et modérée pour 5 items. La fiabilité intra observateur est excellente en dehors d’un seul item. La validité de construit comprend :

– une analyse factorielle qui confirme les 3 dimensions ;
– une consistance interne élevée pour D1 et D2 (Cronbach’s α > 0,90) et acceptable pour D3 (α = 0,69) ;
– de bonnes corrélations avec les autres mesures utilisées (Brooke, Vignos, CGI) (corrélations rho > 0,75).

Conclusion.– La mesure de fonction motrice 20 peut être utilisée pour suivre l’évolution naturelle de la fonction motrice ou en cas d’essai thérapeutique. L’analyse des résultats de l’étude de sensibilité au changement est en cours.


Pour en savoir plus


Version anglaise

CO24-001–EN
Motion analysis in cerebral palsy children in 2011: State of the art and news
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Keywords: Motion analysis; Children

Beyond the methodological precautions that are necessary, a question must be raised: what’s the use of motion analysis in children with cerebral palsy. The first and easiest usage is an additional examination offering a dynamic picture of a child at a stage of the disease course. It provides assistance to medical practice as a balance point of a functional state. More recently its use as an indicator for instituting focal treatments in cerebral palsy children and functional surgery has been questioned. For focal treatment (motor blocks with botulinum toxin), knowledge of the validity of the calculations of joint efforts is crucial. The editorial by Adam Shortland (2011) [2] is quite significant in the analysis of dynamic data in the gait of cerebral palsy children. Indeed the maximum strength provided by the muscles of children with cerebral palsy is completely different during analytical contractions and during walking. The quality of the measurement depends in each condition taken to standardized measures and to the predicted position of the joint centers. Defined by both anatomical and functional methods in three-dimensional analysis is still very approximate (Lempereur et al. 2010) [1]. Its improved value for diagnostic during walking is strongly correlated to its ability to predict the deleterious actions exerted by muscles to the function they are supposed to generate. The same difficulties of measurement accuracy have a significant impact on the diagnosis of bone corrections to be provided to these children with their lower limbs. Given the current accuracy of the measurement, prediction of optimal surgery remains widely subject to interpretation of clinical results. Multimodal integration of radiological or ultrasound and mechanical data will refine the measures and the ability to support the three-dimensional analysis to predict the functional outcome of multisegmental surgery.

Further readings


CO24-002–EN
Early treatment in walking cerebral palsy children: The surgeon’s and the physiatrist’s point of view

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Keywords: Cerebral palsy; Gait analysis; Child; Dynamic electromyography; Physiotherapy; Surgery

Natural history of psychomotor learning and walking difficulties in cerebral palsy (CP) children is now well established. Therapy programs may be standardized. We may establish typical evaluation and medico-surgical schemes according to children’s severity and motor potential. Longitudinal follow-up may be planned.

In young children early multidisciplinary therapy program may avoid major functional decrease with time. Contrarily, development of functional capacities may be favored and adult life prepared. Each step is guided in determining previously precise therapeutic objectives. Very early global evaluation of the child, including physiatrist’s and neuroorthopaedic surgeon’s point of view is necessary.

Therapy of walking involvement associates physiotherapy, orthosis and assistive devices, with medical (principally intra-muscular) and surgical (ortho- and sometimes neurosurgical) treatment. Muscular balance and biomechanical architecture best to learning and progress of walking have to be reached. We identify different therapeutic targets in the course of the maturation of the child. Muscular balance of the pelvis and the trunk, associated to bony structure free of torsional deformities or dysplasia, influence seating position and trunk control, which are mandatory conditions for further development of standing and walking.

As soon as the child starts walking, we have to identify abnormal muscular activation pattern using dynamic electromyography data, because they induce neuro-orthopaedic deformities. Certain muscles like the peroneus longus may for example induce flat foot deformities in cerebral palsy children, which are even more severe if there is an associated tibiceps deficit (iatrogenic or due to the CP itself). Tibialis posterior activation abnormalities may induce equinovarus deformities. Fixed midfoot break will necessitate surgical correction with reconstruction of the medial foot arch.

Early medical treatment may act before deformity fixation. Early neuro-orthopaedic surgeon involvement in the therapeutic planning is useful to alert before deformities influence the child’s functional progress or even decrease in time.

Transversal multidisciplinary collaboration in CP treatment planning, best coordinated by a case manager who coordinates the child’s longitudinal therapy program should be mandatory.


CO24-003–EN
Can, physical examination, explain inside patella gait, in children with spastic diplegia?
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Keywords: Inside patella gait; Femoral anteverision; Cinematic; Spastic diplegia

Introduction.– Excessive femoral anteverision, is usually considered to be responsible for inside patella gait, in children with spastic diplegia, thus, indicating, a femoral derotation osteotomy. The aim of our study was to compare, the data from routine physical examination with, those obtain from gait analysis, in order to attempt to explain gait pattern with inside patella.

Materials and methods.– Hundred and three spastic diplegic children with inside patella gait pattern were retrospectively studied. The internal hip rotation, reflecting femoral anteverision, and the position of the patella was reported from the physical examination, and pelvic and hip rotations were studied from cinematic data.