

Monday 15 February 2010

This free weekly bulletin lists the latest research on cerebral palsy (CP), as indexed in the NCBI, PubMed (Medline) and Entrez (GenBank) databases. These articles were identified by a search using the key term "cerebral palsy".

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Interventions

1. *Pediatr Phys Ther.* 2010 Spring;22(1):86-92.

Pain in children with cerebral palsy: implications for pediatric physical therapy.

Swiggum M, Hamilton ML, Gleeson P, Roddey T.

School of Physical Therapy, Texas Woman's University, Houston, Texas.

PURPOSE: This literature review explores pain assessment tools and psychosocial pain management methods that are pertinent to physical therapy (PT) for children with cerebral palsy (CP). **SUMMARY OF KEY POINTS:** Children with CP experience considerable pain that affects quality of life and cooperation during healthcare procedures. Physical therapist-led research on interventions to address pain in this population is limited, despite evidence for the prevalence of pain during PT interventions, and the preponderance of research supporting the use of psychosocial pain management during other healthcare-related pain-inducing procedures. **STATEMENT OF CONCLUSIONS AND RECOMMENDATIONS FOR PHYSICAL THERAPY PRACTICE:** Research completed primarily by non-physical therapist healthcare professionals delineate assessment tools and psychosocial pain management techniques that hold promise for evaluating and reducing pain that occurs during PT procedures for children with CP.

PMID: 20142710 [PubMed - in process]

2. *Pediatr Phys Ther.* 2010 Spring;22(1):76-85.

Changes in two children with cerebral palsy after intensive suit therapy: a case report.

Bailes AF, Greve K, Schmitt LC.

Division of Occupational Therapy and Physical Therapy (A.F.B., L.C.S.), Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio; Independent Pediatric Physical Therapist (K.G.), Locust Valley, New York; and Sports Medicine Biodynamic Center (L.C.S.), University of Cincinnati College of Medicine, Cincinnati, Ohio.

PURPOSE: The purpose of this case report was to investigate effects of intensive suit therapy on gait, functional skills, caregiver assistance, and gross motor ability in children with cerebral palsy. **CASE DESCRIPTION:** Two children with spastic diplegia classified at level III on the Gross Motor Function Classification System participated. Outcomes were assessed using dimensions D and E of the Gross Motor Function Measure, the Pediatric Evaluation of Disability Inventory, and instrumented gait analysis. **INTERVENTION:** Each child participated in the Therapeutic Method, 4 hours a day, 5 days a week for 3 weeks. **OUTCOMES:** Very small improvements in function were noted in dimension D of the Gross Motor Function Measure and Pediatric Evaluation of Disability Inventory Self-care Domain with decreased function in other areas. Improved walking speed, cadence, symmetry, joint motion, and posture were found with gait analysis. **CONCLUSION:** Further investigation is needed of the suit itself, and

intensive therapy programs in children with cerebral palsy.

PMID: 20142709 [PubMed - in process]

3. *Pediatr Phys Ther.* 2010 Spring;22(1):61-8.

Treadmill responses and physical activity levels of infants at risk for neuromotor delay.

Angulo-Barroso RM, Tiernan CW, Chen LC, Ulrich D, Neary H.

School of Kinesiology (R.M.A.-B., C.W.T., L.-C.C., D.U., H.N.), University of Michigan, Ann Arbor, Michigan; and Center for Human Growth & Development (R.M.A.-B.), University of Michigan, Ann Arbor, Michigan.

PURPOSE: This study described developmental changes in treadmill (TM) stepping and physical activity (PA) of infants at risk for neuromotor delay (ND) and explored these changes by diagnosis of cerebral palsy (CP). Relationships of stepping and PA with walking onset were examined. **METHOD:** Fifteen infants at risk for ND (9.9 +/- 2.4 months) were tested every 2 months on a TM until walking onset or 24 months of corrected age. We recorded PA profiles using an activity monitor. Throughout the study, 6 of the 15 infants received a CP diagnosis. **RESULTS:** Infants increased alternating steps (AltStp), decreased toe contacts, and increased high-level PA. Infants with CP showed less AltStp, more toe contacts, and less high-level PA than those without CP. Infants' AltStp and high-level PA revealed a positive correlation to earlier onset of walking. **CONCLUSION:** Future studies should examine whether a TM intervention could improve mobility in infants at risk for ND.

PMID: 20142707 [PubMed - in process]

4. *Pediatr Phys Ther.* 2010 Spring;22(1):26-33.

The prevalence, distribution, and effect of pain among adolescents with cerebral palsy.

Doralp S, Bartlett DJ.

Faculty of Health Sciences (S.D.) and School of Physical Therapy (D.J.B.), The University of Western Ontario, London, Ontario, Canada; and CanChild Centre for Childhood Disability Research (D.J.B.), McMaster University, Hamilton, Ontario, Canada.

PURPOSE: To describe the prevalence, distribution, and intensity of pain and determine the relationship between pain intensity and effect on daily activities in adolescents with cerebral palsy. **METHODS:** A sample of 104 girls and 126 boys, mean ages 14.7 (SD = 1.7) and 14.8 (SD = 1.7) years, were asked "Have you experienced physical pain in the past month?" **RESULTS:** Sixty-four percent of girls and 50% of boys reported pain. Pain was most frequent in the feet and ankles, knees, and lower back of girls and boys at Gross Motor Function Classification System levels I to IV. Foot and ankle and knee pain were also frequent at level V. The Spearman rho value between intensity and effect on daily activities was 0.75 ($p < 0.01$) and 0.82 ($p < 0.01$) for girls and boys. **CONCLUSIONS:** The high prevalence of pain and its effect on daily activities suggests a need for greater focus on health promotion.

PMID: 20142702 [PubMed - in process]

5. *Pediatr Phys Ther.* 2010 Spring;22(1):1.

The challenge of pain in children and adolescents with cerebral palsy.

Van Sant AF.

Editor.

PMID: 20142699 [PubMed - in process]

6. Prosthet Orthot Int. 2010 Feb 9. [Epub ahead of print]**The combined effect of Dynamic splinting and Neuromuscular electrical stimulation in reducing wrist and elbow contractures in six children with Cerebral palsy.**

Postans N, Wright P, Bromwich W, Wilkinson I, Farmer SE, Swain I.

The Robert Jones & Agnes Hunt (RJAH) Orthopaedic and District Hospital NHS Trust, Orthotic Research & Locomotor Assessment Unit (ORLAU), Oswestry, Shropshire.

The aim of this pilot study was to investigate the feasibility of applying the combination of Dynamic splinting (DS) and Neuromuscular electrical stimulation (NMES) in order to improve wrist and elbow function, and range of motion, in children with upper limb contractures due to Cerebral palsy (CP). Six children aged seven to 16, with contractures at the wrist or elbow, were recruited. Following a 12-week baseline period all participants underwent a 12-week treatment period where DS was used for one hour per day and combined with NMES for the second half of the 1-h treatment. A 12-week follow-up period then ensued. Upper limb function was assessed with the Melbourne assessment, physical disability with the Paediatric Evaluation of Disability Index and the Activity Scale for Kids, and quality of life with the Pediatric Quality of Life Scale. Passive and active range of motion at the wrist and elbow were measured using manual and electrical goniometers. The technique of using combined NMES and DS was demonstrated to be feasible and compliance with the intervention was good. There was an increase in passive elbow extension in two participants treated for elbow contractures, although no accompanying change in upper limb function was demonstrated. Wrist range of movement improved in one participant treated for wrist contracture.

PMID: 20141494 [PubMed - as supplied by publisher]

7. Eur J Paediatr Neurol. 2010 Feb 5. [Epub ahead of print]**Robotic-assisted treadmill therapy improves walking and standing performance in children and adolescents with cerebral palsy.**

Borggraefe I, Schaefer JS, Klaiber M, Dabrowski E, Ammann-Reiffer C, Knecht B, Berweck S, Heinen F, Meyer-Heim A.

Department of Paediatric Neurology and Developmental Medicine, Dr. von Haunersches Children's Hospital, University of Munich, Germany.

OBJECTIVE: Task-specific body-weight-supported treadmill therapy improves walking performance in children with central gait impairment. The aim of the study was to investigate the effect of robotic-assisted treadmill therapy on standing and walking performance in children and adolescents with cerebral palsy and to determine parameters influencing outcome. **METHODS:** 20 Patients (mean age 11.0 \pm 5.1, 10 males and 10 females) with cerebral palsy underwent 12 sessions of robotic-assisted treadmill therapy using the driven gait orthosis Lokomat. Outcome measures were the dimensions D (standing) and E (walking) of the Gross Motor Function Measure (GMFM). **RESULTS:** Significant improvements in dimension D by 5.9% (\pm 5.2, $p=0.001$) and dimension E by 5.3% (\pm 5.6, $p<0.001$) of the GMFM were achieved. Improvements in the GMFM D and E were significantly greater in the mildly affected cohort (GMFCS I and II) compared to the more severely affected cohort (GMFCS III and IV). Improvement of the dimension E but not of D correlated positively with the total distance and time walked during the trial ($r(s)=0.748$, $p<0.001$). **CONCLUSIONS:** Children and adolescents with bilateral spastic cerebral palsy showed improvements in the functional tasks of standing and walking after a 3-week trial of robotic-assisted treadmill therapy. The severity of motor impairment affects the amount of the achieved improvement. Copyright © 2010 European Paediatric Neurology Society. Published by Elsevier Ltd. All rights reserved.

PMID: 20138788 [PubMed - as supplied by publisher]

8. J Child Neurol. 2010 Feb 5. [Epub ahead of print]**Long-term Oral Baclofen Treatment in a Child With Cerebral Palsy: Electroencephalographic Changes and Clinical Adverse Effects.**

De Rinaldis M, Losito L, Gennaro L, Trabacca A.

Neurorehabilitation Unit I, Developmental Neurology and Functional Rehabilitation, Scientific Institute "Eugenio Medea," "La Nostra Famiglia," Ostuni, Italy.

Baclofen is widely used to control spasticity in children with cerebral palsy. Several publications described clinical adverse effects of baclofen oral treatment, but the effect of baclofen on seizure potentiation is still controversial. We describe a 10-year-old female patient with cerebral palsy, epilepsy, and mental retardation who developed clinical adverse effects (confusion, agitated state, insomnia, diffuse hypotonia, and hyporeflexia) and electroencephalographic (EEG) changes (quasiperiodic, generalized burst of sharp waves that take up >50% of standard EEG) during long-term oral baclofen treatment, after gradually increasing the dosage but still within the therapeutic dose. Our case showed clearly that the EEG changes in our patient, with a history of epilepsy in good control, have been induced by the baclofen increase, and we describe the possible mechanisms that could explain proconvulsive effect of baclofen.

PMID: 20139400 [PubMed - as supplied by publisher]

9. J Head Trauma Rehabil. 2010 Feb 4. [Epub ahead of print]**Spatiotemporal Deficits and Kinematic Classification of Gait Following a Traumatic Brain Injury: A Systematic Review.**

Williams G, Galna B, Morris ME, Olver J.

Epworth Hospital (Drs Williams and Olver) and Centre for Health Exercise and Sports Medicine, School of Physiotherapy (Drs Williams, Morris, and Mr Galna), The University of Melbourne, Melbourne, Australia.

OBJECTIVE: To identify the key biomechanical gait abnormalities resulting from traumatic brain injury (TBI) and determine whether the abnormalities support a system for the classification of gait disorders. **DESIGN:** Systematic review with data from quantitative studies synthesized in a narrative format. **PARTICIPANTS:** Adults with TBI. **OUTCOME MEASURES:** Spatiotemporal, kinematic, and kinetic parameters of classification systems. **RESULTS:** The search identified 38 articles that reported on various methods for gait assessment in TBI. Three-dimensional gait analysis (3DGA) was used in 15 studies, primarily to quantify spatiotemporal parameters. Results revealed that people with a TBI walked more slowly with shorter steps and greater mediolateral sway following TBI. Stepping over obstacles, walking with eyes closed, or performing dual tasks accentuated gait deficits. Only one small study reported kinematic data for the major lower limb joints in 8 well recovered patients. One further study used 3DGA to classify the gait patterns of people with TBI but this classification was based on methods developed for stroke and cerebral palsy. No studies attempted to develop a classification system on the basis of the gait disorders of people with TBI. **CONCLUSION:** Although the studies were generally of high quality, little is known about the nature of gait disorders following TBI. Classification based on systematic description of gait disorders following TBI has not been attempted.

PMID: 20142759 [PubMed - as supplied by publisher]

10. J Hand Surg Am. 2010 Feb;35(2):277-283.e3.**Functional Outcomes After Upper Extremity Surgery for Cerebral Palsy: Comparison of High and Low Manual Ability Classification System Levels.**

Gong HS, Chung CY, Park MS, Shin HI, Chung MS, Baek GH.

Department of Orthopaedics and Rehabilitation, Seoul National University Bundang Hospital, Seongnam, Korea.

PURPOSE: The heterogeneity of cerebral palsy makes interpretation and prediction of outcome after upper extremity surgery difficult. We hypothesized that the outcome of upper extremity surgery for cerebral palsy is related to the Manual Ability Classification System (MACS) level. **METHODS:** We reviewed 27 patients with a mean age of 22 years, who underwent upper extremity surgery for spastic cerebral palsy at a mean follow-up of 29 months. Patients were classified into 5 MACS levels using a standardized questionnaire completed by their primary caregivers. Pre-operatively and at most recent follow-up visits, patients were assessed using the House scale and patient-reported functional outcomes on a 5-point scale. We compared the outcomes of patients with high (I-II, independence in daily activities) and low (III-V, dependence in daily activities) MACS levels. **RESULTS:** The overall mean House scale improved from 2.9 to 4.6 postoperatively ($p < .001$), dressing ability from 3.7 to 4.2 ($p = .005$), hygiene from 4.2 to 4.9 ($p = .005$), and appearance from 2.4 to 4.2 ($p < .001$). A total of 13 patients had a high MACS level (7 had I and 6 had II) and 14 had a low MACS level (8 had III, 6 had IV, and none had V). The high-MACS group had a greater improvement according to the House scale ($p = .009$) and the low-MACS group had a larger improvement in hygiene status ($p = .043$). There were no differences in the amount of improvement in dressing ability ($p = .169$) and appearance ($p = .765$). Overall satisfaction with surgery was higher for the high-MACS group ($p = .038$). **CONCLUSIONS:** The high-MACS group had a greater improvement in rating according to the House scale and higher satisfaction than the low-MACS group after upper extremity surgery for cerebral palsy in our small number of patients. This study suggests that the MACS level can be used to predict upper extremity surgery outcomes for cerebral palsy. **TYPE OF STUDY/LEVEL OF EVIDENCE:** Prognostic II. Copyright © 2010 American Society for Surgery of the Hand. Published by Elsevier Inc. All rights reserved.

PMID: 20141898 [PubMed - as supplied by publisher]

11. Disabil Rehabil. 2010;32(7):530-9.

Evaluation of single event multilevel surgery and rehabilitation in children and youth with cerebral palsy - A 2-year follow-up study.

Akerstedt A, Risto O, Odman P, Oberg B.

Child and Youth Habilitation, Eksjö, Sweden.

Purpose. This study evaluated multilevel surgery and rehabilitation with functional measures and health related quality of life (HRQOL) of children and youth with cerebral palsy (CP). In addition this study evaluated parent's satisfaction with care. **Method.** A prospective single-subject study with AB design and 2-year follow-up, included 11 children between 8 and 18 years old with CP, Gross Motor Function Classification System I-III. Visual analyses were used to present physical function with Physical Cost Index (PCI). Descriptive statistics were used to present number of children with a clinically important change in Gross Motor Function Measure (GMFM), self-reported walking ability, and HRQOL with child health questionnaire (CHQ). **Results.** PCI showed a trend of lower energy cost during gait in six children and GMFM was unchanged for 10 children and improved for one child. Walking ability was improved in 10 children. Gait distance increased in all 11. Both physical and psychosocial dimensions of CHQ improved in six of nine (two missing data). Expectations of outcomes were fulfilled in seven and partly fulfilled in four. Satisfaction with care was fulfilled in 10 of 11. **Conclusion.** Self-reported walking ability improved after multilevel surgery and intensive rehabilitation. This result was partly supported by lower energy cost and improved HRQOL. Expectations and satisfaction were fulfilled for the majority of children.

PMID: 20136471 [PubMed - in process]

Epidemiology / Aetiology / Diagnosis & Early Treatment

Please note: This is not yet a comprehensive outline of cerebral palsy prevention literature. It is expected that more research will be included when the search terms are expanded to include key terms other than "cerebral palsy". It is a work-in-progress and it will be expanded in coming months.

12. BMJ. 2010 Feb 9;340:c363. doi: 10.1136/bmj.c363.

Neurological outcomes at 18 months of age after moderate hypothermia for perinatal hypoxic ischaemic encephalopathy: synthesis and meta-analysis of trial data.

Edwards AD, Brocklehurst P, Gunn AJ, Halliday H, Juszczak E, Levene M, Strohm B, Thoresen M, Whitelaw A, Azzopardi D.

Institute of Clinical Sciences, Faculty of Medicine, Imperial College London, London SW7 2AZ.

OBJECTIVE: To determine whether moderate hypothermia after hypoxic-ischaemic encephalopathy in neonates improves survival and neurological outcome at 18 months of age. **DESIGN:** A meta-analysis was performed using a fixed effect model. Risk ratios, risk difference, and number needed to treat, plus 95% confidence intervals, were measured. **DATA SOURCES:** Studies were identified from the Cochrane central register of controlled trials, the Oxford database of perinatal trials, PubMed, previous reviews, and abstracts. Review methods Reports that compared whole body cooling or selective head cooling with normal care in neonates with hypoxic-ischaemic encephalopathy and that included data on death or disability and on specific neurological outcomes of interest to patients and clinicians were selected. **Results** We found three trials, encompassing 767 infants, that included information on death and major neurodevelopmental disability after at least 18 months' follow-up. We also identified seven other trials with mortality information but no appropriate neurodevelopmental data. Therapeutic hypothermia significantly reduced the combined rate of death and severe disability in the three trials with 18 month outcomes (risk ratio 0.81, 95% confidence interval 0.71 to 0.93, $P=0.002$; risk difference -0.11, 95% CI -0.18 to -0.04), with a number needed to treat of nine (95% CI 5 to 25). Hypothermia increased survival with normal neurological function (risk ratio 1.53, 95% CI 1.22 to 1.93, $P<0.001$; risk difference 0.12, 95% CI 0.06 to 0.18), with a number needed to treat of eight (95% CI 5 to 17), and in survivors reduced the rates of severe disability ($P=0.006$), cerebral palsy ($P=0.004$), and mental and the psychomotor developmental index of less than 70 ($P=0.01$ and $P=0.02$, respectively). No significant interaction between severity of encephalopathy and treatment effect was detected. Mortality was significantly reduced when we assessed all 10 trials (1320 infants; relative risk 0.78, 95% CI 0.66 to 0.93, $P=0.005$; risk difference -0.07, 95% CI -0.12 to -0.02), with a number needed to treat of 14 (95% CI 8 to 47). **CONCLUSIONS:** In infants with hypoxic-ischaemic encephalopathy, moderate hypothermia is associated with a consistent reduction in death and neurological impairment at 18 months.

PMID: 20144981 [PubMed - in process]

[Full text \(free\)](#)

13. Early Hum Dev. 2010 Feb 8. [Epub ahead of print]

Heart rate variability in infants with central coordination disturbance.

Bjelakovic B, Ilic S, Dimitrijevic L, Milovanovic B, Kostic G, Bjelakovic L, Lukic S.

Clinic of Pediatrics, Clinical Center, Nis, Serbia.

Despite a remarkable medical progress in the field of Developmental Medicine and Child Neurology, early identification of infants at risk for permanent motor disabilities still presents challenge for both clinicians and researchers. As an indicator of cardiac autonomic control, it was shown that heart rate variability (HRV) might reflect not only sympathetic or parasympathetic activity but also functional integrity of the central nervous system (CNS). Furthermore a pattern of HRV was demonstrated to correlate with motor developmental outcome in high risk infants. The purpose of this study was to analyze the clinical usefulness as well as predictive value of time-domain HRV parameters in infants with central coordination disturbance. The study included 35 infants with central coordination

disturbance and 37 healthy age and sex-matched controls. Time-domain HRV indices were analyzed from 24-h electrocardiography recordings. We found significantly lower values of SDNN, SDANN and RMSSD parameters in infants with central coordination disturbance compared to controls. Additionally, logistic regression analyses demonstrated independent predictive value of parameters SDNN and SDANN in infants who subsequently developed cerebral palsy (CP). By performing receiver operating characteristic (ROC) analyses, the optimal cut-off value of $SDNN \leq 48$ ms predicted CP with a sensitivity of 68.7% (95% CI 41.4-88.9) and specificity of 84.2% (95% CI 60.4-96.4) while the optimal cut-off value of $SDANN \leq 41$ ms predicted CP with a sensitivity of 87.5% (95% CI 61.6-98.1) and specificity of 57.9% (95% CI 33.5-79.7). We are in opinion that time domain HRV analysis could be helpful clinically as well as a prognostic tool in infants with central coordination disturbance. Copyright © 2010 Elsevier Ltd. All rights reserved.

PMID: 20149562 [PubMed - as supplied by publisher]

14. Indian J Pediatr. 2010 Feb 8. [Epub ahead of print]

Status epilepticus and capillary leak syndrome in a neonate related to perinatal hypoxic-ischemic encephalopathy.

Karagol BS, Erdevi O, Arsan S, Atasay B, Ekim M, Teber S, Deda G.

Division of Neonatology, Department of Pediatrics, Ankara University School of Medicine, Ankara, Turkey, belmakaragol@yahoo.com.

Hypoxic-ischemic cerebral injury that occurs during the perinatal period is one of the most commonly recognized cause of long-term neurological deficit in children, often referred to as cerebral palsy. We describe a case with capillary leak syndrome and seizures to co-morbid status epilepticus related to perinatal hypoxic-ischemic encephalopathy in newborn period.

PMID: 20140779 [PubMed - as supplied by publisher]

15. J Pediatr. 2010 Feb 4. [Epub ahead of print]

Two-Year Neurodevelopmental Outcomes of Ventilated Preterm Infants Treated with Inhaled Nitric Oxide.

Walsh MC, Hibbs AM, Martin CR, Cnaan A, Keller RL, Vittinghoff E, Martin RJ, Truog WE, Ballard PL, Zadell A, Wadlinger SR, Coburn CE, Ballard RA; for the NO CLD Study Group.

Case Western Reserve University, Cleveland, OH.

OBJECTIVE: In a randomized multi-center trial, we demonstrated that inhaled nitric oxide begun between 7 and 21 days and given for 24 days significantly increased survival without bronchopulmonary dysplasia (BPD) in ventilated premature infants weighing <1250 g. Because some preventative BPD treatments are associated with neurodevelopmental impairment, we designed a follow-up study to assess the safety of nitric oxide. **STUDY DESIGN:** Our hypothesis was that inhaled nitric oxide would not increase neurodevelopmental impairment compared with placebo. We prospectively evaluated neurodevelopmental and growth outcomes at 24 months postmenstrual age in 477 of 535 surviving infants (89%) enrolled in the trial. **RESULTS:** In the treated group, 109 of 243 children (45%) had neurodevelopmental impairment (moderate or severe cerebral palsy, bilateral blindness, bilateral hearing loss, or score <70 on the Bayley Scales II), compared with 114 of 234 (49%) in the placebo group (relative risk, 0.92; 95% CI, 0.75-1.12; P = .39). No differences on any subcomponent of neurodevelopmental impairment or growth variables were found between inhaled nitric oxide or placebo. **CONCLUSIONS:** Inhaled nitric oxide improved survival free of BPD, with no adverse neurodevelopmental effects at 2 years of age. Copyright © 2010 Mosby, Inc. All rights reserved.

PMID: 20138299 [PubMed - as supplied by publisher]

16. Brain. 2010 Jan;133(Pt 1):161-71. Epub 2009 Dec 23.**Default network connectivity reflects the level of consciousness in non-communicative brain-damaged patients.**

Vanhaudenhuyse A, Noirhomme Q, Tshibanda LJ, Bruno MA, Boveroux P, Schnakers C, Soddu A, Perlberg V, Le-doux D, Brichant JF, Moonen G, Maquet P, Greicius MD, Laureys S, Boly M.

Coma Science Group, Cyclotron Research Centre, University of Liège, Allée du 6 août, B30, Liège, Belgium.

The 'default network' is defined as a set of areas, encompassing posterior-cingulate/precuneus, anterior cingulate/mesiofrontal cortex and temporo-parietal junctions, that show more activity at rest than during attention-demanding tasks. Recent studies have shown that it is possible to reliably identify this network in the absence of any task, by resting state functional magnetic resonance imaging connectivity analyses in healthy volunteers. However, the functional significance of these spontaneous brain activity fluctuations remains unclear. The aim of this study was to test if the integrity of this resting-state connectivity pattern in the default network would differ in different pathological alterations of consciousness. Fourteen non-communicative brain-damaged patients and 14 healthy controls participated in the study. Connectivity was investigated using probabilistic independent component analysis, and an automated template-matching component selection approach. Connectivity in all default network areas was found to be negatively correlated with the degree of clinical consciousness impairment, ranging from healthy controls and locked-in syndrome to minimally conscious, vegetative then coma patients. Furthermore, precuneus connectivity was found to be significantly stronger in minimally conscious patients as compared with unconscious patients. Locked-in syndrome patient's default network connectivity was not significantly different from controls. Our results show that default network connectivity is decreased in severely brain-damaged patients, in proportion to their degree of consciousness impairment. Future prospective studies in a larger patient population are needed in order to evaluate the prognostic value of the presented methodology.

PMID: 20034928 [PubMed - indexed for MEDLINE]

17. J Gynecol Obstet Biol Reprod (Paris). 2009 Dec;38(8S1):S7-S17.**Increase in twin maternities and consequences on health. [Article in French]**

Blondel B.

INSERM U953, Unité de recherche épidémiologique sur la santé périnatale et la santé des femmes et des enfants, 94805 Villejuif cedex, France.

OBJECTIVES: To describe trends in twin maternity rates, factors which contribute to these trends, and risks associated with twin maternities for mothers and children. **POPULATION AND METHOD:** The review was done on population-based studies, preferably in France and the European Union. **RESULTS:** The rate of twin maternities was 15.6 p 1000 in 2008 and it increased by about 80% between 1972 and 2006. This rise was explained mainly by advanced maternal age and the diffusion of fertility treatments. The major risks for twins were fetal and infant mortality, preterm delivery, small for gestational age, and cerebral palsy. The rate of preterm delivery (<37 weeks) was 44.3% in France in 2003, and the relative risk was 8.8 (95% CI: 7.8-10.0), when compared with single pregnancies. Maternal age and fertility treatments do not change very much the perinatal risk of twins. **CONCLUSION:** Twin pregnancies are a high risk group which needs more intensive medical care than single pregnancies. The perinatal information system should be improved in France to monitor perinatal indicators according to the number of fetuses in a proper way. Copyright © 2009 Elsevier Masson SAS. All rights reserved.

PMID: 20141931 [PubMed - as supplied by publisher]

18. Ross Fiziol Zh Im I M Sechenova. 2009 Dec;95(12):1416-26.

In search of the guilty: analysis of encephalitogenic T cell migration pathways on preclinical phase of EAE after their intravenous or intraperitoneal injection [Article in Russian]

[No authors listed]

Adaptive-transfer experimental autoimmune encephalomyelitis is an inflammatory neurodegenerative disease which is induced by injection of activated encephalitogenic T cells. Adaptive-transfer experimental autoimmune encephalomyelitis is a major experimental tool for investigation of T cell function in multiple sclerosis development. Activated myelin basic protein specific T cells are able to invade and inflame the central nervous system which is followed by axonal injury and paralysis on the third day after injection. In the prodromal phase of EAE encephalitic T cells migrate through different organs which alter their phenotype before invading the CNS. We compared migratory patterns of encephalitic T cells after intravenous and intraperitoneal injection to elucidate which organs may play an important role in the formation of "migratory" phenotype. We found that encephalitogenic T cells ultimately migrate through spleen and parathymic lymph nodes regardless of the start point of cells migration after i.p. and i.v. injection. We hypothesise that cellular and extracellular components of these organs could be involved in the formation of T cells "migratory" phenotype which is necessary for penetration via blood-brain barrier.

PMID: 20141051 [PubMed - in process]

Other

19. Am J Bioeth. 2009 Sep;9(9):25-6.

Brain, body, and society: bioethical reflections on socio-historical neuroscience and neuro-corporeal social science.

Lyng S.

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Comment on:

* Am J Bioeth. 2009 Sep;9(9):5-13.

PMID: 19998187 [PubMed - indexed for MEDLINE]

20. Am J Bioeth. 2009 Sep;9(9):5-13.

The subjective brain, identity, and neuroethics.

Gillett GR.

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Comment in:

- * Am J Bioeth. 2009 Sep;9(9):30-2.
- * Am J Bioeth. 2009 Sep;9(9):32-3.
- * Am J Bioeth. 2009 Sep;9(9):W1-4.
- * Am J Bioeth. 2009 Sep;9(9):14-6.
- * Am J Bioeth. 2009 Sep;9(9):21-3.
- * Am J Bioeth. 2009 Sep;9(9):18-9.
- * Am J Bioeth. 2009 Sep;9(9):20-1.
- * Am J Bioeth. 2009 Sep;9(9):29-30.

- * Am J Bioeth. 2009 Sep;9(9):27-8.
- * Am J Bioeth. 2009 Sep;9(9):25-6.
- * Am J Bioeth. 2009 Sep;9(9):23-5.
- * Am J Bioeth. 2009 Sep;9(9):16-7.

The human brain is subjective and reflects the life of a being-in-the-world-with-others whose identity reflects that complex engaged reality. Human subjectivity is shaped and in-formed (formed by inner processes) that are adapted to the human life-world and embody meaning and the relatedness of a human being. Questions of identity relate to this complex and dynamic reality to reflect the fact that biology, human ecology, culture, and one's historic-political situation are inscribed in one's neural network and have configured its architecture so that it is a unique and irreplaceable phenomenon. So much is a human individual a relational being whose own understanding and ownership of his or her life is both situated and distinctive that neurophilosophical conceptions of identity and human activity that neglect these features of our being are quite inadequate to ground a robust neuroethics.

PMID: 19998179 [PubMed - indexed for MEDLINE]