NEWS
Cerebral Palsy Research

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Interventions and Management

1. Br J Educ Psychol. 2012 Mar;82(Pt 1):120-35. doi: 10.1111/j.2044-8279.2011.02034.x. Epub 2011 Aug 10.

Cognitive correlates of mathematical achievement in children with cerebral palsy and typically developing children.

Jenks KM, van Lieshout EC, de Moor JM.

Department of Epidemiology, Biostatistics and HTA, Radboud University Nijmegen Medical Centre, The Netherlands Department of Special Education, VU University Amsterdam, The Netherlands Behavioral Science Institute, Radboud University Nijmegen, The Netherlands.

Background. Remarkably few studies have investigated the nature and origin of learning difficulties in children with cerebral palsy (CP). Aims. To investigate math achievement in terms of word-problem solving ability in children with CP and controls. Because of the potential importance of reading for word-problem solving, we investigated reading as well. Sample. Children with CP attending either special (n= 41) or mainstream schools (n= 16) and a control group of typically developing children in mainstream schools (n= 16). Method. Group differences in third grade math and reading, controlled for IQ, were tested with analyses of co-variance (ANCOVAs). Hierarchical regression was used to investigate cognitive correlates of third grade math and reading. Predictors included verbal and non-verbal IQ measured in first grade, components of working memory (WM) and executive function (EF) measured in second grade, and arithmetic fact fluency and reading measured in third grade. Results. Children with CP in special schools performed significantly worse than their peers on word-problem solving and reading. There was a trend towards worse performance in children with CP in mainstream schools compared to typically developing children. Conclusions. Impairments of non-verbal IQ and WM updating predicted future difficulties in both word-problem solving and reading. Impairments of visuospatial sketchpad and inhibition predicted future word-problem, but not reading difficulty. Conversely, deficits of phonological loop predicted reading but not word-problem difficulty. Concurrent arithmetic fact fluency and reading ability were both important for word-problem solving ability. These results could potentially help to predict which children are likely to develop specific learning difficulties, facilitating early intervention.

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PMID: 22429061 [PubMed - in process]

2. Eur J Pediatr. 2012 Mar 20. [Epub ahead of print]

Pain in cognitively impaired children: a focus for general pediatricians.

Massaro M, Pastore S, Ventura A, Barbi E.

Institute for Maternal and Child Health-IRCCS "Burlo Garofolo"-Trieste, University of Trieste, Trieste, Italy.

Pain in children with cognitive impairment and cerebral palsy is a particularly relevant issue due to its high prevalence and impact on quality of life. We review available evidence about prevalence of pain, causes and specific treatment, recognition and use of specific pain scales, physiology, and consequences of pain in this subset of patients. Conclusions: Pain is very common and is a critical determinant of quality of life in children with cognitive impairment and cerebral palsy. The diseases and associated complications that frequently expose these patients to pain can be treated and pain prevented. For patients with communication difficulties, appropriate, effective, validated tools are available and should be used to diagnose pain in itself, to choose analgesic treatment and to determine effectiveness of these therapies. The level of awareness of pediatricians towards this issue seems to be quite low.

PMID: 22426858 [PubMed - as supplied by publisher]

3. Can J Neurol Sci. 2012 Jan;39(1):1-2.

Making links across the lifespan in neurology.

Gorter JW.

Comment on

Can J Neurol Sci. 2012 Jan;39(1):23-5.

PMID: 22384483 [PubMed - indexed for MEDLINE]

4. Dev Med Child Neurol. 2012 Mar 17. doi: 10.1111/j.1469-8749.2012.04272.x. [Epub ahead of print]

Impact of intensive upper limb rehabilitation on quality of life: a randomized trial in children with unilateral cerebral palsy.

Sakzewski L, Carlon S, Shields N, Ziviani J, Ware RS, Boyd RN.

Queensland Cerebral Palsy and Rehabilitation Research Centre, The University of Queensland, Brisbane, QLD. Queensland Children's Medical Research Institute, Brisbane, QLD. Department of Physiotherapy, La Trobe University, Melbourne, Vic. School of Health and Rehabilitation Sciences, The University of Queensland, Brisbane, QLD. School of Population Health, The University of Queensland, Brisbane, QLD, Australia.

Aim: The aim of this study was to determine whether constraint-induced movement therapy is more effective than bimanual training in improving the quality of life of children with unilateral cerebral palsy (CP). Method: Sixty-three children (mean age 10y 2mo [SD 2y 6mo]; 33 males, 30 females) with CP of the spastic motor type (n=59) or with spasticity and dystonia (n=4) were randomly allocated to two groups. The children were assessed as Manual Ability Classification System level I (n=16), II (n=46), or III (n=1). Each group received 6 hours of daily intervention (either constraint-induced movement therapy [CIMT] or bimanual training [BIM]) for 10 days over a 2-week period (total intervention time 60h). Children aged 9 years and older completed the Cerebral Palsy Quality of Life Questionnaire for Children (CPQOL-Child) and those aged 8 years and older completed the KIDSCREEN-52. All parents completed proxy versions of each measure. Assessments were made at baseline and at 3, 26, and 52 weeks after the end of the intervention. Results: Thirty-five children completed the CPQOL-Child and 41 completed the KIDSCREEN-52. No changes in social or emotional well-being were reported by children in either group. Children and parents from both groups reported a significant improvement in their or their child's feelings about functioning as well as participation and physical health on the CPQOL-Child. The parents of children receiving CIMT reported positive and sustained changes in their child's social well-being (CPQOL-Child). The CIMT group

showed significant improvements in physical well-being, psychological well-being, and moods and emotions (KIDSCREEN-52) at 3 weeks post intervention, which were maintained over the study period. Interpretation: Intensive goal-directed upper limb training programmes using either CIMT or BIM achieved domain-specific changes in quality of life relating to feelings about functioning and participation and physical health. A condition-specific quality of life compared with a generic measure may be better able to detect changes in quality of life in children with unilateral CP.

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PMID: 22429002 [PubMed - as supplied by publisher]

5. Curr Rev Musculoskelet Med. 2012 Mar 20. [Epub ahead of print]

The role for hip surveillance in children with cerebral palsy.

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Spastic hip displacement is the second most common deformity seen in children with cerebral palsy (CP), and the long-term effects can be debilitating. Progressive hip displacement leading to dislocation can result in severe pain as well as impaired function and quality of life. Recent population-based studies have demonstrated that a child's Gross Motor Functional Classification System (GMFCS) level is most predictive for identifying hips "at-risk" for progressive lateral displacement. As a result, in many developed countries, hip surveillance has now been adopted as an integral piece of the comprehensive care puzzle for the management of children with spastic hip displacement. This paper reviews the spectrum of treatments available for progressive hip displacement, examines the current literature on the success of hip surveillance, and illustrates an example of a current hip surveillance program stratified by the GMFCS level.

PMID: 22430862 [PubMed - as supplied by publisher]

6. Gait Posture. 2012 Mar 14. [Epub ahead of print]

Outcomes of correction of internal hip rotation in patients with spastic cerebral palsy using proximal femoral osteotomy.

de Morais Filho MC, Kawamura CM, Dos Santos CA, Junior RM.

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Internal hip rotation (IHR) is the major cause of intoeing gait in patients with cerebral palsy (CP). Femoral derotation osteotomy (FDO) is the preferred treatment to correct excessive anteversion, however the condition may persist or recur postoperatively. Retrospective clinical and kinematic evaluation of 75 spastic diplegic CP patients was conducted for a mean duration of 22 months following proximal FDO. The patients were divided into two groups depending on the correction or persistence of IHR evident at kinematics after surgery. If corrected, mean patient follow-up was extended to 53 months. Outcomes were analyzed using Two Proportions Equality, Mann-Whitney and Wilcoxon tests. IHR persisted in 33.3% of cases at mean follow-up of 22 months and subtrochanteric femur osteotomy was more frequent in this group (p=0.033). Thirty-five of the fifty-four patients with first-round gait correction were monitored during the extended follow-up. Those for whom IHR recurred (9.5%) had undergone FDO at a comparatively younger age. Patient gender, operations prior to or at the time of femoral osteotomy, topographic classification, GMFCS level, or the extent of preoperative clinical and kinematic abnormalities had no apparent influence on persistence or recurrence of abnormal gait.

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PMID: 22425638 [PubMed - as supplied by publisher]

7. J Bone Joint Surg Br. 2012 Apr;94(4):483-7.

Hip resurfacing with femoral osteotomy for painful subluxed or dislocated hips in patients with cerebral palsy.

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The painful subluxed or dislocated hip in adults with cerebral palsy presents a challenging problem. Prosthetic dislocation and heterotopic ossification are particular concerns. We present the first reported series of 19 such patients (20 hips) treated with hip resurfacing and proximal femoral osteotomy. The pre-operative Gross Motor Function Classification System (GMFCS) was level V in 13 (68%) patients, level IV in three (16%), level III in one (5%) and level II in two (11%). The mean age at operation was 37 years (13 to 57). The mean follow-up was 8.0 years (2.7 to 11.6), and 16 of the 18 (89%) contactable patients or their carers felt that the surgery had been worthwhile. Pain was relieved in 16 of the 18 surviving hips (89%) at the last follow-up, and the GMFCS level had improved in seven (37%) patients. There were two (10%) early dislocations; three hips (15%) required revision of femoral fixation, and two hips (10%) required revision, for late traumatic fracture of the femoral neck and extra-articular impingement, respectively. Hence there were significant surgical complications in a total of seven hips (35%). No hips required revision for instability, and there were no cases of heterotopic ossification. We recommend hip resurfacing with proximal femoral osteotomy for the treatment of the painful subluxed or dislocated hip in patients with cerebral palsy.

PMID: 22434463 [PubMed - in process]

8. Spine (Phila Pa 1976). 2012 Mar 15. [Epub ahead of print]

Does Patient Diagnosis Predict Blood Loss during Posterior Spinal Fusion in Children?

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Study Design. Retrospective review. Objective. To assess the relationship between diagnosis and blood loss in children undergoing posterior spinal fusion surgery for deformity correction. Summary of Background Data. To our knowledge, this relationship is not well established. It has important implications for understanding the mechanisms for blood loss and planning for surgery. Methods. Clinical records were reviewed for all patients 10 to 18 years old who underwent spinal fusion surgery (at least 5 levels) by the senior author from 2001 through 2011. Patients were excluded for: antifibrinolytic use, vertebral column resections, history of spinal surgery, non-pedicle screw instrumentation, cervical spine fusion, or anterior approaches. The 617 patients (with 37 diagnoses) were categorized into 5 groups: idiopathic scoliosis (IS), Scheuermann's kyphosis (SK), cerebral palsy, other neuromuscular disorders, and genetic and syndromic disorders. Analysis of covariance was used to assess differences in blood loss across the diagnostic groups. Normalized blood loss (NBL) was calculated by dividing blood loss by number of levels fused and by patient's weight; NBL differences between groups were analyzed using Bonferroni correction method. Significance was set at $P < 0.05$. Results. Blood loss differed significantly by diagnostic group, adjusting for extent of fusion and patient weight ($P < 0.001$). Patients with cerebral palsy had a significantly higher NBL than patients with IS ($P < 0.001$), SK ($P < 0.001$), other neuromuscular disorders ($P = 0.049$), or genetic and syndromic disorders ($P = 0.006$). Patients with other neuromuscular disorders had a significantly higher NBL than patients with IS ($P < 0.001$) or SK ($P < 0.001$). Patients with genetic and syndromic disorders also had a significantly higher NBL than patients with IS ($P < 0.001$) or SK ($P < 0.001$). Conclusion. There is a significant relationship between patient diagnosis and blood loss during posterior spinal fusion surgery in children.

PMID: 22426452 [PubMed - as supplied by publisher]

9. Dev Med Child Neurol. 2012 Mar;54(3):278-83.

The Dyskinesia Impairment Scale: a new instrument to measure dystonia and choreoathetosis in dyskinetic cerebral palsy.

Monbaliu E, Ortibus E, De Cat J, Dan B, Heyrman L, Prinzie P, De Cock P, Feys H.

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AIM: The aim of this study was to examine the reliability and validity of the Dyskinesia Impairment Scale (DIS). The DIS consists of two subscales: dystonia and choreoathetosis. It measures both phenomena in dyskinetic cerebral palsy (CP). METHOD: Twenty-five participants with dyskinetic CP (17 males; eight females; age range 5–22y; mean age 13y 6mo; SD 5y 4mo), recruited from special schools for children with motor disorders, were included. Exclusion criteria were changes in muscle relaxant medication within the previous 3 months, orthopaedic or neurosurgical interventions within the previous year, and spinal fusion. Interrater reliability was verified by two independent raters. For interrater reliability, intraclass correlation coefficients were assessed. Standard error of measurement, the minimal detectable difference, and Cronbach's alpha for internal consistency were determined. For concurrent validity of the DIS dystonia subscale, the Barry–Albright Dystonia Scale was administered. RESULTS: The intraclass correlation coefficient for the total DIS score and the two subscales ranged between 0.91 and 0.98 for interrater reliability. The reliability of the choreoathetosis subscale was found to be higher than that of the dystonia subscale. The standard error of the measurement and minimal detectable difference values were adequate. Cronbach's alpha values ranged from 0.89 to 0.93. Pearson's correlation between the dystonia subscale and Barry–Albright Dystonia Scale was 0.84 ($p<0.001$). INTERPRETATION: Good to excellent reliability and validity were found for the DIS. The DIS may be promising for increasing insights into the natural history of dyskinetic CP and evaluating interventions. Future research on the responsiveness of the DIS is warranted.

Comment in

Dev Med Child Neurol. 2012 Mar;54(3):205-6.

PMID: 22428172 [PubMed - in process]

10. Can J Occup Ther. 2012 Feb;79(1):7-14.

Canadian Occupational Performance Measure: impact of blinded parent-proxy ratings on outcome.

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BACKGROUND: There is potential for unintended effects on intervention outcome when using the Canadian Occupational Performance Measure (COPM) in intervention studies. PURPOSE: To determine the effect of blinded parent-proxy ratings of the COPM on outcomes at later endpoints. METHODS: Data were drawn from a randomized trial of 50 children with hemiplegic cerebral palsy aged 19 months to seven years. Outcomes were measured at baseline, post-intervention, and six months. Parents of 36 children were randomly allocated to complete six-month COPM proxy ratings blinded or unblinded to previous ratings. A group of 32 parents rated the six-month COPM blinded and then re-rated it after access to previous ratings. FINDINGS: There was no statistically significant difference in ratings between those completing the COPM blinded compared to unblinded. IMPLICATIONS: The COPM should continue to be rated blinded at post-intervention endpoints in the absence of further research to the contrary.

PMID: 22439287 [PubMed - in process]

11. Dev Med Child Neurol. 2012 Mar;54(3):205-6.

The challenge of dyskinetic cerebral palsy.

Smith M.

Comment on

Dev Med Child Neurol. 2012 Mar;54(3):278-83.

PMID: 22428171 [PubMed - in process]

12. J Med Assoc Thai. 2012 Feb;95(2):198-204.

The usage of a hand-made chair at home for children with moderate to severe cerebral palsy: preliminary study.

Siritaratiwat W, Inthachom R, Warnset S.

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BACKGROUND: Specially designed chairs are expensive. A hand-made chair easily constructed from recycled material can be an alternative option. However data on the feasibility of hand-made chair use at home is limited. The present study aimed to explore the usage of a hand-made chair at home in children with moderate to severe motor disabilities. MATERIAL AND METHOD: Seventeen children with cerebral palsy were recruited. Main caregivers were interviewed regarding the possibility of using the chair at home. Home visits and observations were also performed to explain how the chair had been used at home. RESULTS: Nine children (52.9%) used the chair everyday. Seven of these nine children were seated at least 30 minutes each time and two to three times per day. The total time that children spent on the hand-made chair each day ranged from 10 to 90 minutes. CONCLUSION: The severity of disability and main caregivers' workload may explain an inadequate usage of the hand-made chair. A few modifications may help to improve the applicability of the hand-made chair.

PMID: 22435250 [PubMed - in process]

13. Disabil Rehabil Assist Technol. 2012 Mar 22. [Epub ahead of print]

Impact of assistive technology on family caregivers of children with physical disabilities: a systematic review.

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Purpose: To systematically review the literature on the effects of assistive technology (AT) on family caregivers of children with physical disabilities. Method: Electronic searches of Medline, CINAHL Plus, PubMed, and PsychInfo were conducted. The main search terms were AT, caregiver, physical disability, cerebral palsy and quality of life. Studies were included if they related to the impact of AT on the family caregiver of children with physical impairment. Data extraction and quality assessments were conducted by three reviewers. Results: Five articles were eligible for inclusion. Two studies rated weak quality of evidence (level 5), two studies rated moderate quality of evidence (level 3), and one article was a systematic review, rating high level of quality (level 1). A paucity of literature, small sample sizes, descriptive study designs and weak methodological quality meant a narrative review was possible. Three articles reported that AT lightened caregiver assistance in the areas of mobility, self- care and social function. Conclusions: Evidence suggests that AT has a positive impact on children with physical impairments and their caregivers. Future studies in this area could include valid and reliable outcome measures of AT use and the psychological impacts of AT on caring for a child with physical impairments.

PMID: 22436000 [PubMed - as supplied by publisher]

14. Ergonomics. 2012 Mar 21. [Epub ahead of print]

Severe motor disability affects functional cortical integration in the context of brain-computer interface (BCI) use.

Nam CS, Woo J, Bahn S.

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The purpose of this study was to investigate cortical interaction between brain regions in people with and without severe motor disability during brain-computer interface (BCI) operation through coherence analysis. Eighteen subjects, including six patients with cerebral palsy (CP) and three patients with amyotrophic lateral sclerosis (ALS), participated. The results showed (1) the existence of BCI performance difference caused by severe motor disability; (2) different coherence patterns between participants with and without severe motor disability during BCI operation and (3) effects of motor disability on cortical connections varying in the brain regions for the different frequency bands, indicating reduced cortical differentiation and specialisation. Participants with severe neuromuscular impairments, as compared with the able-bodied group, recruited more cortical regions to compensate for the difficulties caused by their motor disability, reflecting a less efficient operating strategy for the BCI task. This study demonstrated that coherence analysis can be applied to examine the ways cortical networks cooperate with each other during BCI tasks. Practitioner Summary: Few studies have investigated the electrophysiological underpinnings of differences in BCI performance. This study contributes by assessing neuronal synchrony among brain regions. Our findings revealed that severe motor disability causes more cortical areas to be recruited to perform the BCI task, indicating reduced cortical differentiation and specialisation.

PMID: 22435802 [PubMed - as supplied by publisher]

15. IEEE Trans Neural Syst Rehabil Eng. 2012 Mar;20(2):212-9.

Decoding intra-limb and inter-limb kinematics during treadmill walking from scalp electroencephalographic (EEG) signals.

Presacco A, Forrester LW, Contreras-Vidal JL.

Brain-machine interface (BMI) research has largely been focused on the upper limb. Although restoration of gait function has been a long-standing focus of rehabilitation research, surprisingly very little has been done to decode the cortical neural networks involved in the guidance and control of bipedal locomotion. A notable exception is the work by Nicolelis' group at Duke University that decoded gait kinematics from chronic recordings from ensembles of neurons in primary sensorimotor areas in rhesus monkeys. Recently, we showed that gait kinematics from the ankle, knee, and hip joints during human treadmill walking can be inferred from the electroencephalogram (EEG) with decoding accuracies comparable to those using intracortical recordings. Here we show that both intra- and inter-limb kinematics from human treadmill walking can be achieved with high accuracy from as few as 12 electrodes using scalp EEG. Interestingly, forward and backward predictors from EEG signals lagging or leading the kinematics, respectively, showed different spatial distributions suggesting distinct neural networks for feedforward and feedback control of gait. Of interest is that average decoding accuracy across subjects and decoding modes was $\sim 0.68 \pm 0.08$, supporting the feasibility of EEG-based BMI systems for restoration of walking in patients with paralysis.

PMID: 22438336 [PubMed - in process]

16. Int J Rehabil Res. 2012 Mar 21. [Epub ahead of print]

Measuring steady-state oxygen uptake during the 6-min walk test in adults with cerebral palsy: feasibility and construct validity.

Maltais DB, Robitaille NM, Dumas F, Boucher N, Richards CL.

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This study evaluated the feasibility of measuring steady-state oxygen uptake (V[Combining Dot Above]O2) during the 6-min walk test (6MWT) in adults with cerebral palsy (CP) who walk without support and whether there is construct validity for net 6MWT V[Combining Dot Above]O2 as a measure of their walking ability. Cardiorespiratory variables were assessed at rest and during the 6MWT in 15, independently ambulatory adults, 21-41 years old, with CP. The Gross Motor Function Measure dimensions D and E (GMFM-D and GMFM-E) quantified walking-related skills. Steady-state V[Combining Dot Above]O2 was achieved during the 6MWT. After controlling for body mass and speed, the net 6MWT V[Combining Dot Above]O2 was strongly related to GMFM-D (r=-0.58, ρ=0.03) and GMFM-E scores (r=-0.66, ρ=0.007). We conclude that for young adults with CP who walk without support, it is feasible to measure steady-state V[Combining Dot Above]O2 during the 6MWT and that the net 6MWT V [Combining Dot Above]O2 has construct validity as a measure of walking ability.

PMID: 22441583 [PubMed - as supplied by publisher]

17. Physiother Theory Pract. 2012 Mar 21. [Epub ahead of print]

Exercise training utilizing body weight-supported treadmill walking with a young adult with cerebral palsy who was non-ambulatory.

Dibiasio PA, Lewis CL.

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Purpose The purpose of this case report is to determine the effects of exercise training using body weight-supported treadmill walking (BWSTW) with an 18-year-old male diagnosed with Cerebral palsy (CP) who was non-ambulatory and not receiving physical therapy. Case description: Outcome measures included the Pediatric Quality of Life Inventory (PedsQL), the Pediatric Evaluation of Disability Inventory (PEDI), heart rate (HR), rate of perceived exertion, 3-minute walk test and physiological cost index (PCI). BWSTW sessions took place twice a week for 6 weeks with a reduction of approximately 40% of the patient's weight. Results: Over-ground 3-minute walk test distance and PCI were essentially unchanged. BWSTW exercise time increased by 67% with a 43% increase in speed while average working HR decreased by 8%. BWSTW PCI decreased by 26%. PedsQL parent report improved in all domains. PedsQL self-report demonstrated a mild decrease. PEDI showed improvements in self-care and mobility. Discussion: Exercise utilizing BWSTW resulted in a positive training effect for this young adult with CP who was non-ambulatory. Developing effective and efficient protocols for exercise training utilizing BWSTW may aid in the use of this form of exercise and further quantify outcomes. Ensuring that young adults with CP have safe and feasible options to exercise and be physically active on a regular basis is an important role of a physical therapist.

PMID: 22432864 [PubMed - as supplied by publisher]

Prevention and Cure

18. Neuroepidemiology. 2012 Mar 15;38(3):138-147. [Epub ahead of print]

High Prevalence of Major Neurological Disorders in Two Albanian Communities: Results of a Door-to-Door Survey.

Kruja J, Beghi E, Zerbi D, Dobi D, Kuqo A, Zekja I, Mijo S, Kapisyzi M, Messina P.

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Background: There are few epidemiological studies on neurological disorders in Albania. Methods: A door-to-door survey was undertaken in two geographical areas (Tirana and Saranda) with different socioeconomic backgrounds. Two random samples of the local population underwent a structured interview to ascertain headache, epilepsy, dementia, parkinsonism, multiple sclerosis, polyneuropathy, stroke and cerebral palsy. Each diagnosis was made using standard criteria for epidemiological studies and was confirmed by history, neurological examination and, where available, the review of personal medical records. Lifetime prevalence ratios with 95% confidence intervals were calculated. Results: Of the 9,869 individuals screened (Tirana 4,953; Saranda 4,916), 4,867 were males aged 1-91 years (median 39 years) and 5,002 were females aged 1-96 years (median 37 years). Crude prevalence ratios (per 1,000) were: headache 241.9 (233.5-250.3), polyneuropathy 32.5 (29.0-36.0), epilepsy 14.2 (11.7-16.3), stroke 12.4 (10.2-14.6), dementia 9.6 (7.7-11.5), parkinsonism 8.0 (6.2-9.8), cerebral palsy 4.8 (3.4-6.2), and multiple sclerosis 0.3 (0.0-0.6). Prevalence varied with age and gender, with differences across diseases. Except for polyneuropathy (Tirana 39.8; Saranda 25.2), ratios were not different in the two study areas. Conclusions: The prevalence of selected neurological disorders in Albania is higher than in other countries. Differences may be explained by study design, population structure and/or genetic and environmental factors.

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19. Pediatrics. 2012 Mar 19. [Epub ahead of print]

Cerebral Palsy Among Asian Ethnic Subgroups.

Lang TC, Fuentes-Afflick E, Gilbert WM, Newman TB, Xing G, Wu YW.

Departments of aNeurology.

OBJECTIVE: Asians have a reduced risk for cerebral palsy (CP) compared with whites. We examined whether individual Asian subgroups have a reduced risk of CP and whether differences in sociodemographic factors explain disparities in CP prevalence. METHODS: In a retrospective cohort of 629 542 Asian and 2 109 550 white births in California from 1991 to 2001, we identified all children who qualified for services from the California Department of Health Services on the basis of CP. Asians were categorized as East Asian (Chinese, Japanese, Koreans), Filipino, Indian, Pacific Islander (Guamanians, Hawaiians, and Pacific Islanders), Samoan, or Southeast Asian (Cambodian, Laotian, Thai, Vietnamese). RESULTS: Overall, CP prevalence was lower in Asians than whites (1.09 vs 1.36 per 1000; relative risk = 0.80, 95% confidence interval [CI] = 0.74-0.87) and ranged from 0.61/1000 in Thai children to 2.08/1000 in Samoan children. Several Asian subgroups had low risk profiles with respect to maternal age, educational attainment, and birth weight. However, after we adjusted for maternal age and education, infant gender, and birth weight, the adjusted risk of CP remained lower in East Asians (odds ratio [OR] = 0.75, 95% CI = 0.65-0.87), Filipinos (OR = 0.87, 95% CI = 0.75-0.99), Indians (OR = 0.59, 95% CI = 0.44-0.80), Pacific Islanders (OR = 0.62, 95% CI = 0.40-0.97), and Southeast Asians (OR = 0.68, 95% CI = 0.57-0.82) compared with whites. CONCLUSIONS: Most Asian national origin subgroups have a lower rate of CP than whites, and this disparity is unexplained. Additional studies that focus on the cause of ethnic disparities in CP may provide new insights into pathogenesis and prevention.

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