Cerebral palsy research news

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Interventions and Management

1. Hand-arm bimanual intensive therapy and daily functioning of children with bilateral cerebral palsy: a randomized controlled trial
Priscilla R P Figueiredo, Marisa C Mancini, Aline M Feitosa, Claudia M M F Teixeira, Vanessa P D Guerzoni, Ann-Kristin G Elvrum, Claudio L Ferre, Andrew M Gordon, Marina B BrandÃo

Dev Med Child Neurol. 2020 Jul 19. doi: 10.1111/dmcn.14630. Online ahead of print.

Aim: To examine the efficacy of Hand-Arm Bimanual Intensive Therapy (HABIT) on daily functioning, unimanual dexterity, and bimanual performance of children with bilateral cerebral palsy (CP) compared with customary care. Method: Forty-one children with bilateral CP, aged 4 to 16 years, classified in levels I to III of the Manual Ability Classification System, were randomly assigned to HABIT (90h) (n=21) or to customary care (4.5h) (n=20). Participants' daily functioning (Pediatric Evaluation of Disability Inventory [PEDI], Canadian Occupational Performance Measure [COPM]), unimanual dexterity (Jebsen-Taylor Test of Hand Function, Box and Blocks Test [BBT]), and bimanual performance (Both Hands Assessment) were assessed pre-, post-, and 6 months after the intervention. Linear mixed-effects models were used for inferential analysis. Results: Children participating in HABIT showed greater improvements in daily functioning (COPMperformance : $\chi 21 = 9.50$, $p<0.01$; COPMsatisfaction : $\chi 21 = 5.07$, $p<0.05$; PEDIfunctional skills : $\chi 21 = 6.81$, $p<0.01$; PEDIcaregiver assistance : $\chi 21 = 6.23$, $p<0.05$) and in the dexterity of the dominant hand (BBT: $\chi 21 = 3.99$, $p<0.05$) compared with children maintaining customary care. Group or time effects did not explain any variance in bimanual performance or in the dexterity of the non-dominant hand. Interpretation: HABIT may be beneficial for children with bilateral CP, with benefits evidenced for daily functioning outcomes.

PMID: 32686119

2. Intensive upper extremity training improved whole body movement control for children with unilateral spastic cerebral palsy
Ya-Ching Hung, Fawzia Shirzad, Maria Saleem, Andrew M Gordon

Gait Posture. 2020 Jul 9;81:67-72. doi: 10.1016/j.gaitpost.2020.07.009. Online ahead of print.

Background: Children with unilateral spastic cerebral palsy (USCP) exhibit impaired bimanual coordination, gait control, and whole body movement control. Intensive upper extremity training has been found to be effective for improving upper extremity function. However, the effectiveness of the intensive upper extremity training on whole body movement control is not known. Research question: The present study aimed to evaluate the effects of Constraint Induced Movement Therapy (CIMT) and Hand Arm Bimanual Intensive Therapy (HABIT) on bimanual coordination and gait control during a complex whole body task. Methods: Sixteen children with congenital hemiplegia (age 6-12 years; GMFCS: I-II, MACS: I-II) were randomly assigned to either CIMT or HABIT for 6 h per day training for 15 days. Children were asked to perform two whole

body tasks (walking with and without a tray carrying) while 3-D kinematic analysis was performed before and after training. Results: After training, the HABIT group increased the symmetry in height of their hands during tray carrying (more leveled tray). Both CIMT and HABIT groups decreased the lateral motion of the tray. The CIMT group increased speed and stride length after training in both the walking and tray carrying tasks. Both groups also increased their minimum toe clearance (all $p < 0.05$). Significance: Two types of intensive upper extremity training have provided significant improvements to whole body movement control for children with USCP. Adhering to the specificity of practice concept, HABIT improved bimanual coordination after training during the whole body tray carrying tasks. Given extensive interactions between the upper and lower extremities in real-world activities, future studies should focus on the effects of such combined training.

PMID: 32683215

3. Quantification of upper body strategy during gait in children with spastic diplegia using a summary parameter
Veronica Cimolin, Claudia Condoluci, Carlotta Maria Manzia, Gabriella di Girolamo, Manuela Galli

Comput Methods Biomech Biomed Engin. 2020 Jul 23;1-7. doi: 10.1080/10255842.2020.1795144. Online ahead of print.

A summary measure for quantification of the upper body position (Upper Body Profile Score [UBPS]) during gait was proposed and used in 38 children with Cerebral Palsy (CP) and 15 healthy children (Control Group: CG). Patients with CP exhibited higher values of most of the summary parameters of the upper body position than the CG. The higher influence on UBPS is by the upper body position in sagittal and transversal plane. A significant and fair correlation between UBPS and Gait Profile Score (a summary measure to quantify the lower limb gait pattern) suggests that altered upper body movements during walking could be associated with the presence of lower limb impairments.

PMID: 32700967

4. Evaluating Trends and Outcomes of Spinal Deformity Surgery in Cerebral Palsy Patients
Emmanuel N Menga, David N Bernstein, Caroline Thirukumaran, Sekinat K McCormick, Paul T Rubery, Addisu Mesfin

Int J Spine Surg. 2020 Jun 30;14(3):382-390. doi: 10.14444/7050. eCollection 2020 Jun.

Background: There is a paucity of literature examining surgical trends and outcomes in both child and adult cerebral palsy (CP) patients. We aimed to evaluate surgical trends, complications, length of stay, and charges for spinal deformity surgery in CP patients. Methods: Using the Nationwide Inpatient Sample (NIS) from 2001 to 2013, patients with CP scoliosis who underwent spinal fusion surgery were identified. Patient characteristics and comorbidities were recorded. Trends in spinal fusion approaches were grouped as anterior (ASF), posterior (PSF), or combined anterior-posterior (ASF/PSF). Complication rates, length of stay, and charges for each approach were analyzed. Bivariate analyses using adjusted Wald tests and multivariate analyses using linear (logarithmic transformation) and logistic regressions were performed. Results: Of the 5191 adult CP patients who underwent spinal fusion the majority underwent PSF (86.5%), followed by the ASF/PSF approach (9.3%). The rate of PSF for cerebral palsy patients with spinal deformity increased significantly per 1 million people in the US population (0.90 to 1.30; $P = .048$). Complication rate, hospital length of stay, and charges were higher for patients undergoing ASF/PSF ($P < .05$). The overall complication rate for all surgical approaches was 25.7%. Patient comorbidities and combined ASF/PSF increased the odds of complication. Combined ASF/PSF was also associated with an increased length of stay and charges. Conclusion: Combined ASF/PSF in patients with CP accounted for only 9.3% of surgical cases but was associated with the longest hospital stay, highest charges, and increased complications. Further scrutiny of the surgical indications and preoperative risk stratification should be undertaken to minimize complications, reduce length of stay, and decrease charges for CP patients undergoing spinal fusion. Level of evidence: IV.

PMID: 32699761

5. Predictors of postoperative complications after selective dorsal rhizotomy
Johannes Wach, Ömer Can Yildiz, Sevgi Sarikaya-Seiwert, Hartmut Vatter, Hannes Haberl

Acta Neurochir (Wien). 2020 Jul 20. doi: 10.1007/s00701-020-04487-3. Online ahead of print.

Background: Selective dorsal rhizotomy (SDR) reduces spasticity in children with cerebral palsy (CP). We analyzed potential preoperative predictors of complications after SDR via single-level laminectomy at the conus medullaris. Methods: One hundred and forty SDRs performed in children (2-17 years) with CP were included in this retrospective study (March 2016 to July 2019). Of these children, 69% were ambulatory (Gross Motor Functional Classification System (GMFCS) II and III). Variables associated with wound dehiscence and infections, cerebrospinal fluid (CSF) leaks, and prolonged epidural pain management were analyzed statistically. Results: Five children (3.6%) showed prolonged wound healing, which was associated with obesity (BMI z-score ≥ 1.64; odds ratio (OR) 24.4; 95% confidence interval (CI) 3-199; p = 0.003). Two cases (1.4%) had superficial surgical site infections (SSIs), which was associated with obesity (p = 0.004) and thrombocytopenia (< 180,000 G/l; p = 0.028). The area under the curve at ≥ 1.55 BMI z-score for SSI was 0.97 (95% CI 0.93-0.99, p = 0.024), with a sensitivity and specificity for SSI of 100 and 94.9%, respectively. CSF leaks occurred in four (2.9%) children, associated with age ≤ 5 years (p = 0.029). Fifteen (10.7%) children required prolonged (4-5 days) epidural pain treatment, which was associated with non-ambulatory GMFCS levels (IV and V) (OR 3.6; 95% CI 1.2-10.8; p = 0.008). Conclusions: SDR is safe for all GMFCS levels. Obesity predicts prolonged wound healing and SSI. Prolonged pain management via epidural pain catheter is safe, but care should be taken with non-ambulatory children.

PMID: 32691268

6. Outcome of bilateral hip reconstruction in unilateral hip subluxation in cerebral palsy: Comparison to unilateral hip reconstruction
N Kamisan, V Thamkunanon

J Orthop. 2020 Jul 8;20:367-373. doi: 10.1016/j.jor.2020.06.017. eCollection Jul-Aug 2020.

Objective: To evaluate the post-operative outcomes of the hips in CP patients with unilateral hip subluxation treated with bilateral and unilateral hip reconstruction. Methods: A retrospective review was performed of all diplegic and quadriplegic patients with unilateral hip displacement treated with either bilateral or unilateral hip reconstructive surgery. Radiographic parameters [migration percentage (MP), pelvic obliquity angle (POA) and migration percentage difference (MPD)] and changes in functional ability (sitting, standing and walking) were evaluated and compared between the 2 groups. Failure was defined as post-operative MP>40%, POA>5° and MPD>30%. Results: Eighteen patients had unilateral hip reconstruction and 42 patients had bilateral hip reconstruction. Mean age of 87 months and 90 months and means follow-up of 38 months and 40 months respectively. Post-operative MP was significant in both groups. However, of 18 patients in unilateral hip reconstruction group, 33.3% of patients had contralateral hip subluxation and 22.2% of patients had hip failure on the operated hip; compared to only one of 42 patients had hip failure and no contralateral hip problem in the other group. For assessment of pelvic symmetry, MPD was significantly improved in both group but POA was only significant in bilateral group. Overall functional improvement was significant in patients with bilateral hip reconstruction compared to unilateral group. Conclusion: Bilateral hip reconstruction in unilateral displacement had shown to have better outcome in correcting unstable hip and pelvic asymmetry, thus provide good sitting balance and improvement in overall functional outcome.

PMID: 32699490

7. Long-term follow-up after patellar tendon shortening for flexed knee gait in bilateral spastic cerebral palsy
Daniela Barbara Kuchen, Patric Eichelberger, Heiner Baur, Erich Rutz

Gait Posture. 2020 Jul 6;81:85-90. doi: 10.1016/j.gaitpost.2020.07.003. Online ahead of print.

Background: Flexed knee gait is a common gait dysfunction in individuals with bilateral spastic cerebral palsy (BSCP) and is often addressed with single event multilevel surgery (SEMLS). SEMLS has been shown to have positive short-term effects especially on sagittal knee joint kinematics with less knee flexion during stance phase. However, mid- and long-term observations are rare, and results are reported in discrete parameters or summary statistics where temporal aspects are not considered. Research question: Does the improved knee joint kinematics after patellar tendon shortening (PTS) as part of SEMLS persist in the long-term in individuals with BSCP? Methods: Data of instrumented gait analysis of twelve participants (females/males: 5/7, mean age: 15.3 ± 3.4 years) with BSCP treated with PTS as part of SEMLS were retrospectively analyzed. Participants had had follow-up gait analysis 1, 5 and 7 years or more after surgery. Three-dimensional lower extremity kinematics of walking at a self-selected speed were collected using a 12-camera motion capture system and 4 embedded force plates. One-dimensional statistical parametric mapping (SPM) was used for data analysis, permitting time point comparisons of continuous data. Results: Time point comparison revealed no significant differences in the sagittal plane for knee joint

kinematics ($p > 0.05$) over the tree measurement time points. Hip and ankle joint kinematics as well as normalised walking speed remained stable over the observation period. Significance: This is the first study investigating lower extremity kinematics in patients with BSCP and flexed knee gait after SEMLS with SPM. Results demonstrate that positive effects on sagittal knee joint kinematics of PTS as part of SEMLS persist up to 9 years after surgery and progressivity does not reoccur. Thus, if clinical examination indicates an operation in individuals with BSCP, improved kinematics through SEMLS persist into adulthood. With the relatively new statistical procedure SPM gait can be displayed and analysed in established joint angle curves making them easier to understand (e.g. physiotherapists, movement scientists, physicians).

PMID: 32693350

8. How does the intensity of physical therapy affect the Gross Motor Function Measure (GMFM-66) total score in children with cerebral palsy? A systematic review protocol
Mary Rahlin, Burris Duncan, Carol L Howe, Heidi L Pottinger

BMJ Open. 2020 Jul 19;10(7):e036630. doi: 10.1136/bmjopen-2019-036630.

Introduction: Intensive physical therapy (PT) interventions administered to children with cerebral palsy (CP) have received a significant amount of attention in published literature. However, there is considerable variability in therapy intensity among studies and notable lack of information on optimal intervention dosing. This makes it difficult for clinicians to use evidence to inform practice. Many studies use the Gross Motor Function Measure (GMFM-66) to assess functional progress in children with CP. The purpose of this systematic review will be to identify the GMFM-66 change score reported in published studies, with outcomes based on intervention intensity. Whether the type of PT intervention, child's age, and Gross Motor Function Classification System level influence the GMFM-66 scores will be also assessed. Methods and analysis: This systematic review protocol was developed based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) 2015 checklist. In March 2018, nine databases (PubMed, Ovid MEDLINE, Cochrane Library, Embase, Scopus, Web of Science, CINAHL, ClinicalTrials.gov, and REHABDATA) were searched for controlled clinical trials and single-subject design studies of PT interventions of any kind and intensity that used the GMFM-66 as an outcome measure for children with CP, age up to 18 years. Two authors independently reviewed the titles and abstracts and arrived at consensus on paper selection for a full-text review. The same process was used for a full-text article screening based on further detailed inclusion criteria, with a final selection made for those suitable for data extraction. Prior to commencement of data extraction, all searches will be updated, and new results re-screened. Ethics and dissemination: This study will involve a systematic review of published articles and no primary data collection. Therefore, no ethical approval will be necessary. Results will be disseminated in a peer-reviewed publication and presented at scientific conferences. Prospero registration number: CRD42020147669.

PMID: 32690525

9. Obesity and cardio-metabolic risk factors among children and adolescents with cerebral palsy
Salesa Barja, Catalina Le Roy, Cecilia Sepúlveda, Maria Luisa Guzmán, Marithza Olivarez, María José Figueroa

Nutr Hosp. 2020 Jul 20. doi: 10.20960/nh.03009. Online ahead of print.

Background: obesity and associated cardiometabolic complications are increasing among adults with cerebral palsy (CP). Information in children is scarce, and there is no consensus definition of obesity. Objectives: to describe the frequency of obesity and metabolic complications in children and adolescents with CP. Methods: a descriptive, cross-sectional study performed in two outpatient pediatric special needs centers. Demographic, anthropometric (Brooks 2011), and motor function (GMFCS) data, as well as antiepileptic use, were recorded. Fasting triglycerides (TG), total cholesterol (TC), vitamin D (25OHD), glycemia (GLY), and insulinemia levels were measured. The HOMA index was calculated. Results: sixty-five patients were enrolled. Aage was 10.8 ± 4.9 years; 63.1 % were male; 81.6 % had GMFCS IV-V; 43.5 % had a gastrostomy; and 83.1 % were on antiepileptics. According to their BMI, 15.4 % were underweight (< 10th percentile) and 10.8 % overweight (> 75th percentile). Overall, 6.1 % had TC ≥ 200 mg/dL, 21.4 % had TG ≥ 110 or 130 mg/dL, 4.6 % had GLY ≥ 100 mg/dL, 16.9 % had HOMA ≥ 3, and 76.9 % had 25OHD < 30 ng/mL. Children with BMI ≥ 75th percentile had higher HOMA and insulin resistance rates than those with BMI < 75th percentile. Elevated TGs were associated with high motor impairment and low vitamin D. HOMA was associated to feminine gender and BMI ≥ 75th percentile. Conclusions: the frequency of cardiometabolic risk factors was high in this sample of pediatric patients with CP, associated with overweight, low mobility, and vitamin D deficiency. We propose a BMI > 75th percentile as cutoff point for metabolic risk factors.

PMID: 32686452

10. Gastrostomy tube insertion in children with developmental or acquired disorders: a register-based study
Ellen Backman, Lotta Sjögreen

Dev Med Child Neurol. 2020 Jul 22. doi: 10.1111/dmcn.14634. Online ahead of print.

Aim: To describe trends in gastrostomy tube insertion in children with developmental or acquired disorders in Sweden and assess their demographic characteristics. Method: Children aged 0 to 18 years with gastrostomy tube insertions recorded between 1998 and 2014 were identified in the Swedish National Patient Register. Associations between disorder type and year of surgery, as well as age at surgery, were analysed using linear regression analyses. The association between disorder type and mortality 2 years from gastrostomy tube insertion was also analysed using logistic regression analysis. Results: The data for 4112 children (2182 males, 1930 females), with a median age of 2 years (interquartile range=1-8y), were analysed. Children who presented with developmental disorders were the largest group (n=3501, 85%). The most common diagnosis in children with developmental disorders was cerebral palsy (n=165, 4%). In children with acquired disorders, acute lymphoblastic leukaemia (n=117, 3%) was the most common diagnosis. Gastrostomy tube insertions increased from 1998 to 2014, with the greatest increase in children with developmental disorders, who were younger than children with acquired disorders when the gastrostomy tube was first inserted. Age at tube insertion decreased in both groups during the study period. Mortality was higher in children with acquired disorders, suggesting that gastrostomy tube insertion should be part of a palliative care approach. Interpretation: Child characteristics differed depending on whether the underlying disorder was developmental or acquired, suggesting a need for clinical health care guidelines related to the specific goals of gastrostomy tube insertion. What this paper adds: Gastrostomy tube insertions increased by 140% from 1998 to 2014 in Sweden. The age of children with developmental disorders decreased by 1 month per year during the study period. Children presenting with developmental disorders were younger than children with acquired disorders when the gastrostomy tube was first inserted. Mortality was higher in children with acquired disorders.

PMID: 32697341

11. Cardiometabolic morbidity in adults with cerebral palsy and spina bifida
Mark D Peterson, Paul Lin, Neil Kamdar, Elham Mahmoudi, Mary M Schmidt, Heidi J Haapala, Edward A Hurvitz

Am J Med. 2020 Jul 17;S0002-9343(20)30530-1. doi: 10.1016/j.amjmed.2020.05.032. Online ahead of print.

Objective: To compare the incidence of and adjusted hazards for cardiometabolic morbidities among adults with and without cerebral palsy or spina bifida. Methods: Privately-insured beneficiaries were included if they had an ICD-9-CM diagnostic code for cerebral palsy or spina bifida (n=15,302). Adults without cerebral palsy or spina bifida were also included (n=1,935,480). Incidence estimates of common cardiometabolic morbidities were compared at 4-years of enrollment. Survival models were used to quantify unadjusted and adjusted hazard ratios for incident cardiometabolic morbidities. Results: Adults living with cerebral palsy or spina bifida had a higher 4-year incidence of any cardiometabolic morbidity (41.5% vs. 30.6%) as compared to adults without cerebral palsy or spina bifida, and differences were to a clinically meaningful extent. Fully adjusted survival models demonstrated that adults with cerebral palsy or spina bifida had a greater hazard for any cardiometabolic morbidity (Hazard Ratio [HR]: 1.52; 95%CI: 1.47, 1.57), and all but one cardiometabolic disorder (non-alcoholic fatty liver disease), and ranged from HR: 1.20 (1.15, 1.25) for hypercholesterolemia to HR: 1.86 (1.74, 1.98) for heart failure. Conclusions: Adults with cerebral palsy or spina bifida have a significantly higher incidence of and risk for common cardiometabolic morbidities, as compared to adults without cerebral palsy or spina bifida. Efforts are needed to facilitate the development of improved clinical screening algorithms and early interventions to reduce risk of cardiometabolic disease onset/ progression in these higher risk populations.

PMID: 32687812

12. Epidemiology of cerebral palsy in Sumba Island, Indonesia
Israt Jahan, Mahmudul Hassan Al Imam, Tasneem Karim, Mohammad Muhit, Denny Hardianto, Manik Chandra Das, Hayley

Smithers-Sheedy, Nadia Badawi, Gulam Khandaker

Dev Med Child Neurol. 2020 Jul 20. doi: 10.1111/dmcn.14616. Online ahead of print.

Aim: To define the epidemiology, clinical characteristics, and rehabilitation status of children with cerebral palsy (CP) in Sumba Island, Indonesia. Method: A community-based key informant method survey among children (aged <18y) with CP was conducted between March and August 2017. Children with suspected CP underwent detailed neurodevelopmental assessment by a multidisciplinary medical team. Socio-demographic characteristics, aetiology, motor type, motor severity, associated impairments, educational, and rehabilitation status were documented. Results: There were 130 children with clinically confirmed CP. The mean age at assessment was 8 years 11 months and 43.8% (n=57) of the children were female. The mean age at CP diagnosis was 6 years 5 months. Of these children, 46.9% (n=61) had post-neonatally acquired CP, most frequently because of vaccine-preventable infectious encephalopathy (73.8%, n=45). In total, 80.8% (n=105) had a predominantly spastic motor type of CP and 83.8% (n=109) were classified in Gross Motor Functional Classification System levels III to V. A total of 77.7% (n=101) had at least one associated impairment (speech 77.5%, intellectual 29.2%, visual 13.8%, hearing 20.0%, and epilepsy 13.5%). And 66.2% (n=86) had never received rehabilitation services. Interpretation: Post-neonatally acquired CP was common in this setting. Addressing preventable post-neonatally acquired risk factors for CP should be a public health priority. Earlier identification and diagnosis of CP would also provide new opportunities for early intervention and targeted rehabilitation services.

PMID: 32686098

13. Using linked registry data to examine co-occurrence of congenital anomalies in children with cerebral palsy
Russell S Kirby

Dev Med Child Neurol. 2020 Jul 19. doi: 10.1111/dmcn.14633. Online ahead of print.

PMID: 32686092

14. [General movement assessment as a tool for determining the prognosis in infantile cerebral palsy in preterm infants: a systematic review][Article in Spanish]
P Peinado-Gorlat, M Gómez de Valcárcel-Sabater, B Gorlat-Sánchez

Rev Neurol. 2020 Aug 16;71(4):134-142. doi: 10.33588/rn.7104.2019460.

Introduction: Cerebral palsy is considered to be the main cause of physical disability in childhood. General movements are an assessment tool in order to predict the neurological and long-term outcome of the newborn. Aim: To analyze the current evidence on the general movements assessment in preterm infants as cerebral palsy prognostic tool. Subjects and methods: Systematic review following PRISMA statements. Databases consulted were: PubMed/Medline, Lilacs, IBECS, Cochrane, PEDro, Cinhal, Sport Discuss, Phyinfo, Academic Search Complete, Web of Science, and SciELO. We included studies that evaluated general movements in the first 20 weeks premature newborns. We excluded studies where the sample submit other pathologies or medication was administered. Newcastle-Ottawa Scale was used to assessment the risk of bias. Results: Ten cohort studies form this review. 2243 premature, with an average of 30.9 weeks of gestation, were analyzed. General movements recording was carried out between 5 and 30 minutes. When there are abnormal general movements, the chances of neurological involvement increase during development, whereas when normal general movements are evaluated, there will rarely be a subsequent cerebral palsy diagnosis. Conclusions: The predictive validity of the preterm general movements assessment is confirmed as a tool to predict cerebral palsy early. Since preterm infants are more likely to trigger abnormal general movements, it is interesting to promote this type of assessment.

PMID: 32700309

15. Effect of cumulative dexamethasone dose in preterm infants on neurodevelopmental and growth outcomes: a Western Australia experience

Ashok Kumar Buchiboyina, Chi Seong Andrew Yip, Rolland Kohan, Elizabeth A Nathan, Damber Shrestha, Jonathon Davis, Xiaowei Wang, Mary Sharp

Arch Dis Child Fetal Neonatal Ed. 2020 Jul 20;fetalneonatal-2020-319147. doi: 10.1136/archdischild-2020-319147. Online ahead of print.

Objective: Comparing the long-term neurodevelopmental and growth outcomes of lower and higher cumulative dexamethasone exposure in preterm infants ventilated for a minimum cumulative duration of 7 days. Design: A retrospective cohort medical chart review of infants born in Western Australia <29 weeks' gestation between January 2007 and May 2016 who were mechanically ventilated >7 days. Intervention: No dexamethasone (controls) or a total cumulative dexamethasone dose of <2 mg/kg (lower) and ≥2 mg/kg (higher). Main outcome measures: Long-term disability at 2 and 5 years and growth measurement outcomes at 2 years of age. Results: Dexamethasone was given to 104 infants (66 with cumulative dose <2 mg/kg; 38 with cumulative dose ≥2 mg/kg), and 324 infants were controls. There was no difference in odds of long-term disability in infants with any dexamethasone exposure compared with controls (aOR: 0.90, 95% CI 0.34 to 2.02, p=0.784). No difference in long-term disability was found between the lower and higher groups (p=0.494). The prevalence of cerebral palsy (Gross Motor Functional Classification System level ≥2) between the control, lower and high-dose groups did not differ significantly (5.8% vs 4.0% vs 0%). The higher dose group had lower mean weight z-score (mean effect: -0.83, 95% CI: -1.54 to -0.01, p=0.023), height z-score (mean effect: -0.63, 95% CI: -12.5 to -0.01, p=0.048) and head circumference z-score (mean effect: -0.65, 95% CI: -1.25 to -0.05, p=0.035) compared with controls. Conclusions: In our cohort, dexamethasone use was not associated with increased odds of long-term disability. Dexamethasone use was associated with lower growth measurements compared with controls.

PMID: 32690582