Palsy Alliance is delighted to bring you this free weekly bulletin of the latest published research into cerebral palsy.

Our organisation is committed to supporting cerebral palsy research worldwide - through information, education, collaboration and funding. This free weekly bulletin is just one of our activities. Please find out more at www.cpresearch.org.au

Professor Nadia Badawi
Macquarie Group Foundation Chair of Cerebral Palsy
PO Box 560, Darlinghurst, New South Wales 2010 Australia

Interventions and Management

1. BMC Neurol. 2013 Jun 28;13:68. doi: 10.1186/1471-2377-13-68.

COMBIT: protocol of a randomised comparison trial of COMbined modified constraint induced movement therapy and bimanual intensive training with distributed model of standard upper limb rehabilitation in children with congenital hemiplegia.

Boyd RN, Ziviani J, Sakzewski L, Miller L, Bowden J, Cunnington R, Ware R, Guzzetta A, Al Macdonell R, Jackson GD, Abbott DF, Rose S.

Queensland Cerebral Palsy and Rehabilitation Research Centre, School of Medicine, Faculty of Health Sciences, The University of Queensland, Brisbane, Australia. r.boyd@uq.edu.au.

INTRODUCTION: Children with congenital hemiplegia often present with limitations in using their impaired upper limb which impacts on independence in activities of daily living, societal participation and quality of life. Traditional therapy has adopted a bimanual training approach (BIM) and more recently, modified constraint induced movement therapy (mCIMT) has emerged as a promising unimanual approach. Evidence of enhanced neuroplasticity following mCIMT suggests that the sequential application of mCIMT followed by bimanual training may optimise outcomes (Hybrid CIMT). It remains unclear whether more intensely delivered group based interventions (hCIMT) are superior to distributed models of individualised therapy. This study aims to determine the optimal density of upper limb training for children with congenital hemiplegia. METHODS AND ANALYSES: A total of 50 children (25 in each group) with congenital hemiplegia will be recruited to participate in this randomized comparison trial. Children will be matched in pairs at baseline and randomly allocated to receive an intensive block group hybrid model of combined mCIMT followed by intensive bimanual training delivered in a day camp model (COMBiT; total dose 45 hours direct, 10 hours of indirect therapy), or a distributed model of standard occupational therapy and physiotherapy care (SC) over 12 weeks (total 45 hours direct and indirect therapy). Outcomes will be assessed at 13 weeks after commencement, and retention of effects tested at 26 weeks. The primary outcomes will be bimanual coordination and unimanual upper-limb capacity. Secondary outcomes will be participation and quality of life. Advanced brain imaging will assess neurovascular changes in response to treatment. Analysis will follow standard principles for RCTs, using two-group comparisons on all participants on an intention-to-treat basis. Comparisons will be between treatment groups using generalized linear models.

TRIAL REGISTRATION: ACTRN12613000181707.

PMID: 23809257 [PubMed - in process] Free full text

2. Res Dev Disabil. 2013 Aug 5;34(10):3487-3496. doi: 10.1016/j.ridd.2013.07.008. [Epub ahead of print]

The effect of video-guidance on passive movement in patients with cerebral palsy: fMRI study.

Dinomais M, Chinier E, Lignon G, Richard I, Ter Minassian A, Nguyen The Tich S.

LUNAM, Université d'Angers, Laboratoire d'Ingénierie des Systèmes Automatisés (LISA) - EA4094, F-49000, France; LUNAM, Université d'Angers, CHU Angers, Département de Médecine Physique et de Réadaptation, F-49933, France. Electronic address: mickael.dinomais@gmail.com.

In patients with cerebral palsy (CP), neuroimaging studies have demonstrated that passive movement and action-observation tasks have in common to share neuronal activation in all or part of areas involved in motor system. Action observation with simultaneous congruent passive movements may have additional effects in the recruitment of brain motor areas. The aim of this functional magnetic resonance imaging (fMRI) study was to examine brain activation in patients with unilateral CP during passive movement with and without simultaneous observation of simple hand movement. Eighteen patients with unilateral CP (fourteen male, mean age 14 years and 2 months) participated in the study. Using fMRI block design, brain activation following passive simple opening-closing hand movement of either the paretic or nonparetic hand with and without simultaneous observation of a similar movement performed by either the left or right hand of an actor was compared. Passive movement of the paretic hand performed simultaneously to the observation of congruent movement activated more "higher motor areas" including contralesional pre-supplementary motor area, superior frontal gyrus (extending to premotor cortex), and superior and inferior parietal regions than nonvideo-guided passive movement of the paretic hand. Passive movement of the paretic hand recruited more ipsilesional sensorimotor areas compared to passive movement of the nonparetic hand. Our study showed that the combination of observation of congruent hand movement simultaneously to passive movement of the paretic hand recruits more motor areas, giving neuronal substrate to propose video-guided passive movement of paretic hand in CP rehabilitation.

PMID: 23927991 [PubMed - as supplied by publisher]

3. PLoS One. 2013 Jul 26;8(7):e69500. doi: 10.1371/journal.pone.0069500. Print 2013.

Temporal but Not Spatial Variability during Gait Is Reduced after Selective Dorsal Rhizotomy in Children with Cerebral Palsy.

Bakir MS, Gruschke F, Taylor WR, Haberl EJ, Sharankou I, Perka C, Funk JF.

Center for Musculoskeletal Surgery, Department of Orthopaedics, Charité-Universitätsmedizin Berlin, Berlin, Germany ; Center for Musculoskeletal Surgery, Julius Wolff Institute, Center for Sports Science and Sports Medicine Berlin, Charité-Universitätsmedizin Berlin, Berlin, Germany.

INTRODUCTION: Variability in task output is a ubiquitous characteristic that results from non-continuous motor neuron firing during muscular force generation. However, variability can also be attributed to errors in control and coordination of the motor neurons themselves in diseases such as cerebral palsy (CP). Selective dorsal rhizotomy (SDR), a neurosurgical approach to sever sensory nerve roots, is thought to decrease redundant or excessive afferent signalling to intramedullary neurons. In addition to its demonstrated ability to reduce muscular spasticity, we hypothesised that SDR is able to decrease variability during gait, the most frequent functional motor activity of daily living. METHODS: Twelve CP children (aged 6.1±1.3yrs), who underwent SDR and performed gait analysis pre- and 12 months postoperatively, were compared to a control group of eleven typically developing (TD) children. Coefficients of variability as well as mean values were analysed for: temporal variables of gait, spatial parameters and velocity. RESULTS: Gait parameters of cadence ($p=0.006$) and foot progression angle at mid-stance ($p=0.041$) changed significantly from pre- to post-SDR. The variability of every temporal parameter was significantly reduced after SDR ($p=0.003$-0.049), while it remained generally unchanged for the spatial parameters. Only a small change in gait velocity was observed, but variability in cadence was significantly reduced after SDR ($p=0.015$). Almost all parameters changed with a tendency towards normal, but differences between TD and CP children remained in all parameters. DISCUSSION: The results confirm that SDR improves functional gait performance in children with CP. However, almost exclusively, parameters of temporal variability were significantly improved, leading to the conjecture that temporal variability and spatial variability may be governed independently by the

motor cortex. As a result, temporal parameters of task performance may be more vulnerable to disruption, but also more responsive to treatment success of interventions such as SDR.

PMID: 23922724 [PubMed - in process] PMCID: PMC3724918 Free PMC Article

4. Arch Phys Med Rehabil. 2013 Aug 4. pii: S0003-9993(13)00584-4. doi: 10.1016/j.apmr.2013.07.019. [Epub ahead of print]

An evaluation of an activity monitor for the objective measurement of free-living physical activity in children with cerebral palsy.

Tangengd KT, Richardson AM, Maxwell D, Spence WD, Stansfield BW.

Bioengineering Unit, University of Strathclyde, Wolfson Centre, 106 Rottenrow, Glasgow, G4 0NW; Medical Physics and Clinical Engineering, St. James Hospital, Beckett Street, Leeds LS9 7TF. Electronic address: kit-tzu.tang@leedsth.nhs.uk.

Intervention in children with mobility limitation due to cerebral palsy (CP) is often aimed at enhancing mobility. An outcome measure of such intervention should, therefore, be free-living physical activity (F-LPA). This study explored the use of an objective measurement tool, the activPAL activity monitor (AM), in characterising F-LPA in children with CP. A validation study in a laboratory environment comparing AM outcomes with video evidence was followed by a multiday characterisation of F-LPA. Relationships between laboratory measures and F-LPA were explored. A convenience sample of 15 (11M, 4F) ambulatory children (5-17 years) with the condition of CP was studied. AM outcomes in comparison to video based analysis were 97.4% (SD=2.7), 101.1% (SD=1.5), 99.5% (SD=6.6), 105.6% (SD=15.8) and 103.8% (SD=10.1) for sitting/lying time, upright time, standing time, stepping time and stride count respectively. Participants' daily F-LPA demonstrated considerable variation: Standing time 2.33 (SD=0.96) hours/day, stepping time 1.68 (SD=0.86) hours/day, steps 8477 (SD=4528) per day and 76 (SD=49) sit to stand transitions per day. Laboratory measured cadence and Gillette Functional Assessment Questionnaire score were related to F-LPA, but not directly. The AM demonstrated excellent ability to determine sitting/lying and upright times in children with CP. Stepping time and stride count had lower levels of agreement with video based analysis, but were comparable with previous studies. Crouch gait and toe walking had an adverse effect on outcomes. The F-LPA data provided additional information on children's performance not related to laboratory measures demonstrating the added value of using this objective measurement technique.

PMID: 23924440 [PubMed - as supplied by publisher]

5. Dev Neurorehabil. 2013 Aug 7. [Epub ahead of print]

Effect of concurrent cognitive tasks on temporo-spatial parameters of gait among children with cerebral palsy and typically developed controls.

Katz-Leurer M, Rotem H, Meyer S.

Sackler Faculty of Medicine, School of Health Professions, Physical Therapy Department, Tel-Aviv University , Tel-Aviv , Israel and.

Objective: To assess the influence of different concurrent cognitive tasks on gait characteristics in children with cerebral palsy (CP) and typically developed (TD) controls. Methods: Eleven children with CP and eleven TD controls walked under three conditions: at a self-selected speed, at a self-selected speed while memorizing and recalling a series of three random numbers, at a self-selected speed while listening and identifying commonly experienced sounds. Gait parameters were measured with the GAITRite® system. Results: Children with CP walked slower in both assignments as compared to baseline walking; TD controls reduce walking velocity only during the sounds assignment. Step length was constantly reduced and step time and length variability were constantly increased among children with CP as compared to TD controls, throughout assignments. Conclusion: It might be advisable for clinicians when assessing walking performance in children with CP, to assess it during both single and dual-task conditions.

PMID: 23924194 [PubMed - as supplied by publisher]

6. Dev Med Child Neurol. 2013 Aug 9. doi: 10.1111/dmcn.12227. [Epub ahead of print]

Gait analysis is a viable tool for the assessment of transverse plane motion in children with cerebral palsy.

Ounpuu S.

Center for Motion Analysis, Connecticut Children's Medical Center, Farmington, CT, USA.

PMID: 23927613 [PubMed - as supplied by publisher]

7. Dev Med Child Neurol. 2013 Sep;55(9):777. doi: 10.1111/dmcn.12211.

Children with cerebral palsy are just like everyone else: what you train is what you get.

Romeiser Logan L.

Upstate Medical University - PM&R, Syracuse, NY, USA.

PMID: 23924080 [PubMed - in process]

8. Ir Med J. 2013 May;106(5):144-5.

The difficulty identifying intoeing gait in cerebral palsy.

O'Sullivan R, Kiernan D, Walsh M, Brien TO.

Gait Laboratory, Central Remedial Clinic, Vernon Ave, Clontarf, Dublin 3. rosullivan@crc.ie

In-toeing in children with cerebral palsy can lead to functional difficulties during gait. This may require surgical management to restore a normal foot progression angle. For this reason it is important to indentify the presence of internal rotation and to establish where the abnormal rotation is occurring. This can be done relatively easily in otherwise healthy subjects by examining foot progression angle as the subject walks towards the assessor. In cerebral palsy the often severely affected gait pattern and potential asymmetry at the pelvis means that in-toeing may be more difficult to identify. Gait laboratory data of 245 subjects with cerebral palsy were studied retrospectively. Of these 102 (41.63%) demonstrated in-toeing relative to the pelvis of one or both limbs. Eleven diplegic subjects (16.18%) in-toed bilaterally giving a total of 113 in-toeing limbs for analysis. Of those, 17 (50%) hemiplegic limbs and 20 (25.32%) diplegic limbs demonstrated a foot progression angle within normal limits due to compensations at the pelvis.

PMID: 23914575 [PubMed - in process]

9. Eur J Radiol. 2013 Aug 5. pii: S0720-048X(13)00350-1. doi: 10.1016/j.ejrad.2013.07.006. [Epub ahead of print]

Three-dimensional reconstructions for asymptomatic and cerebral palsy children's lower limbs using a biplanar X-ray system: A feasibility study.

Assi A, Chaibi Y, Presedo A, Dubousset J, Ghanem I, Skalli W.

Laboratoire de Biomécanique, Arts et Métiers ParisTech, Paris, France; Laboratory of Biomechanics, Faculty of Medicine, University of Saint-Joseph, Beirut, Lebanon; Gait and Motion Analysis Lab, SESOBEL, Beirut, Lebanon. Electronic address: ayman.assi@gmail.com.

The aim of this study is to explore the feasibility of 3D subject-specific skeletal reconstructions of lower limb in children using stereoradiography, and to assess uncertainty of clinical and anatomical parameters for children with cerebral palsy and for healthy children. The stereoradiography technique, using the EOS® system (Eos-imaging®), is based on the acquisition of two simultaneous digital anteroposterior and lateral X-rays, from head to feet in standing position and at low radiation dose. This technique allows subject-specific skeletal 3D reconstructions. Five children with cerebral palsy (CP) and 5 typically developing children (TD) were included in the study. Two operators performed the lower limb reconstructions twice. Tridimensional reconstructions were feasible for children over the age of 5 years. The study of reproducibility of anatomical parameters defining skeletal alignment showed uncertainties under 3° for the neck shaft angle, the femoral mechanical angle, and for the femoral and tibial torsions. The maximum degree of uncertainty was obtained for the femoral tibial rotation (4° for healthy children and 3.5° for children with CP).

PMID: 23928234 [PubMed - as supplied by publisher]

10. Muscle Nerve. 2013 Aug 8. doi: 10.1002/mus.23983. [Epub ahead of print]

Systematic test of neurotoxin dose and volume on muscle function in a rat model.

Hulst JB, Minamoto VB, Lim MB, Bremner SN, Ward SR, Lieber RL.

Department of Orthopaedic Surgery, University of California San Diego, San Diego, CA.

Introduction: Botulinum toxin serotype A (BT-A) is used for a variety of motor and sensory disorders related to abnormal muscle activity. Methods: We developed a high-resolution rodent model to allow precise determination of the effect of BT-A dose (measured in units) and injectate volume (measured in μL) on the efficacy of the injection and systemic side effects. Dorsiflexion is the best indicator of injected and contralateral muscle function. Results: One month after injection, dorsiflexion torque of BT-A-injected limbs was decreased significantly in all experimental groups compared with saline controls ($P<0.05$). Torque was also compared among the BT-A groups, which demonstrated a significant effect of dose ($P<0.001$), but no effect of volume ($P>0.2$) and no dose x volume interaction ($P>0.3$). Similar results were observed for other parameters measured. Discussion: These data demonstrate that injection dose and not volume or concentration is the primary determinant of neurotoxin efficacy in a rodent model. © 2013 Wiley Periodicals, Inc.

PMID: 23929710 [PubMed - as supplied by publisher]

11. Disabil Rehabil. 2013 Aug 7. [Epub ahead of print]

Outcomes of an exercise program for pain and fatigue management in adults with cerebral palsy.

Vogtle LK, Malone LA, Azuero A.

Department of Occupational Therapy, University of Alabama at Birmingham , Birmingham, AL , USA.

Purpose: The purpose of this exploratory pilot study was to examine the effect of exercise on pain and fatigue in adults with CP. Method: Twenty-six participants (12 ambulatory, 14 non-ambulatory; 10 males, 16 females; mean age 42.3 ± 11.2 years) enrolled in a study using a repeated measures design including baseline, intervention and follow-up phases of 12 weeks each; 20 participants completed all phases. Primary outcome measures used were the FACES pain scale, the count of body parts with pain and the PedsQL™ Multidimensional Fatigue Scale. Results: Significant beneficial changes were found in the pain and fatigue scales among the ambulatory participants during the intervention phase. However the beneficial changes diminished during the follow-up phase. Secondary outcomes examined included, pain interference, daily physical activity and health-related quality of life. Conclusion: Study outcomes suggest that exercise may provide some benefit for ambulatory adults with CP. Implications for Rehabilitation Pain and fatigue are secondary conditions experienced by many adults with cerebral palsy which have a significant impact on function and quality of life. Physical activity is an intervention which has been

demonstrated to decrease both pain and fatigue in other health conditions. In a relatively small sample, this study demonstrates decreased pain and fatigue after an exercise intervention in ambulatory adults with cerebral palsy.

PMID: 23924251 [PubMed - as supplied by publisher]

12. Arch Dis Child. 2013 Aug 6. doi: 10.1136/archdischild-2013-303993. [Epub ahead of print]

Physical illness in looked-after children: a cross-sectional study.

Martin A, Ford T, Goodman R, Meltzer H, Logan S.

Department of Paediatrics, Royal Devon and Exeter Hospital, , Exeter, Devon, UK.

OBJECTIVE: To compare the reported point prevalence of chronic physical illness among children looked after by local authorities with those living in their own homes. DESIGN: Cross-sectional study, using questionnaire data from a national survey. SETTING: The UK. PARTICIPANTS: Random samples of children aged 5-15 years. Children looked after were selected from Department of Health databases, stratified according to placement type. The child benefit register was the sampling frame for children in their own homes, weighted to match the child population demographic and compensate for response variability. MAIN OUTCOME: Carer-reported prevalence of 10 physical illnesses. RESULTS: Data were collected on 1253 looked-after children and 10 438 children in their own homes. There were lower rates of asthma, eczema and hay fever reported among looked-after children compared with children at home (ORs, adjusted for age, gender and ethnicity, were 0.63, 0.61 and 0.36, respectively). Epilepsy, cystic fibrosis and cerebral palsy were more commonly reported in looked-after children (adjusted ORs 4.13, 4.2 and 7.26, respectively). There was no difference in the proportions of children in the two groups reporting glue ear, diabetes mellitus, spina bifida or cancer. CONCLUSIONS: Looked-after children have an increased prevalence of some physical illnesses. The results also suggest that there may be significant unmet need, with health professionals and carers failing to identify other illnesses. The lower reported prevalence of atopic conditions may reflect a truly lower occurrence of such diseases in looked-after children; this requires further work to explore.

PMID: 23922058 [PubMed - as supplied by publisher]

13. Rev Bras Ter Intensiva. 2012 Dec;24(4):375-380.

Noninvasive ventilation in acute respiratory failure from respiratory syncytial virus bronchiolitis [Article in English, Portuguese]

Nizarali Z, Cabral M, Silvestre C, Abadesso C, Nunes P, Loureiro H, Almeida H.

OBJECTIVES: The present study focused on respiratory syncytial virus bronchiolitis with respiratory failure. The aim of the study was to determine whether noninvasive ventilation reduces the need for endotracheal intubation or slows the clinical progression of acute respiratory syncytial virus bronchiolitis by reducing the incidence of infectious complications. METHODS: The present study was a retrospective cohort study. Cohort A was comprised of children who were admitted to the pediatric intensive and special care unit from 2003-2005 before starting noninvasive ventilation; cohort B was comprised of children who were admitted to the pediatric intensive and special care unit from 2006-2008 after starting noninvasive ventilation. With the exception of noninvasive ventilation, the therapeutic support was the same for the two groups. All children who were diagnosed with respiratory syncytial virus bronchiolitis and respiratory failure between November 2003 and March 2008 were included in the cohort. Demographic, clinical and blood gas variables were analyzed. RESULTS: A total of 162 children were included; 75% of the subjects were less than 3 months old. Group A included 64 children, and group B included 98 children. In group B, 34 of the children required noninvasive ventilation. The distributions of the variables age, preterm birth, congenital heart disease, cerebral palsy and chronic lung disease were similar between the two groups. On admission, the data for blood gas analysis and the number of apneas were not significantly different between the groups. In group B, fewer children required invasive ventilation (group A: 12/64 versus group B: 7/98; p=0.02), and there was a reduction in the number of cases of bacterial pneumonia (group A: 19/64 versus group B: 12/98; p=0.008). There was no record of mortality in either of the groups. CONCLUSION: By comparing children with the same disease both before and after noninvasive ventilation was used for ventilation support, we verified a reduction in infectious complications and cases requiring intubation.

PMID: 23917936 [PubMed - as supplied by publisher]

14. Clin Otolaryngol. 2013 Jul 3. doi: 10.1111/coa.12146. [Epub ahead of print]

Salivary duct ligation for anterior and posterior drooling: our experience in twenty one children.

Scheffer AR, Bosch KJ, van Hulst K, van den Hoogen FJ.

Department of Otorhinolaryngology-Head and Neck Surgery, Radboud University Medical Center, Nijmegen, The Netherlands.

Drooling is a major problem for children with neurological disabilities. Duct ligation is a relatively new treatment for this problem 21 children were included and systematically evaluated on both objective and subjective parameters for the first time. This showed a highly significant reduction in anterior drooling, both objectively and subjectively: the drooling quotient fell from a mean baseline score of 27 to 8 after 2 months (P=0.001) and 12 after 8 months (P=0.06). A caregiver visual analog score was reduced from a baseline of 85 to 48 after 2 months (P=0.001) and 52 after 8 months (P=0.003). Although the number of aspiration pneumonias appeared to decline (from a pre-operative median of 2 to a post-operative median of 0), this was not statistically significant (P=0.23) Duct ligation could be a useful intervention for drooling, but additional research is required. This article is protected by copyright. All rights reserved.

PMID: 23910543 [PubMed - as supplied by publisher]

15. Res Dev Disabil. 2013 Aug 1;34(10):3384-3392. doi: 10.1016/j.ridd.2013.07.002. [Epub ahead of print]

Mastery motivation in adolescents with cerebral palsy.

Majnemer A, Shikako-Thomas K, Lach L, Shevell M, Law M, Schmitz N; The QUALA group.

School of Physical & Occupational Therapy, Davis House, 3654 prom Sir-William-Osler, Montreal, Quebec, Canada H3G 1Y5. Electronic address: annette.majnemer@mcgill.ca.

The aim of this study is to describe motivation in adolescents with cerebral palsy (CP) and factors associated with motivation level. The Dimensions of Mastery Questionnaire (DMQ) measures motivation in mastering challenging tasks and expressive elements. It was completed by 153 parents and 112 adolescents with CP. Adolescents (GMFCS in n=146 - I:50, II:43, III:13, IV:15, V:25) were assessed using the Leiter IQ and Gross Motor Function Measure. Parents completed the Vineland Adaptive Behavior Scale and the Strengths and Difficulties Questionnaire. Motivation scores were highest for mastery pleasure and social persistence with adults and lowest for gross motor and object-oriented persistence. Socio-demographic factors were not strongly correlated with DMQ. Higher gross motor ability (r=0.24-0.52) and fewer activity limitations (r=0.30-0.64, p<.001) were associated with persistence in cognitive, motor and social tasks, but not mastery pleasure. Higher IQ was associated with persistence in object-oriented tasks (r=0.42, p<.001). Prosocial behaviors correlated with high motivation (r=0.39-0.53, p<.001). Adolescents' motivation scores were higher than parents' scores. Adolescents with CP express high mastery pleasure, not related to abilities. High motivation was associated with fewer activity limitations and prosocial behaviors and aspects of family environment. Findings elucidate those at-risk for low motivation, which can influence treatment adherence and participation in challenging but meaningful activities.

PMID: 23911644 [PubMed - as supplied by publisher]

16. J Neurosci Rural Pract. 2013 Apr;4(2):159-63. doi: 10.4103/0976-3147.112752.

Psychological impact of cerebral palsy on families: The African perspective.

Olawale OA, Deih AN, Yaadar RK.

Department of Physiotherapy, Faculty of Clinical Sciences, College of Medicine, University of Lagos, Lagos, Nigeria.

BACKGROUND: Psychological stress associated with cerebral palsy (CP) is known to be one of the most depressing conditions of families. In the traditional African society, some peculiar factors may contribute to the stress. AIMS: The aims of this study were to identify and describe, from the African perspective, the psychological impact of CP on families and determine the strategies adopted by families in coping with it. SETTINGS AND DESIGN: The study was a cross-sectional descriptive survey conducted in the Physiotherapy Department of a tertiary hospital. MATERIALS AND METHODS: Participants were 52 parents of children with CP. They completed a questionnaire designed to determine the degree of psychological stress on the families and strategies adopted to cope with the stress. STATISTICAL ANALYSIS: Descriptive statistics were used to show responses in graphical formats. RESULTS: Respondents agreed that having adequate knowledge of CP would help them cope well with the demands of taking care of children with CP. 38.5% of respondents said that people in the society accused them of some wrongdoing that has made their children to have CP. Personal problems experienced include loss of job, lack of concentration at work, loss of family joy, and derangement of financial affairs of the family. 26 (50%) of them resort to religious/spiritual intervention as an alternative or complementary mode of treatment for their children while 28% resort to dependence on the extended family system for support. CONCLUSION: Families caring for children with CP generally have a positive attitude towards their children. However, there is need to educate the public on the causes of CP and treatment options available to families.

PMID: 23914092 [PubMed] PMCID: PMC3724294 Free PMC Article

17. J Pediatr. 2013 Jul 31. pii: S0022-3476(13)00787-7. doi: 10.1016/j.jpeds.2013.06.028. [Epub ahead of print]

Psychological and Quality of Life Outcomes in Pediatric Populations: A Parent-Child Perspective.

Moreira H, Carona C, Silva N, Frontini R, Bullinger M, Canavarro MC.

Faculty of Psychology and Education Sciences, University of Coimbra, Coimbra, Portugal. Electronic address: hmoreira@fpce.uc.pt.

OBJECTIVES: To compare the levels of quality of life (QoL) and psychological adjustment of children with different chronic health conditions with healthy children; to compare the QoL of parents of children with a chronic condition with parents of healthy children; and to examine the role of parents' QoL and children's psychological adjustment (ie, internalizing/externalizing problems) on children's QoL. STUDY DESIGN: The sample comprised 964 family dyads composed of 1 parent and 1 child/adolescent aged 8-18 years with diabetes (n = 85), asthma (n = 308), epilepsy (n = 68), cerebral palsy (n = 94), obesity (n = 110), or no medical conditions (n = 299). The children completed self-report measures of QoL and psychological adjustment, and the parents completed a questionnaire on QoL. RESULTS: Children with epilepsy and obesity reported the lowest levels of QoL and elevated levels of psychological problems, and parents of children with obesity reported the lowest levels of QoL. Adolescents reported worse adjustment than children. Regression models revealed that children's internalizing and externalizing problems were important, although distinct, explanatory factors of QoL across all groups. CONCLUSION: Children with chronic conditions, particularly epilepsy and obesity, are at increased risk for maladjustment. A routine assessment of QoL and psychological functioning should be performed in these children to better understand how specific conditions affect the lives of children with chronic conditions and their families. Family-oriented pediatrics should be considered, particularly in the treatment of obesity.

PMID: 23915795 [PubMed - as supplied by publisher]

18. Phys Med Rehabil Clin N Am. 2013 Aug;24(3):491-505. doi: 10.1016/j.pmr.2013.03.003. Epub 2013 Apr 13.

Life care planning for the child with cerebral palsy.

Katz RT, Johnson CB.

Washington University School of Medicine, 4660 Maryland Avenue, Suite 250, St Louis, MO 63108, USA. Electronic address: pianodoctor@pol.net.

A life care plan may be useful to plan the needs of the disabled child with cerebral palsy. A cost analysis for a life care plan depends on the life expectancy of the child, and careful review of the needs of the child. A wide variety of support services may be available in the public sector. Key physical disabilities are associated with diminished life span, as are diminished cognitive abilities, even in the absence of physical impairment. The life care plan must follow the generally accepted and peer-reviewed methodology, with an appropriate foundation for each item recommended.

PMID: 23910487 [PubMed - in process]

19. Dev Med Child Neurol. 2013 Aug 8. doi: 10.1111/dmcn.12224. [Epub ahead of print]

Vocational rehabilitation services and employment outcomes for adults with cerebral palsy in the United States.

Huang IC, Holzbauer JJ, Lee EJ, Chronister J, Chan F, O'neil J.

Graduate Institute of Rehabilitation Counseling, National Changhua University of Education, Changhua City, Taiwan.

AIM: The aim of this study was to examine the relationship between vocational rehabilitation services provided and work outcomes among people with cerebral palsy (CP), taking in to account demographic characteristics. METHOD: From the US Department of Education Rehabilitation Service Administration Case Service Report (RSA-911) database, data from 3162 individuals with CP (1820 males [57.6%] and 1342 females [42.4% age range 16-54y) whose cases were closed in 2009, were used in this study. A total of 1567 cases (49.6%) were closed with clients being categorized as 'successful employment' and 1595 cases (50.4%) were closed with clients being classified as unemployed. RESULTS: Multivariate logistic regression was used to examine the relationship between services provided and work outcomes with regard to demographic characteristics. Males aged between 26 and 54 years old with higher education attainment were more likely to be employed. Individuals receiving disability benefits were less likely to be employed. After controlling for the effect of demographic and work disincentive variables, five vocational rehabilitation services significantly predicted employment outcomes ($p<0.05$), including (1) on-the-job training; (2) job placement assistance; (3) on-the-job support; (4) maintenance services; and (5) rehabilitation technology. INTERPRETATION: Medical and health professionals need to be aware of vocational rehabilitation agencies as a resource for providing medical, psychological, educational, and vocational interventions for adults with CP to help them maximize their employability, to address their much needed work adjustment skills, to establish independent living, and to eventually reach their full potential in participation in society.

PMID: 23924262 [PubMed - as supplied by publisher]

Prevention and Cure

20. Ann Acad Med Singapore. 2013 Jan;42(1):7-17.

Short- and long-term outcomes at 2, 5 and 8 years old for neonates at borderline viability--an 11-year experience.

Poon WB, Ho SK, Yeo CL.

Department of Neonatal and Developmental Medicine, Singapore General Hospital, Singapore. woeibingpoon@yahoo.com

INTRODUCTION: Neurodevelopmental outcome of borderline viability neonates have lagged behind improvement in survival figures. Accurate figures based on local outcome allow us to better counsel parents and to prognosticate with greater accuracy on both short- and longterm outcomes. MATERIALS AND METHODS: A retrospective cohort study of 101 consecutively born neonates, born from 21 to 26 weeks gestation over an 11-year period from 1 January 1994 to 31 December 2005 was conducted. Long-term outcomes were assessed at 2, 5 and 8 years of age in terms of mental developmental index (MDI) or intelligence quotient (IQ) scores, hearing and visual impairments, handicaps and impairments, school placement and interventions required. RESULTS: Survival rates were 20.0%, 60.9%, 70.4% and 73.2% for neonates born at 21 to 23, 24, 25 and 26 weeks gestation respectively. Factors that predicted increased mortality included higher alveolar-arterial oxygen difference (AaDO2) with odds ratio (OR) 1.005 and lower birth weight OR 0.993. Rates of severe retinopathy of prematurity (ROP) (stage 3 or worse) were 100%, 57.1%, 42.1% and 26.7% for 21 to 23, 24, 25 and 26 weeks gestation respectively. Rates of bronchopulmonary dysplasia (BPD) were 100.0%, 57.1%, 63.2% and 60.0% respectively. Rates of severe intraventricular haemorrhage (IVH) were 0%, 7.1%, 5.3% and 10.0% respectively. Moderate to severe disability rates at 2 years old were 100%, 44.4%, 33.3% and 30.4% respectively. At 5 years old, moderate to severe disability rates were 16.7%, 22.2% and 14.3% respectively for those born at 24, 25 and 26 weeks gestation. Interpretation at 8 years was limited by small numbers. CONCLUSION:
Our results indicated that local figures for mortality and morbidity remained high at the limits of viability, although they were comparable to outcomes for large scale studies in advanced countries.

PMID: 23417586 [PubMed - indexed for MEDLINE] Free full text

21. Eur J Med Genet. 2013 Jul 30. pii: S1769-7212(13)00158-4. doi: 10.1016/j.ejmg.2013.07.003. [Epub ahead of print]

NKX2-1 mutation in a family diagnosed with ataxic dyskinetic cerebral palsy.

McMichael G, Haan E, Gardner A, Yap TY, Thompson S, Ouvrier R, Dale RC, Gecz J, Maclennan AH.

The Robinson Institute, The University of Adelaide, Adelaide, Australia. Electronic address: gai.mcmichael@adelaide.edu.au.

Benign hereditary chorea caused by mutations in the NK2 homeobox 1 gene (NKX2-1), shares clinical features with ataxic and dyskinetic cerebral palsy (CP), resulting in the possibility of misdiagnosis. A father and his two children were considered to have ataxic CP until a possible diagnosis of benign familial chorea was made in the children in early teenage. The father's neurological condition had not been appreciated prior to examination of the affected son. Whole exome sequencing of blood derived DNA and bioinformatics analysis were performed. A 7 bp deletion in exon 1 of NKX2-1, resulting in a frame shift and creation of a premature termination codon, was identified in all affected individuals. Screening of 60 unrelated individuals with a diagnosis of dyskinetic or ataxic CP did not identify NKX2-1 mutations. BHC can be confused with ataxic and dyskinetic CP. Occasionally these children have a mutation in NKX2-1.

PMID: 23911641 [PubMed - as supplied by publisher]

22. Gynecol Oncol. 2013 Jul 31. pii: S0090-8258(13)01073-1. doi: 10.1016/j.ygyno.2013.07.108. [Epub ahead of print]

Obstetric outcomes of patients undergoing total laparoscopic radical trachelectomy for early stage cervical cancer.

Ebisawa K, Takano M, Fukuda M, Fujiwara K, Hada T, Ota Y, Kurotsuchi S, Kanao H, Andou M.

Department of Obstetrics and Gynecology, Kurashiki Medical Center. Electronic address: eastfield@mac.com.

OBJECTIVE: To assess the obstetric outcomes of our total laparoscopic radical trachelectomy (TLRT) cases for early stage cervical cancer. MATERIALS AND METHODS: A total of 56 patients who underwent TLRT between December 2001 and August 2012 were reviewed retrospectively using clinicopathological, surgical, and follow-up data from patients' medical records. RESULTS: We performed this operation on 56 patients during the study period. The mean age of these 56 patients was 31.9 years (range 22-42 years). Fifty-three patients' fertility was preserved without requiring post-operative adjuvant treatment. Twenty-five women attempted to conceive, of whom 13 succeeded for a total of 21 pregnancies (52% pregnancy rate). Ten of these 21 pregnancies were the result of assisted reproductive technologies. Of those, 5 resulted in first trimester miscarriages, 2 in second trimester miscarriages, and 13 in live births. Ten pregnancies reached the third trimester. Preterm premature rupture of membranes (8/13, 61.5%) was the most common complication during pregnancy. The rate of preterm delivery was 47.6%. Three patients delivered at 22-28 weeks of gestational age. Two of these babies showed permanent damage: one has cerebral palsy; the other has developmental retardation. One pregnancy is ongoing. CONCLUSION: TLRT is a useful technique associated with an excellent pregnancy rate in fertility-preserving surgery to treat early stage cervical cancer. © 2013.

PMID: 23917083 [PubMed - as supplied by publisher]

23. Neurorehabil Neural Repair. 2013 Aug 1. [Epub ahead of print]

Motor Impairments Related to Brain Injury Timing in Early Hemiparesis. Part II: Abnormal Upper Extremity Joint Torque Synergies.

Sukal-Moulton T, Krosschell KJ, Gaebler-Spira DJ, Dewald JP.

Physical Therapy and Human Movement Sciences, Northwestern University, Chicago, IL, USA.

BACKGROUND: Extensive neuromotor development occurs early in human life, and the timing of brain injury may affect the resulting motor impairment. In Part I of this series, it was demonstrated that the distribution of weakness in the upper extremity depended on the timing of brain injury in individuals with childhood-onset hemiparesis. OBJECTIVE: The goal of this study was to characterize how timing of brain injury affects joint torque synergies, or losses of independent joint control. METHOD: Twenty-four individuals with hemiparesis were divided into 3 groups based on the timing of their injury: before birth (PRE-natal, n = 8), around the time of birth (PERI-natal, n = 8), and after 6 months of age (POST-natal, n = 8). Individuals with hemiparesis and 8 typically developing peers participated in maximal isometric shoulder, elbow, wrist, and finger torque generation tasks while their efforts were recorded by a multiple degree-of-freedom load cell. Motor output in 4 joints of the upper extremity was concurrently measured during 8 primary torque generation tasks to quantify joint torque synergies. RESULTS: There were a number of significant coupling patterns identified in individuals with hemiparesis that differed from the typically developing group. POST-natal differences were most noted in the coupling of shoulder abductors with elbow, wrist, and finger flexors, while the PRE-natal group demonstrated significant distal joint coupling with elbow flexion. CONCLUSION: The torque synergies measured provide indirect evidence for the use of bulbospinal pathways in the POST-natal group, while those with earlier injury may use relatively preserved ipsilateral corticospinal motor pathways.

PMID: 23911972 [PubMed - as supplied by publisher]