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1: Arch Phys Med Rehabil. 2008 May;89(5):834-42.

The interaction between executive attention and postural control in dual-task conditions: children with cerebral palsy.

Reilly DS, Woollacott MH, van Donkelaar P, Saavedra S.

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Reilly DS, Woollacott MH, van Donkelaar P, Saavedra S. The interaction between executive attention and postural control in dual-task conditions: children with cerebral palsy. **OBJECTIVE:** To investigate the interference between a secondary task and a postural task in children with cerebral palsy (CP). **DESIGN:** In this exploratory study, a dual-task paradigm was used in which children stood in either a wide or a narrow stance position while simultaneously performing a visual working memory task calibrated to be of equitable attentional demand between groups. **SETTING:** Study data were gathered in a university motor control laboratory. **PARTICIPANTS:** Children with CP (n=8; age range, 10-14y) were compared with typically developing older children (n=6; age range, 7-12y), and typically developing young children (n=5; age range, 4-6y). **INTERVENTIONS:** Not applicable. **MAIN OUTCOME MEASURES:** Proficiency in postural control was measured by the range and root mean square of the velocity of center of pressure displacement in the mediolateral and anteroposterior directions, calculated from forceplate data. Accuracy of response was used as a measure of cognitive task performance. Capacity of the executive attention system was determined by assessing visual working memory capacity. **RESULTS:** Children with CP, like the typically developing young children, were more unstable and had less executive attention capacity compared with older children, and like the typically developing young children, experienced dual-task interference in postural control in both stance positions. Children with ataxic CP also experienced decreased cognitive task performance in narrow stance. **CONCLUSIONS:** In designing therapeutic interventions for children with CP, it would be beneficial for clinicians to assess postural control in both single- and dual-task environments.

PMID: 18452729 [PubMed - in process]

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2: Pediatrics. 2008 May;121(5):906-14.

Patterns of brain injury in neonates exposed to perinatal sentinel events.

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OBJECTIVES. We studied (1) the pattern of brain injury in term neonates with encephalopathy with evidence of a preceding hypoxic sentinel event, (2) prenatal and perinatal risk factors, and (3) the correlation between neuroimaging findings and developmental outcomes. **METHODS.** We identified, among 500 term neonates with encephalopathy who were studied with MRI between 1992 and 2005, 48 infants with evidence of a preceding acute hypoxic event, and we reviewed their MRI scans retrospectively. Prenatal and perinatal data were compared with those for term normal low-risk infants. Neurodevelopmental outcomes were assessed at a minimum of 12 months. **RESULTS.** Five patterns of brain injury were identified, as follows: pattern I, basal ganglia and thalamic lesions associated with severe white matter damage (n = 6; 14%); pattern II, basal ganglia and thalamic lesions with mild or moderate white matter changes (n = 24; 56%); pattern III, isolated thalamic injury (n = 2; 5%); pattern IV, moderate white matter damage only (n = 1; 2%); pattern V, mild white matter changes or normal findings (n = 10; 23%). No scan showed evidence of long-standing injury. The internal capsule was abnormal in 93% of infants with patterns I and II, and 86% of those infants died or developed cerebral palsy. Infants with patterns III and IV had developmental delay and diplegic cerebral palsy, respectively. Pattern V was associated with normal outcomes. Case infants were significantly more often of African descent, born to pluriparous or hypertensive mothers. Uterine rupture followed previous cesarean section in 8 of 11 cases. Cord prolapse accompanied undiagnosed breech presentation in 4 of 9 cases. **CONCLUSIONS.** Basal ganglia and thalamic lesions are the imaging signature in term neonates exposed to hypoxic-ischemic sentinel events. Patterns of central gray matter and secondary white matter injury were associated with higher risks of severe morbidity and death. Affected infants did not seem intrinsically different from our low-risk population. These data support the need for anticipating sentinel events and expediting delivery.

PMID: 18450893 [PubMed - in process]

3: Pediatrics. 2008 May;121(5):e1100-7.

Prenatal exposure to maternal infections and epilepsy in childhood: a population-based cohort study.

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OBJECTIVE: We estimated the association between prenatal exposure to maternal infections and the subsequent risk for epilepsy in childhood. **METHODS:** We included 90,619 singletons who were born between September 1997 and June 2003 in the Danish National Birth Cohort and followed them up to December 2005. Information on maternal infections during pregnancy (cystitis, pyelonephritis, diarrhea, coughs lasting >1 week, vaginal yeast infection, genital herpes, venereal warts, and herpes labialis) was prospectively reported by mothers in 2 computer-assisted telephone interviews in early and midgestation; information on maternal cystitis and pyelonephritis during late period of pregnancy was also collected in a third interview after birth. Children who received a diagnosis of epilepsy as inpatients or outpatients were retrieved from the Danish National Hospital Register. We identified 646 children with a diagnosis of epilepsy during up to 8 years of follow-up time. Cox proportional hazards regression models were used to estimate incidence rate ratio and 95% confidence interval. **RESULTS:** Children who were exposed to maternal cystitis, pyelonephritis, diarrhea, coughs, and/or vaginal yeast infection some maternal infections in prenatal life had an increased risk for epilepsy. Coughs lasting >1 week were associated with an increased risk for epilepsy only in the first year of life, as was vaginal yeast infection only in

children who were born preterm. These associations remained unchanged for children without cerebral palsy, congenital malformation, or a low Apgar score at 5 minutes. **CONCLUSIONS:** Prenatal exposure to some maternal infections was associated with an increased risk for epilepsy in childhood.

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

PMID: 18450853 [PubMed - in process]

4: Spine. 2008 May 1;33(10):1133-40.

Surgical correction of scoliosis in pediatric patients with cerebral palsy using the unit rod instrumentation.

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STUDY DESIGN: Retrospective clinical and radiographic consecutive case series of 2 surgeons. **OBJECTIVE:** The purpose of this study was to present a large consecutive series of patients with cerebral palsy who were treated with the Unit rod instrumentation at a single institution. The goal was to report the incidence of surgical complications, degree of deformity correction, reoperation rate, prevalence of pseudarthrosis, and the caretakers' perceived outcome. **SUMMARY OF BACKGROUND DATA:** Children with cerebral palsy frequently develop scoliosis that requires surgical correction. Segmental instrumentation has been the primary mode of treatment. There are no reported large series with long-term follow up. **METHODS:** This study was a retrospective review of 287 children treated with the Unit rod instrumentation. This instrumentation with fusion included the whole spine (between C7 and T3 into the pelvis) with 242 posterior-only and 45 anterior-posterior procedures. Of this group, 241 patients were observed for more than 2 years. This review focused on the rate of complications and radiographic outcome of the treatment. Parent and caretaker interviews were conducted to define perceived functional outcome after surgery. **RESULTS:** Scoliosis was corrected from a mean of 76 degrees to 25 degrees (68%). Pelvic obliquity was corrected from a mean of 17 degrees to 5 degrees (71%). In posterior-only procedures the average blood loss was 2.8 L, ICU stay was 4.9 days, and the hospital stay was 19.6 days. In combined procedures, the average blood loss was 3.4 L, ICU stay was 6.7 days, and the hospital stay was 24.5 days. Major complications included 3 perioperative deaths, 18 deep wound infections [12 early deep infections in a total of 287 patients (4.2%); 6 late deep infections in a total of 236 patients (2.5%)], and 2 patients with septicemia who recovered after prolonged antibiotic management. Caretakers' survey reported a 96% satisfaction rate. **CONCLUSION:** The Unit rod instrumentation is a common standard technique and the primary instrumentation system for the treatment of pediatric patients with cerebral palsy and neuromuscular scoliosis because it is simple to use, it is considerably less expensive than most other systems, and can achieve good deformity correction with a low loss of correction, as well as a low prevalence of associated complications and a low reoperation rate.

PMID: 18449049 [PubMed - in process]

5: An Pediatr (Barc). 2008 May;68(5):511-5.

Protocol for tizanidine use in infantile cerebral palsy. [Article in Spanish]

Palazón García R, Benavente Valdepeñas A, Arroyo Riaño O.

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INTRODUCTION: Cerebral palsy is usually spastic, and baclofen, benzodiazepines and tizanidine are considered as oral treatments. The aim of this paper is to demonstrate tizanidine management in chil-

dren with generalized spasticity. **PATIENTS AND METHODS:** Scheduled medical uses and dosing of tizanidine in our hospital are shown. It was assessed in 45 children. Appearance and repercussions of side-effects were studied using Global Tolerance to Treatment Scale, and drug tolerance was studied by subjective assessment by parents, children or therapists. **RESULTS:** were analysed using SPSS version 11.5. Results Treatment with tizanidine was carried out with 1 mg/ day in 18 mo-7 yr old children, 2 mg/ day in 7-12 yr old children as initial doses, and for those older than 12 yr similar dosing to that in adults. Tolerance was excellent in 79.3 % of children. Sedation was the most uncomfortable side- effect. Subjective assessment by 92.9 % of parents was good. **DISCUSSION:** Tizanidine shows greater capacity for binding to brain receptors, and therefore more effective for brain spasticity, better tolerance and higher approval. Therefore, it is an ideal treatment for generalised spasticity in cerebral palsy.

Publication Types:
English Abstract

PMID: 18448000 [PubMed - in process]

6: Acta Obstet Gynecol Scand. 2008;87(5):503-9.

Moderate neonatal encephalopathy: pre- and perinatal risk factors and long-term outcome.

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BACKGROUND: The aim was to describe pre- and perinatal data and long-term neurodevelopmental outcome (15-19 years) in children born at term with Apgar score <7 at 5 min and moderate neonatal encephalopathy. **METHODS:** The study is based on a population-based birth-cohort of children born in Sweden in 1985. Maternal, delivery, neonatal, and neuropaediatric data were compiled. Neurodevelopmental status was classified according to the presence of 1. cerebral palsy or other major impairments, 2. exclusively cognitive impairments, and 3. no impairments. **RESULTS:** The majority of the children (81%) had cognitive dysfunctions, with or without other impairments, such as cerebral palsy. The rates of post-term birth (19% versus 8%) and breech presentation (12% versus 3%) were significantly higher than in the general Swedish population. Pre- and perinatal data did not differ notably between the three outcome groups. Questionable or suboptimal obstetric care was common (55%). **CONCLUSIONS:** The study shows that children born at term with moderate neonatal encephalopathy have a high rate of cognitive dysfunctions with or without cerebral palsy at long-term follow-up. Our pre- and perinatal data did not correlate with outcome.

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

PMID: 18446532 [PubMed - in process]

7: Neurology. 2008 Apr 29;70(18):1647.

New spasticity from cervical spine pathology in a patient with athetoid cerebral palsy.

Allen LM, Nigogosyan MA.

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PMID: 18443319 [PubMed - in process]

8: Tohoku J Exp Med. 2008 Apr;214(4):327-32.**Olfactory stimulation using black pepper oil facilitates oral feeding in pediatric patients receiving long-term enteral nutrition.**

Munakata M, Kobayashi K, Niisato-Nezu J, Tanaka S, Kakisaka Y, Ebihara T, Ebihara S, Haginoya K, Tsuchiya S, Onuma A.

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Patients with severe neurological disorders often require enteral nutrition (EN). Since long-term EN can cause multiple complications, reinstating the oral intake of food is beneficial. Olfactory stimulation using black pepper oil (BPO), a strong appetite stimulant, was reported to facilitate swallowing in older people. Therefore, the effects of olfactory stimulation with BPO were investigated in pediatric patients receiving long-term EN due to neurological disorders. The effects of scenting with BPO for 1 min immediately before every meal were evaluated in ten patients: 4 boys and 6 girls, aged 19-97 months (51 +/- 26 months). The neurological disorders included periventricular leukomalacia (3 patients), hypoxic ischemic encephalopathy (3), Costello syndrome (1), Russell-Silver syndrome (1), Miller-Dieker syndrome (1), and cerebral palsy of unknown etiology (1). In eight of these patients, BPO intervention was continued for 3 months. Five of these eight patients showed increases in the amount of oral intake with desirable effects including facilitated swallowing movement, although complete elimination of the need for EN was not achieved. In the other three patients, BPO intervention was not effective; severe cerebral tissue loss, profound malformation or intractable seizures seemed to reduce the efficacy of BPO. In two cases, BPO intervention was discontinued due to cough or because the odor of BPO was unbearable to the family. In conclusion, olfactory stimulation with BPO facilitated oral intake in a subset of patients on long-term EN. BPO stimulation may be useful for facilitating oral intake when used in combination with conventional methods.

PMID: 18441508 [PubMed - in process]

9: Gait Posture. 2008 Apr 23 [Epub ahead of print]**Intersite variations of the Gillette Gait Index.**

McMulkin ML, Macwilliams BA.

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The Gillette Gait Index (GGI) is a tool used to measure pathologic gait severity and assess outcomes. The purpose of this study is to assess the variation in calculated GGI values with different sets of control data. Five able bodied control sets from four labs were used to establish the basis of the GGI. Gait data from three pediatric patients seen pre- and post-operatively at one lab and one adult control subject that visited each lab were input to calculate GGI values. Differences in underlying control data created large differences in computed GGI values for both pathologic and able bodied subjects. Initial pre-operative GGI values calculated for the three patients with cerebral palsy using different control data sets varied widely with differences as large as 1129 and had magnitudes of improvement differing by as much as 800 (or 21%). GGI value differences greater than 250 were determined from an able bodied control subject seen at each lab, both when examining a single trial with different control sets, and when examining different trials of the same individual collected from different labs using a single control set. These results highlight the importance of the underlying control set for establishing mean values and variance in the GGI and suggest that if GGI values are compared longitudinally or between sites these comparisons should be based on a single control dataset.

PMID: 18439828 [PubMed - as supplied by publisher]

10: Arch Phys Med Rehabil. 2008 Apr;89(4):602-8.

Sensory stimulation augments the effects of massed practice training in persons with tetraplegia.

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OBJECTIVE: To compare functional changes and cortical neuroplasticity associated with hand and upper extremity use after massed (repetitive task-oriented practice) training, somatosensory stimulation, massed practice training combined with somatosensory stimulation, or no intervention, in persons with chronic incomplete tetraplegia. **DESIGN:** Participants were randomly assigned to 1 of 4 groups: massed practice training combined with somatosensory peripheral nerve stimulation (MP+SS), somatosensory peripheral nerve stimulation only (SS), massed practice training only (MP), and no intervention (control). **SETTING:** University medical school setting. **PARTICIPANTS:** Twenty-four subjects with chronic incomplete tetraplegia. **INTERVENTIONS:** Intervention sessions were 2 hours per session, 5 days a week for 3 weeks. Massed practice training consisted of repetitive practice of functional tasks requiring skilled hand and upper-extremity use. Somatosensory stimulation consisted of median nerve stimulation with intensity set below motor threshold. **MAIN OUTCOME MEASURES:** Pre- and post-testing assessed changes in functional hand use (Jebsen-Taylor Hand Function Test), functional upper-extremity use (Wolf Motor Function Test), pinch grip strength (key pinch force), sensory function (monofilament testing), and changes in cortical excitation (motor evoked potential threshold). **RESULTS:** The 3 groups showed significant improvements in hand function after training. The MP+SS and SS groups had significant improvements in upper-extremity function and pinch strength compared with the control group, but only the MP+SS group had a significant change in sensory scores compared with the control group. The MP+SS and MP groups had greater change in threshold measures of cortical excitability. **CONCLUSIONS:** People with chronic incomplete tetraplegia obtain functional benefits from massed practice of task-oriented skills. Somatosensory stimulation appears to be a valuable adjunct to training programs designed to improve hand and upper-extremity function in these subjects.

Publication Types:
Comparative Study
Randomized Controlled Trial
Research Support, Non-U.S. Gov't

PMID: 18373988 [PubMed - indexed for MEDLINE]

11: Compend Contin Educ Dent. 2008 Jan-Feb;29(1):22-4, 26-8; quiz 29-30.

The impact of systemic disease-associated gingival enlargement on pediatric patients.

Nowzari H, Rich SK.

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This article provides an analysis of pediatric systemic disease and the corresponding prescribed medications for selected physical and mental health conditions. The focus is on pediatric oral health, specifically the drug-associated side effect of gingival enlargement. A simple and logical analysis of current pediatric health trends reveals that gingival overgrowth is evident in societies worldwide as a serious epidemic. This article describes the morbidity and risks that are related to drug-associated gingival overgrowth, and proposes a framework of action for treating the side effects of chronic diseases and conditions in pediatric patients.

PMID: 18361338 [PubMed - indexed for MEDLINE]

12: J Pediatr Health Care. 2008 Mar-Apr;22(2):131-3.

A toddler with hypertonia.

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Publication Types:

Case Reports

Review

PMID: 18294583 [PubMed - indexed for MEDLINE]



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