during passive movement with simultaneous observation of simple hand movement.

Method.– Eighteen patients with clinical HCP (fourteen males, mean age 14 years and 2 months, aged 6 years 10 months to 20 years 10 months) participated in the study. Using fMRI block design, brain activation following passive simple opening-closing hand movement of either the paretic or nonparetic hand with simultaneous observation of a similar movement performed by either the left or right hand of an actor was examined.

Results.– Passive movement of the paretic hand performed simultaneously to the observation of congruent movement (“anatomic imitation”) activated more “higher motor areas”, including contralateral pre-supplementary motor area, superior frontal gyrus (extending to premotor cortex), and superior and inferior parietal regions than non video-guided passive movement of the paretic hand. Passive movement of the paretic hand recruited more ipsilesional sensorimotor areas compared to passive movement of the non paretic hand.

Conclusion.– Our study showed in HCP that the combination of observation of congruent hand movement simultaneously to actual passive movement of the paretic hand recruits more higher motor areas than nonvideo-guided passive movement of the paretic hand. Our study gives neuronal findings to propose video-guided passive movement of paretic hand in CP.

Further Reading
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Effectiveness of an interactive robot for the rehabilitation of the upper limb in children with cerebral palsy: A randomised single-blind controlled trial
M. Gilliaux a,b, D. Dispa a, A. Renders a, D. Holvoet b, J. Sapin c, B. Dehez c, M. Vanderwegen c, C. Detrembleur d, T. Lejeune a, G. Stoquart b
a Cliniques universitaires Saint-Luc, UCL, COST-avenue Mounier, 53, boîte B1.53.04, 1200 Woluwe-Saint-Lambert, Bruxelles, Belgium
b Institut Parnasse Deux Alice, Bruxelles, Belgium
c Institut des Mécaniques, matériaux et génie civil, UCL, Louvain la Neuve
d Institut des neurosciences, UCL, Bruxelles, Belgium
*Corresponding author.
E-mail address: maxime.gilliaux@uclouvain.be

Keywords: Robot-assisted therapy,upper extremity; Child; Cerebral palsy

Introduction.– Several pilot studies have evoked the interest of robot-assisted therapy (RAT) in children with cerebral palsy (CP) [1]. The purpose of this first single-blind randomised controlled trial was to assess, in children with CP, the effectiveness of RAT combined with conventional therapy (CT), in comparison to CT only.

Materials and methods.– Sixteen children with CP were randomised into two groups. Eight children performed five CT sessions per week during 8 weeks (control group). Eight other children completed three CT sessions and two RAT sessions per week during 8 weeks (Robotic group). Each session lasted 45 mins. Throughout each RAT session, the patient had to reach several targets consecutively with the REAplan. The REAplan is a distal effector that allows displacements of the upper limb in the horizontal plane. The assistance provided by the REAplan was based on the patient’s performance. A blinded assessment was performed before and after the intervention, with respect to the three domains of the international classification of functioning, disability and health: the body functions and structures (upper limb kinematics, Box and Block test, QUEST, strength and spasticity), the activities (Abilhand-Kids, PEDI) and the participation (MHA VIE).

Results.– During each RAT session, patients performed 744 movements on average with the REAplan. The smoothness, straightness and the reproducibility of upper limb movements ($p < 0.01$) were significantly improved in the robotic group. The manual dexterity of the upper limb, assessed by the Box and Block test, was also improved in these children ($p = 0.04$). All the other variables did not show any difference between groups.

Conclusion.– This single-blind randomised controlled trial provides the first evidence that RAT is effective in children with CP. Future studies should investigate the long-term efficacy of this therapy.

Reference
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Communications affichées

Version française

P083-f
La paralysie obstétricale du plexus brachial en milie de médecine physique et rééducation fonctionnelle
Service de Médecine Physique, CHU Fattouma Bourguiba Monastir, Rue 1er Juin, 5000 Monastir, Tunisie
*Auteur correspondant.
Adresse e-mail : sanasalah@live.fr

Mots clés : Paralysie obstétricale du plexus brachial ; Devenir fonctionnel
Objectif.– Déterminer les caractéristiques épidémiologiques, cliniques et évolutives des paralysies obstétricales du plexus brachial (POPB) en milieu de rééducation.


Résultats.— Parmi 104 dossiers, 74 seulement ont été retenus (30 dossiers manquaient de données). La population d’étude était représentée par 38 filles (51,4 %) et 36 garçons (48,6 %) avec une moyenne d’âge de 63 jours [extrêmes de cinq jours à 30 mois]. Les deux cotés étaient atteints d’une manière égale. La paralysie était haute dans 66,2 % des cas, et complète dans 33,8 % des cas. La dystocie des épaules a compliqué 27 % des accouchements. Le poids de naissance moyen était de 3921 g.

Une prise en charge adaptée a été instaurée pour chaque cas. Pour les nourrissons ayant consulté tôt ($n = 50$), la rééducation fonctionnelle a débuté après l’âge de 30 jours avec une durée moyenne de 13 mois. À trois mois de vie, une récupération totale du biceps brachial a été notée dans 6 % des cas, et partielle (cotation $\geq 3$) dans 66 % des cas. Devant l’absence de récupération musculaire, l’EMG a été réalisé (16 % des cas). Une chirurgie nerveuse a été pratiquée dans 14 % des cas. Pour la population restante ($n = 24$), la chirurgie des séquelles a été envisagée dans 8,3 % des cas.

Discussion.— La POPB est une des principales complications en période néonatale. Sa prise en charge est multidisciplinaire, son traitement repose essentiellement sur la rééducation qui doit être précoce, adaptée et supervisée.

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P083-e
Obstetric brachial plexus palsy in a physical medicine and rehabilitation department
Service de Médecine Physique, CHU Fattouma Bourguiba Monastir, Rue 1er Juin, 5000 Monastir, Tunisie
*Corresponding author.
E-mail address: sanasalah@live.fr

Keywords: Obstetrical brachial plexus palsy; Functional outcome

Objectif.– To determine the epidemiological and clinical features of patients with obstetric brachial plexus palsy (OBPP)
Materials and Methods.— A retrospective study over 11 years (2002-2012), carried on the records of patients with OBPP. The variables analyzed were epidemiological and clinical.

Results.— Among 104 cases, 74 were selected (30 records had missing data). The studied population was represented by 38 girls (51.4%) and 36 boys (48.6%) with an average age of 63 days [range from 3 days to 30 months]. Both sides were suffering equally. The paralysis was upper in 66.2% of cases, and complete in 33.8% of cases. Shoulder dystocia complicated 27% of deliveries. The mean birth weight was 3921 g.

An appropriate management had been introduced in each case. For patients who consulted early (n = 50), rehabilitation started after the age of 30 days with an average duration of 13 months. At 3 months of life, a total recovery of biceps was noted in 6% of cases and partial (testing ≥ 3) in 66% of cases. Due to the absence of muscle recovery an EMG was performed (16% of cases). Nerve surgery was performed in 14% of cases. For the remaining population (n = 24), surgery of sequelae was considered in 8.3% of case.

Discussion.— The OBPP is a major complication in the neonatal period. Its management is multidisciplinary; treatment is based mainly on the rehabilitation which must be early, appropriate and supervised.

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