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CLIENT-CENTERED THERAPY IN CEREBRAL PALSY – A CASE SERIES

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ABSTRACT

Background: This report describes the case series of four children with Cerebral Palsy (CP) [7] who were patients at Safalya Mind and Body clinic, Ahmedabad, between 2017 and 2023. The research elaborates on the client-centered physiotherapy approach implementation and its effectiveness, which involved the use of Neurodevelopmental Treatment (NDT) techniques [3, 13].

Materials & Methods: The main goal was to exhibit the effectiveness of a personalized, goal-oriented strategy [11] in bringing about significant functional changes in various CP situations. The study engaged thorough, multi-disciplinary examinations, the tools like GMFCS, MACS, and PEDI being the part of assessments [6].

Results: Outcomes reflected real progress: a 7-year-old girl with Spastic Diplegia was able to walk short distances without a frame (6 months); an 8-year-old boy with Spastic Hemiplegia enhanced dexterity for buttoning and writing (4 months); a 5-year-old boy with Ataxic CP became the ability to ride a tricycle independently (5 months); and a 6-year-old girl with Spastic Quadriplegia sat unsupported for 5 minutes (3 months).

Discussion: Such case series demonstrate the effectiveness of the transition from a focus on impairment correction to patient and family goals achievement [2] in combination with NDT, which is valid for various CP types leading to increased function, participation, and quality of life [1, 4].

Conclusion: The case series outcomes highlight the importance of the client-centered physiotherapy approach used in the management of Cerebral Palsy where, therapy goals become personalized, measurable, and most importantly, Neurodevelopmental Treatment is integrated effectively.

Key Words: Neuro Developmental Therapy, Cerebral Palsy, Client Centered Therapy

INTRODUCTION:

Cerebral palsy (CP) is the leading cause of childhood physical disability. It is characterized as a group of permanent, non-progressive motor and postural disorders due to non-progressive lesions in the immature brain of a fetus or infant [5, 12]. The manifestation of CP depends on the site and volume of the brain damage [7]. The main pathological basis is a lesion or abnormality in the motor control regions of the growing brain, mainly the corticospinal tracts, basal ganglia, or cerebellum. As a consequence, the spasticity (most frequent type) among other impairments, which together limit a child's participation in everyday activities, is caused by the failure of the damaged areas to properly control muscle tone, posture, and movement [6].

Aims and objectives - Conventional physiotherapy generally aims at fixing the disorders of movement, the current physiotherapy approach, however, advocates for a client-centered approach [2], the patient's and family's goals being considered first [14]. This way of working which is also in line with the present international recommendations [1, 9], facilitates the use of research-verified methods like Neurodevelopmental Treatment (NDT) in order to enhance participation in daily routines and improve general well-being [4, 13]. Goal-directed training (GDT) is getting more and more recognition as a powerful method of motor function rehabilitation in children with CP [11]. The essential goal of the present study was to provide a series of cases illustrating the application of a client-centered physiotherapy approach with the use of NDT techniques and to demonstrate the personalized, goal-oriented treatment resulting in significant functional transitions in varied clinical presentations of CP.

Review of Literature - Cerebral Palsy (CP) is the primary source of physical impairments in children. It is generally described as a condition that involves non-progressive motor and postural disorders caused by damages to the developing brain of a fetus or infant. One of the resultant effects of the condition is spasticity, which limits the child's participation in everyday activities. The present physiotherapy that children with CP receive is a client-centered approach, conforming with the current international standards This approach emphasizes the goals of the patient and their family rather than only concentrating on the movement disorders The goal-oriented approach is widely known as a major functional change contributor. Neurodevelopmental Treatment (NDT) is one of the main research-backed methods that are used along with this approach. NDT is mainly focused on the normalization of muscle tone and the facilitation of more functional movement patterns. NDT works through various forms which includes, for example, manual handling that facilitates the movement and attempts to inhibit abnormal postures and also, usage of activity-based and play-based tasks for gaining functional skills. According to research, this approach of switching the focus from the detection of impairment and thus correction by the patient and the family combined with the NDT is proven valid for different types of cerebral palsy and the data from recent systematic reviews for spastic CP supports this. This method is aimed at improving a child's function, participation in daily routines, as well as, the overall quality of life. An example of this is the use of core NDT through intensive to obtain the goal of meaningful participation which can be achieved even in the case of Spastic Quadriplegia. Moreover, patient engagement is equally important as activity-based tasks (e.g., play-based dexterity tasks or riding a tricycle) from the NDT framework are acknowledged a method to enhance gross motor function in the same way as the evidence that supports the use of different therapies like hippotherapy. The constant observance of a personalized, goal-oriented plan is believed to be the main factor behind positive long-term results for children with CP. The client-centered model is considered a possible and evidence-based approach to pediatric rehabilitation.

MATERIALS AND METHODS

This case series illustrates the situations of four kids suffering from Cerebral Palsy and are the outcomes of their examinations and treatments during a six-year period (2017 to 2023) at the Mind and Body Clinic Safalya in Nikol, Ahmedabad. The parents and guardians voluntarily agreed to the procedure, and their consent was duly recorded. The diagnostic and treatment process followed a multidisciplinary approach and was based on the latest practice guidelines. The thorough examinations took into consideration a wide range of factors such as the birth history, the CNS examination, and the observations provided by the caregivers. Functional status and outcomes were defined and tracked through various standardized systems that are specially designed for children with CP:

- Gross Motor Function Classification System (GMFCS)
- Manual Ability Classification System (MACS)
- Communication Function Classification System (CFCS)
- Pediatric Evaluation of Disability Inventory (PEDI) [1]

The main point of the intervention was a client-centered and goal-oriented physiotherapy approach [11]. The treatment plan was formulated in a joint effort with the parents and caregivers, and the goals were set to achieve the most functional and meaningful outcomes [2]. Neurodevelopmental Treatment (NDT), the main method, works on the normalization of muscle tone and the facilitation of more functional movement patterns [3]. NDT principles were used through:

● Manual handling to guide movement and inhibit abnormal postures.

● Activity-based and play-based tasks (e.g., obstacle courses, therapy balls) for learning functional skills, in line with intensive rehabilitation recommendations [13].

● Focusing on core muscle strengthening and postural stability to enable task performance.

The intervention took into account the treatment dose, the compliance, and the cultural safety needs, among other logistical factors.

Case series and results (Table 1) - The client-centered NDT approach yielded significant, goal-specific functional improvements in all four cases.

No	CP Type	Goal	NDT/Intervention Focus	Outcome	Timeframe
1	Spastic Diplegia (7M)	Independent walking at home.	NDT to inhibit lower limb spasticity, gait training, and obstacle courses.	Achieved independent walking for short distances at home without a walking frame.	6 months
2	Spastic Hemiplegia (8F)	Improving fine motor skills (dressing, writing).	NDT to reduce right arm/hand spasticity, play-based dexterity tasks.	Improved dexterity; able to button a shirt and hold a pencil with greater control.	4 months
3	Ataxic CP (5M)	Riding a tricycle and walking on uneven surfaces.	NDT for postural stability, balance training on therapy balls, gait training on multi-textured surfaces.	Significantly improved balance; able to ride a three-wheeled bicycle independently.	5 months
4	Spastic Quadriplegia (6F)	Sitting unsupported for longer duration for	NDT for core strengthening, improving head/trunk	Able to sit unsupported for 5 minutes, enabling	3 months

		family mealtimes.	control using specialized seating and therapy balls.	participation at the dinner table.	

DISCUSSION

A client-centered, goal-oriented physiotherapy approach, which is a core aspect of this case series, is one of the main factors in success in pediatric CP management [11]. The progress in gross motor function, particularly in Case 1 (Spastic Diplegia), is in line with the findings of recent systematic reviews that have been supportive of physical therapy in spastic CP [10]. Functional goals through therapy were met as the child was directly enabled to lead a better life: e.g., independent mobility (Case 1) and participation in family activities (Case 4). These results are in agreement with the current directions for best practice [1, 6, 9]. Acquiring the ability to sit unsupported in Case 4 is evidence that even severe Spastic Quadriplegia situations can benefit from the focused core control of intensive NDT, thus leading to the participation outcomes that matter the most [13, 2]. Patient engagement is vital, and the use of fun, activity-based tasks (e.g., riding a tricycle in Case 3) from the NDT framework is one such way. This is recognized as a strategy to improve gross motor function and is similar to the evidence that supports therapies like hippotherapy as supplements [8, 15]. Continuous adherence to a bespoke strategy, as Ramsden and Wilson [4] put it, is still the main reason behind the positive long-term results of children with CP.

CONCLUSION

The case series outcomes highlight the importance of the client-centered physiotherapy approach used in the management of Cerebral Palsy. The main physiological changes are no longer the focus of the treatment; instead, therapy goals become personalized, measurable, and most importantly, Neurodevelopmental Treatment is integrated effectively. In this way, physiotherapy can bring about quite noticeable yet profound changes in a child's function, participation, and overall quality of life. Such a model stands as a viable and evidence-based approach to pediatric rehabilitation [14].

Conflict of Interest - None.

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Ethical Consideration - Ethical approval was not mandatorily required as this study was conducted on the online mode. The participants are volunteers and this study ensures participants anonymity

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