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## Cerebral palsy

### Oral communications

CO45-001-e

#### Therapeutic education of children with cerebral palsy

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**Objective** To assess a therapeutic education (TE) project in children with cerebral palsy (CP).

**Patients and methods** Prospective study including children with CP randomized into two groups: the group G1 included children who underwent a rehabilitation associated to a TE, and the group G2 included children who underwent only rehabilitation. We realized two seminars, one week apart, of TE for parents (for children aged less than 6 years) and for children with their parents (for children aged more than 6 years). The program of TE included the definition of the CP, the interest of rehabilitation, self-rehabilitation, speech therapy and occupational therapy, the indications and the supervision of the orthotics. The educational tools used were audio-visual systems and pamphlets distributed to participants. The evaluation of TE seminars was carried out by a questionnaire performed at the end of each session. The assessment of G1 and G2 was realized one month, three months and six months after the seminars. It focused on the observance of rehabilitation, the duration of the orthotics use and the quality of life by the questionnaire "Cerebral Palsy Child-Quality of Life".

**Results** We have enrolled 47 children divided into G1 (23 children) and G2 (24 children). Both groups were homogeneous in terms of the severity of motor impairment and intellectual quotient. The gain was significantly better in G1 concerning the observance of rehabilitation ( $P < 0.001$ ), the duration of orthotics' use ( $P < 0.001$ ) and the children and parents quality of life ( $P < 0.001$ ). These results were maintained 6 months later.

**Discussion-conclusion** Several publications have focused on the TE in chronic diseases such as diabetes and asthma [1]. But, at the best of our knowledge, no study was interested in TE of children with CP. Our study shows what TE has added to the adherence to treatment and the children and parents quality of life in CP.

**Keywords** Therapeutic education; Cerebral palsy; Orthotics; Rehabilitation; Self-rehabilitation; Speech therapy; Occupational therapy

**Disclosure of interest** The authors have not supplied their declaration of conflict of interest.

**Reference**

- [1] Lamoura P, Gagnayreb R. L'éducation thérapeutique de l'enfant atteint de maladie chronique, et de sa famille. *Arch Pediatr* 2008;15:744–6.

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CO45-002-e

#### Relation between capacities and bimanual performance in hemiplegic cerebral palsied children: Impact on synkinesis

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**Objective** To analyse the link between unimanual capacities and bimanual performance in cerebral-palsied (CP) hemiplegic children, aged between 5 and 18 years old, studying specifically the impact of synkinesis.

**Material and methods** Seventy-one CP hemiplegic children (35 boys and 36 girls, mean age 8,5 years; MACS levels from I to III; GMFCS from I to IV) took part in a transversal study, assessed – Melbourne Test (MUUL) for unimanual capacities, and Assisting Hand Assessment (AHA) for bimanual performance – with a specific scale to analyze synkinesis during Box and Block test for affected and healthy hands, collecting synkinesis type, duration and intensity.

**Results** There is a strong correlation between unimanual capacities (MUUL) and bimanual performance (AHA) ( $r = 0.871$ ). Neither age nor gender contribute to bimanual performance (AHA). Multiple linear regression shows that MUUL contributes to bimanual performance variance (AHA) by 70%. Synkinesis partly correlated to capacities (MUUL) and accounts for 10% of the variance of the gap between capacities and bimanual performance.

**Conclusion** A high relationship between unimanual capacities and bimanual performance is confirmed by this study; some authors demonstrated impact of sensory troubles [1], we demonstrate that synkinesis influences the use of unimanual capacities in bimanual performance.

**Keywords** Hemiplegia; Upper limb; Synkinesis; Capacity; Performance

**Disclosure of interest** The authors have not supplied their declaration of conflict of interest.

**Reference**

- [1] Auld M, Boyd R, Moseley L, Ware R, Johnston L. Impact of tactile dysfunction on upper-limb motor performance in children with unilateral cerebral palsy. *Arch Phys Med Rehabil* 2012;93.

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**CO45-003-e**

**Does hippotherapy improve motor function in children with cerebral palsy? Systematic review**

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**Objective** To perform a systematic review of the literature regarding hippotherapy in children with cerebral palsy.

**Method** The research in Medline and Cochrane Library databases was performed using the keywords “Equestrian therapy”, “Riding for the disabled”, “Hippotherapy”, “Equine-movement therapy”, “Therapeutic horse (back) riding”. The methodological quality of the articles was assessed using four levels of evidence and three guideline grades (A: strong B: moderate C: poor).

**Result** Six prospective randomized controlled studies confirm the level of evidence of hippotherapy and/or instructor-directed recreational horseback riding therapy (HBRT) in children with cerebral palsy with grade B. Hippotherapy and/or HBRT in children with cerebral palsy contributes to improve motor function, symmetry of muscle contraction, spasticity, posture and walking. Ten prospective no randomized studies confirm the level with grade C for balance, motor coordination, lumbo-pelvic flexibility, walking speed, and social behavior.

**Conclusion** The level of evidence of hippotherapy in children with cerebral palsy is moderate (no grade A studies and six grade B studies).

**Keywords** Hippotherapy; Equestrian therapy; Therapeutic horse (back) riding; Cerebral palsy; Literature review evidence based; Rehabilitation

**Disclosure of interest** The authors have not supplied their declaration of conflict of interest.

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**Effects of botulinum toxin injections on function and quality of life in children with cerebral palsy**

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**Introduction** Our objective was to show the effects of botulinum toxin injections (BT) on function and quality of life in children with cerebral palsy (CP).

**Patients and methods** A prospective study including 60 children, aged from 2 to 18 years old, who received repeated injections of BT

was conducted. Evaluations were done before and after injections including spasticity using the modified Ashworth scale (MAS), functional evaluation using the Gross Motor Function Classification System (GMFCS) and the Manual Ability Classification System (MACS), a videographic record, an evaluation of satisfaction (Visual Analogical Scale) and an evaluation of the quality of life using the Child Health Questionnaire Parent form 50 Questionnaire (CHQ-PF50).

**Results** The average of the MAS was 2.5 for all injected muscles. Sixty-five percent of children were classed level I, II or III of MACS. All our patients had BT injections. The sural triceps was the most injected muscle. The improvement of spasticity after BT injections in the lower limb was more important for 6-year-old children (improvement of 46%,  $P < 0.001$ ). We noted a significant increase of the number of walking patients ( $P < 0.001$ ) and a beneficial effect on the pattern gait especially for children level III of GMFCS. The percentage of children improved (in GMFCS and MACS) and the average of visual analogical satisfaction scale as well, increased from one injection to another reaching a constant level in the last 2 injections ( $P < 0.001$ ). We have noted an improvement in the score of CHQ-PF50 (physical and psychosocial score), which was correlated with the functional improvement.

**Discussion** Our study shows how BT injections can induce a functional gain in children with CP. An improvement of upper extremity's function, gait pattern and the quality of life upturn were plainly noticed after these injections. Similar benefits of BT [1,2] were mentioned in literature.

**Keywords** Cerebral palsy; Botulinum toxin; Gross Motor Function Classification System; Manual Ability Classification System; Child Health Questionnaire parent form 50; Function; Quality of life

**Disclosure of interest** The authors have not supplied their declaration of conflict of interest.

**References**

- [1] El O, et al. Botulinum toxin type A injection for spasticity in diplegic type cerebral palsy. *J Child Neurol* 2006;21:1009–12.  
[2] Wallen MA, et al. Functional outcomes of intramuscular botulinum toxin type A in the upper limbs of children with cerebral palsy: a phase II trial. *Arch Phys Med Rehabil* 2004;85:192–200.

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**CO45-005-e**

**Quality of life of adults with cerebral palsy living in britanny**

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**Introduction** Just a few studies have been published about health related quality of life of adults with cerebral palsy and no at our knowledge in the French population. The objective of this study is to obtain an image of health related quality of life of BreizhPC network users.

**Methods** A questionnaire was sent to all network users. This questionnaire concerned the people living: work, leisure, clinical complaints, as well as a self SF36 quality of life questionnaire. The SF-36 quality of life give information in different fields: physical activity, emotional life, vitality, general health. The questionnaires were analyzed according to the disability, the influence of social status, level of disability and major clinical disorders. The statistical analysis used the Student test.

**Results** Eight-hundred questionnaires were sent out, 173 users responded, 81 women and 92 men, with a mean age of 42. That

