



CEREBRAL PALSY | INSTITUTE

CP Research News

Monday 8 September 2008

This free weekly bulletin lists the latest research on cerebral palsy (CP), as indexed in the NCBI PubMed (Medline) and Entrez (GenBank) databases.

To subscribe, please email Robyn Cummins rcummins@tscnsw.org.au with 'Subscribe to CP Research News' in the subject line, and your name and email address in the body of the email.

You may unsubscribe at any time by emailing Robyn with your 'unsubscribe' request.

1: Osteoporos Int. 2008 Sep 2. [Epub ahead of print]

Evaluation of the femoral midshaft in children with cerebral palsy using magnetic resonance imaging.

Modlesky CM, Kanoff SA, Johnson DL, Subramanian P, Miller F.

Department of Health, Nutrition and Exercise Sciences, University of Delaware, Newark, DE, 19716, USA, modlesky@udel.edu.

Magnetic resonance imaging was used to show that children with quadriplegic cerebral palsy and unable to ambulate independently compared to typically developing children have a remarkably underdeveloped femoral midshaft as indicated by a very thin diameter, a very thin cortical wall, and very low strength estimates. **INTRODUCTION:** The femoral shaft is very susceptible to fracture in children with quadriplegic cerebral palsy (QCP); however, its structure and strength have not been evaluated. **METHODS:** The volume and width of the middle third of the femur (midfemur) and its cortical wall and medullary cavity were assessed in children with QCP and unable to ambulate independently and typically developing children (n = 10/group) using magnetic resonance imaging (MRI). Estimates of cross-sectional moment of inertia (CSMI), section modulus (Z), and polar moment of inertia (J) were also determined. **RESULTS:** Total volume of the midfemur and volume of its cortical wall and medullary cavity were substantially lower in children with QCP than controls (51-55%; $p < 0.001$). In addition, the total midfemur, its medullary cavity and the anterior, posterior, and lateral sections of its cortical wall were thinner (27-43%) in children with QCP ($p < 0.001$). The midfemur in children with QCP also had remarkably lower CSMI, Z, and J (60-71%; $p < 0.001$). **CONCLUSIONS:** Children with QCP who lack the ability to ambulate independently have midfemurs that are very thin with very thin cortical walls and very low estimated strength. The disparity can be detected using MRI.

PMID: 18763012 [PubMed - as supplied by publisher]



Please join us in February 2009 at the 3rd International Cerebral Palsy Conference in Sydney, Australia. Hosted by the CP Institute, keynote speakers include some of the world's leading cerebral palsy researchers. Earl bird registrations close 10 December 2008 www.cp2009.com.au

2: Med J Aust. 2008 Sep 1;189(5):293.

Unexpected benefits of bethanechol in adults with cerebral palsy.

Carter WJ.

Brisbane, QLD, Australia. wcarter@medwords.com.au.

PMID: 18759732 [PubMed - in process]

3: Pediatrics. 2008 Sep;122(3):556-61.

Health-related quality of life for extremely low birth weight adolescents in Canada, Germany, and the Netherlands.

Verrips E, Vogels T, Saigal S, Wolke D, Meyer R, Hoult L, Verloove-Vanhorick SP.

TNO Prevention and Health, PO Box 2215, 2301 CE Leiden, Netherlands. erik.verrips@tno.nl

OBJECTIVE: The goal was to compare health-related quality of life of 12- to 16-year-old adolescents born at an extremely low birth weight in regional cohorts from Ontario (Canada), Bavaria (Germany), and the Netherlands. **METHODS:** Patients were extremely low birth weight survivors from Canada, Germany, and the Netherlands. Health-related quality of life was assessed with Health Utilities Index 3. Missing data were substituted by proxy reports. Differences in mean Health Utilities Index 3 scores were tested by using analysis of variance. Differences in the numbers of children with affected attributes were tested by using logistic regression analyses. **RESULTS:** Survival rates were similar; response rates varied between 71% and 90%. Significant differences in health-related quality of life were found between the cohorts, with Dutch children scoring highest on Health Utilities Index 3 and German children scoring lowest, independent of birth weight, gestational age, and cerebral palsy. Differences in mean utility scores were mainly attributable to differences in the cognition health attribute. Most of the results were corroborated by logistic regression analyses. **CONCLUSIONS:** There were significant differences between the 3 cohorts in health-related quality of life, not related to differences in birth weight, gestational age, or cerebral palsy. Survival and response rates alone cannot explain these differences.

Publication Types:

Research Support, N.I.H., Extramural

Research Support, Non-U.S. Gov't

PMID: 18762526 [PubMed - in process]

4: Ugeskr Laeger. 2008 Sep 1;170(36):2775-2777.

Hypoxic brain injuries notified to the Danish Patient Insurance Association during 1992-2004. Secondary publication. [Article in Danish]

Hove LD, Bock J, Christoffersen JK, Hedegaard M.

Anaesthesiologisk Afdeling, Rigshospitalet, DK-2100 København Ø. larshove@dadlnet.dk.

We investigated the files of the Danish Patient Insurance Association for newborns suffering from hypoxic brain injuries. From 1992 to 2004, a total of 127 approved claims concerning peripartum hypoxic injury were registered. Thirty-eight newborns died and the majority of the 89 surviving children suffered major handicaps, primarily cerebral palsy. In 69 of the cases, misinterpretation of or late action in response to an abnormal cardiocography caused the hypoxic brain injuries. All injuries could potentially have been avoided using established obstetric practice.

PMID: 18761870 [PubMed - as supplied by publisher]

5: J Intellect Disabil Res. 2008 Aug 28. [Epub ahead of print]

A descriptive investigation of dysphagia in adults with intellectual disabilities.

Chadwick DD, Jolliffe J.

Department of Psychology and Social Change, Manchester Metropolitan University, Manchester, UK.

Background Dysphagia has rarely been investigated in adults with intellectual disabilities (ID) despite being a serious condition affecting health and quality of life. Method This study collected information about 101 adults with ID, living in community settings, referred for an assessment of their eating and drinking. Ninety-nine people were classified as having dysphagia from clinical and videofluoroscopic assessments. This information was used to give an indication of the prevalence of dysphagia in adults with ID and identify the co-occurrence of physiological and anatomical indicators and associated negative health conditions. Results Details of the characteristics and conditions associated with dysphagia are provided. These include cerebral palsy, increased physical disability and cognitive impairment. A tentative indication of the current prevalence of dysphagia was found (8.15%). Conclusion Findings indicate that dysphagia is a significant issue for people with ID warranting further investigation. Practice implications detailed include increasing awareness of 'at risk' groups, changes in dysphagia with ageing, medication use and illness, and how findings can inform assessment and training.

PMID: 18759960 [PubMed - as supplied by publisher]

6: Laryngoscope. 2008 Aug 28. [Epub ahead of print]

Artificial Manipulation of Voice in the Human by an Implanted Stimulator.

Broniatowski M, Grundfest-Broniatowski S, Zobenica NS, Tyler DJ.

From the Department of Otolaryngology-Head and Neck Surgery (m.b.), St Vincent Charity Hospital, University Hospitals Health System Associate/Case Western Reserve University School of Medicine, Cleveland, Ohio, U.S.A.; Department of General Surgery (s.g.-b.), The Cleveland Clinic Foundation/The Lerner College of Medicine at Case Western Reserve University Cleveland, Ohio, U.S.A; and Department of Biomedical Engineering (n.s.z., d.j.t.), Case Western Reserve University Cleveland, Ohio, U.S.A.

OBJECTIVES/HYPOTHESIS:: Traditional approaches influencing voice quality (e.g., anatomical and chemical denervation for spasmodic dysphonia, surgical medialization for paralysis) have ignored the dynamic nature of the larynx. STUDY DESIGN:: We report here the first attempt to manipulate voice using an implanted stimulator to systematically control vocal fold adduction. METHODS:: Devices placed for aspiration in three subjects retaining speech after stroke, cerebral palsy, and multiple sclerosis were used to stimulate recurrent laryngeal nerves with 42 Hz, 52 to 200 microsecond pulses of incremental amplitudes during phonation with the tracheostomy tube occluded. Vocal fold adduction increased with stimulation strength ($P < .05$). Speech was analyzed with the Vox Metria program. RESULTS:: We found highly significant differences for fundamental frequency ($P < .007$), jitter ($P < .004$), and shimmer ($P < .005$), between natural and stimulated voice (aah and eeh) when using higher charges. CONCLUSIONS:: Dynamic vocal fold manipulation seems promising in terms of versatility lacking with static approaches to voice control.

PMID: 18758384 [PubMed - as supplied by publisher]

7: N Engl J Med. 2008 Aug 28;359(9):962-4.

Comment on:

N Engl J Med. 2008 Aug 28;359(9):895-905.

Antenatal magnesium sulfate for neuroprotection before preterm birth?

Stanley FJ, Crowther C.

Publication Types:
Comment
Editorial

PMID: 18753653 [PubMed - indexed for MEDLINE]

8: Patient Educ Couns. 2008 Aug 27. [Epub ahead of print]

Perceptions of participation: Child patients with a disability in the doctor-parent-child partnership.

Garth B, Murphy GC, Reddihough DS.

School of Public Health, Faculty of Health Science, La Trobe University, Bundoora 3086, Victoria, Australia.

OBJECTIVE: To explore how the doctor-parent-child partnership is experienced and if the child patient is considered a contributor. **METHODS:** Qualitative methodology using semi-structured interviews with 33 participants (9 paediatricians, 14 parents, and 10 children aged 8-12 with cerebral palsy) from a paediatric teaching hospital in Victoria, Australia. **RESULTS:** Children were reported to participate in the doctor-parent-child partnership. The child was not perceived to be an 'equal' or 'regular' partner as there were reports of variability in the involvement between children, as well as variability in the progressive involvement of each child. Three categories emerged in relation to the child's position in the partnership: creating a space for the child's involvement; acknowledging the variability of child preferences to be involved; and negotiating the child's age and development. **CONCLUSION:** The doctor-parent-child partnership was perceived not necessarily to be dyadic, shared exclusively by the parent and paediatrician. Children were reported to contribute to the partnership, although there were limitations to the child's involvement. **PRACTICE IMPLICATIONS:** Previous understandings of partnership are not sufficient to explain the complexities involved in a doctor-parent-child partnership, and a social-model approach to care is highlighted as an important factor for enabling the development of a triadic partnership.

PMID: 18760558 [PubMed - as supplied by publisher]

9: Neurology. 2008 Jul 22;71(4):297-8.

Reflections: neurology and the humanities. Limelight.

Gutmann L.

Robert C. Byrd Health Sciences Center, P.O. Box 9180, West Virginia University, Morgantown, WV 26506-9180, USA. lgutmann@wvu.edu

Publication Types:
Case Reports

PMID: 18645170 [PubMed - indexed for MEDLINE]

10: J Rehabil Med. 2008 Jul;40(7):529-34.

Effect of ankle-foot orthoses on walking efficiency and gait in children with cerebral palsy.

Brehm MA, Harlaar J, Schwartz M.

Department of Rehabilitation Medicine, VU University Medical Center, De Boelenlaan 1117, Amsterdam, The Netherlands. m.brehm@vumc.nl

OBJECTIVE: To determine the effect of ankle-foot orthoses on walking efficiency and gait in a heterogeneous group of children with cerebral palsy, using barefoot walking as the control condition. **DESIGN:** A retrospective study. **METHODS:** Barefoot and ankle-foot orthosis data for 172 children with spastic cerebral palsy (mean age 9 years; hemiplegia: 21, diplegia: 97, and quadriplegia: 54) were compared. These data consisted of non-dimensional speed, net non-dimensional energy cost of walking (NN-cost), and NN-cost as a percentage of speed-matched controls (NN-cost(pct)). For 80 of these children the Gillette Gait Index and data for 3D gait kinematics and kinetics were also analyzed. **RESULTS:** Speed was 9% faster ($p < 0.001$), NN-cost was 6% lower ($p = 0.007$), and NN-cost(pct) was 9% lower ($p = 0.022$) when walking with an ankle-foot orthosis. The Gillette Gait Index remained unchanged ($p = 0.607$). Secondary subgroup analysis for involvement pattern showed a significant improvement in NN-cost(pct) only for quadriplegics (20%, $p = 0.004$), whereas it remained unchanged for patients with hemiplegia and diplegia. Changes in the minimum knee flexion angle in stance phase and in terminal swing were found to be significantly related to the change in NN-cost(pct) ($p = 0.013$ and $p = 0.022$, respectively). **CONCLUSION:** The use of an ankle-foot orthosis resulted in a significant decrease in the energy cost of walking of quadriplegic children with cerebral palsy, compared with barefoot walking, whereas it remained unchanged in hemiplegic and diplegic children with cerebral palsy. Energy cost reduction was related to both a faster and more efficient walking pattern. The improvements in efficiency were reflected in changes of stance and swing phase knee motion, i.e. those children whose knee flexion angle improved toward the typical normal range demonstrated a decrease in energy cost of walking, and vice versa.

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

PMID: 18758669 [PubMed - in process]



The CP Institute is
proudly supported by the
CP Foundation

