

# Theses

## Effects of the treatment of spasticity with botulinum toxin type a in the gross motor function of infants with hemiplegic cerebral palsy (Abstract)\*. Theses. Curitiba, 2009.

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**Introduction:** Spasticity is one of the leading causes of disability in children with Hemiplegic Cerebral Palsy (HCP). The treatment for these children should be precocious with emphasis on the functional gain. Besides muscle tone reduction and motor function improvement, it has been postulated that the Botulinum Toxin Type A (TBA) allows more normal patterns of movement to be learned.

**Objective:** To document and to describe the changes in the Gross Motor Function of infants with HCP submitted to the treatment of spasticity with TBA (STUDY GROUP). To compare the final Gross Motor Function of the STUDY GROUP with the COMPARISON GROUP, not submitted to this treatment. To analyze the variables influencing the functional results in these children.

**Study case:** 24 children with HCP, being 11 from the STUDY GROUP, with clinical indication of therapeutic use of TBA before two years of age and thirteen from the COMPARISON GROUP, not submitted to this treatment until the participation in this study.

**Method:** Three years follow-up of the STUDY GROUP during the treatment with TBA, comprising 6 evaluations of gross motor function. To compare the groups, data from clinical history, physical and neurological examination, anthropometric measures, functional evaluation, IQ evaluation and neuro-image analysis were considered. The functional evaluation considered: Gross Motor Function Measure (GMFM), Comparison to the Motor Development Curves for Hemiplegic Cerebral Palsy, Pediatric Evaluation Disability Inventory (PEDI) and the comparison to the Reference Curves for Functionality in Pediatrics in the areas of self-care and mobility.

**Results:** Seven patients presented improvement in positioning as to the Motor Development Curve during the treatment period, three remained at good levels and one always below the -2SD. The STUDY GROUP had larger score averages than the COMPARISON GROUP in the B, C, D, E and Total dimensions of GMFM, being the difference statistically significant among them in the B dimension (sitting). The STUDY GROUP presented a positioning closer to the medium in the Motor Development Curve than the COMPARISON GROUP. The STUDY GROUP obtained larger score averages in the PEDI than the COMPARISON GROUP in the areas of self-care and mobility, both considering Functional Abilities and the assistance required. The STUDY GROUP presented a positioning closer to the third percentile in the Reference Curve of Functionality in Pedi-

atrics than the COMPARISON GROUP, both considering self-care and mobility, indicating a more appropriate motor performance. Patient with lesions classified as Peri-ventricular Atrophy presented better strength, speed of movement and IQ, considering both the area of performance and total, better positioning on the Motor Development Curve for Hemiplegic Cerebral Palsy than those with Cortical and Sub-cortical Atrophy and Miscellaneous.

**Conclusions:** Infants with HCP submitted to the precocious treatment with TBA presented ascension in the Motor Development Curve for Hemiplegic Cerebral Palsy. The STUDY GROUP presented better functional scores, considering both the GMFM and PEDI scores and also better positioning in the Motor Development Curve and Reference Curves of Functionality in Pediatrics. Children with more precocious acquisition of seating control and independent walking presented better scores in GMFM and PEDI and better positioning in the Motor Development Curve and Reference Curves of Functionality in Pediatrics. The best motor function was related to the largest width of active extension of the wrist, less spasticity, better muscular strength, preserved sensitivity and better IQ. The best positioning in the Motor Development Curve for Hemiplegic CP was related to the largest width of active extension of the wrist, less spasticity, preserved sensitivity and better IQ. The best motor performance was related to preserved sensitivity and better IQ. The best positioning in the Reference Curves of Functionality in Pediatrics was related to preserved sensitivity.

**Key words:** cerebral palsy, spastic hemiplegia, spasticity, botulinum toxin type A, motor function, motor performance.

\*Efeitos do tratamento da espasticidade com toxina botulínica do tipo A na função motora grossa de lactentes com paralisia cerebral forma hemiplégica (Resumo). Tese de Doutorado. Setor de Ciências da Saúde, Universidade Federal do Paraná (Área: Fisioterapia Neurológica Pediátrica). Orientadora: Lúcia Helena Coutinho dos Santos. Coorientador: Amâncio Ramalho Júnior.

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