

Letter to Editor: Children With Unilateral Cerebral Palsy: A Need for Recommending Advanced Interventions in Daily Activities



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Dear Editor

Cerebral Palsy (CP) addresses a group of children with postural and movement conditions. Such disorders generate due to non-progressive brain damage during early development [1]. Besides, they may accompany other problems, such as cognitive, visual, and hearing impairments and seizures [2]. Overall, these conditions are classified into quadriplegia, diplegia, and unilateral CP [3]. Children with unilateral CP account for approximately 40% of children with CP [4]. A majority of these children are categorized as levels one to three, according to the Gross Motor Function Classification System Expanded and Revised (GMFCS E&R); therefore, they can walk with various levels of limitation [5].

In the last decades, various approaches and intervention protocols, such as gait training; constraint-induced movement therapy, and bimanual intervention have been developed. Such interventions targeted movement and posture to improve gait and upper limb functions in this population [6-8]. Despite this major progress, the level of generalization and transfer of the learned function into the Activities of Daily Living (ADL) are low. Thus, the long-term influences of the rehabilitation are limited. This re-

striction appears to be due to numerous factors; however, the main relevant characteristic is postural and reflexes problems and their influences in the child's ADL [9].

Children with unilateral CP present active postural reflexes, such as Asymmetrical Tonic Neck Reflexes (ATNR) and Symmetrical Tonic Neck Reflexes (STNR) that impact the whole body during ADL (e.g., dressing, bathing, toileting, & moving around). Another critical postural reflex is Associated Reaction (AR), i.e., triggered by active movement [10]. Thus, by the child's active movement, this reflex initiates and increases tone in the voluntary muscles in the whole body. Even this reflex enhances the influences of other abnormal postural reflexes. These abnormal movements and patterns gradually become prominent and habitual. When a child with unilateral CP finishes the rehabilitation intervention per session and goes back to ADL, they move around and perform ADL with these habitual and learned reflexes, influencing their walking abilities and upper limb function. Therefore, it is crucial to initiate treatment for these children in the early stages of their life. Such a measure is beneficial to reduce the influences of these postural reflexes on movement and posture. However, even with early interventions, we are unable to totally control or reduce developing abnormal movements during ADL

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in the majority of these children; therefore, they require long-term rehabilitation.

Currently, in the treatment of children with unilateral CP, there is no specific, well-structured program, intervention, technique, or tool to control abnormal posture during ADL. Almost all intervention protocols are conducted in clinical settings. Accordingly, the affected children and their families are trained with some home-based programs. However, no intervention or device is available to help these children control or reduce the effect of abnormal reflexes on their posture and movements of upper and lower limbs during ADL outside the clinical settings.

Future perspective

Rehabilitated children with unilateral CP have progressed and improved their body function and structure, and activities. Furthermore, the participation of this group dramatically increases their quality of life. Despite this progress, we require the improvement of interventions that address and focus on the whole body movement and function during ADL to change the habitual and abnormal movements and patterns in this population. In other words, the future trend of the rehabilitation of children with unilateral CP requires focusing on interventions that simultaneously affect the whole body; not the gait and upper limb function, separately. Furthermore, the intervention protocol should target abnormal movement during ADL to generalize the learned movements and functions from clinical settings into their ADL. Recognizing such interventions for improving ADL in children with CP assists occupational therapists, policymakers, and service providers to better help the caregivers of these children with their function. This makes them more aware of the caregivers' challenges of caring and their restrictions on the interventions necessary for ADL. We need to provide general information to families about the suitable interventions for ADL in children with CP.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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Authors' contributions

Both authors contributed equally in preparing all parts of the research.

Conflict of interest

The authors declared no conflicts of interest.

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