

COMBATING CEREBRAL PALSY: MULTIDISCIPLINARY APPROACH

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ABSTRACT

Development of health care and rehabilitation in both adults and children is mentioned in the list of priority directions of the Russian Health Care Program. Other countries face that exigence as well. However, formation of a new quality of life for disabled children is a bit harder that one could imagine. Our team has been studying children medical rehabilitation both in Russian Federation and in Canada, in the process we have defined five major problems, that stand on the way of healthy life for disabled children - acute deficiency of rehabilitation centers for children, lack of qualified specialist in the area as well as rehabilitation equipment, absolute absence of parental education and interactive models of rehabilitation. Why does these problems occur? Is there a way to solve acute issues related to children clinical rehabilitation? How can doctors and government help disabled children to live a better life? Those are the questions discussed in the following article. Basing on our Canadian and Russian experience, we tried to offer several ways of dealing with those challenges and we truly believe that through solving those problems doctors all around will get there opportunity to help little patients to fight their severe disease.

KEYWORDS

Neurological Rehabilitation, Interactive Rehabilitation System, Psychological Adaptation, Disabled Children

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INTRODUCTION

Neurological disorders, congenital malformation and psychiatry conditions hold key position among all other reasons of children`s disability. One of the key main conditions leading to the disability is Cerebral Palsy (CP) [1, 2]. Morbidity rate of the disorder lies within 2-2,5 out of 1000 cases [3]. According to data published in 2010 by Russian Ministry of Public Health and Social Development 71,149 children under 14 years old and 12,655 aged from 15 to 17 suffer from CP. Moreover, there is not a tendency for these numbers to decrease.

Due to the development of perinatal therapeutics, permanent introduction of new technologies and elaboration of the existing methods of developmental care, survival chances of small premature infants have dramatically increased. From year to year, doctors succeed saving infants born more and more early. However, premature infants face significantly higher chances of getting CP. Unfortunately, we have to admit that up to 50% of children suffering from

CP were born preterm. According to the statistics, for infants born between the 37th – 41th week of gestation, the risk of developing CP grows 5 times, and for those born before 38 weeks of pregnancy, 50 times [4].

There is solid knowledge on how to save preterm born infants from death but still cannot provide them with a chance of living a healthy life.

MAIN BODY

There are several key issues that need to be resolved in terms of children suffering CP rehabilitation. First of all, many pediatric patients come across an acute deficiency of rehabilitation centers. For example, in Russian Federation there is only one federal center specialized in this field. Therefore, it is hardly surprising that people suffering CP are supposed to wait for a few years to get the help they need, no matter how urgent this need is.

Simultaneously numerous studies have shown that the earlier you start the rehabilitation process the more likely you are going to have better results [5- 8]. While some families wait for a place at a hospital, the rehabilitation potential as well as the response to the therapy of a young infant is decreasing. For CP to be treated successfully you need to start working

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with the child the moment it is diagnosed and as often as needed. In that case, a kid eventually might forget his disability and be a healthy part of the society. Consequently, it is harmful for these children and their parents to “stand in a queue” to get treatment.

However, regardless of the importance of children rehabilitation and the significant number of children seeking help, Russian Federation has yet to approve the profession of pediatric rehabilitation physician, entailing that it is not listed in the nomenclature of the medical specialisations. Without governmental legislative support, there is no way to start providing help and care for the patients.

Pediatric rehabilitation is not an easy thing to study involves a wide complex of medical, social, administrative, pedagogic, psychology knowledge and skills. This is why a specialist in this field has to cover numerous disciplines, that include clinical physiology, pathophysiology, pediatric neurology, physiotherapy, reflex therapy, homeopathy, kinesio taping [9-14]. He should also always keep in mind all the new methods and be highly qualified in the aspect of pedagogics and psychology of his special patients. To get all the skills mentioned above a future specialist needs to get into the field when he is still in a medical school and to dig into it after graduation while being in residency. Only with the vertically integrated system of studying we can hope to get specialist that meet all requirements of the modern health care.

For the time being children that finally manage to get their place at a rehabilitation center are treated by numerous specialists, who are not really capable of working as a team and just apply methods that they are aware of without looking and understanding their colleagues efforts. There is no doubt that the unification of knowledge that, doctors, teachers and social workers have acquired by working with kids suffering from CP will take some time. The latter needs to be implemented gradually according to a national strategy that guides the whole effort and involves actively all the existing rehabilitation centers. Solving these key issues will finally lead to a particular direction, allowing for research, implementing new methods, and getting rid of the old ineffective ways.

We cannot omit to mention the significant role parents have in the rehabilitation process. Nevertheless, parental education as well as their engagement in

the treatment process do not meet expectations. Family plays a huge role in the enduring and harsh rehabilitation period while children still spend most of their life at home with their family even though they stay in rehabilitation facilities for some time. So, it is essential to bring parents into the process, to take some time to teach them their obligations and the ways to take care of their children more effectively, how to motivate their kids and make daily exercises to keep and improve skills gained with doctor’s help. Without that, their childrens’ efforts during their stay at a rehab facility will be in vain and that will eventually lead to parents’ distrust of the existing rehabilitation methods.

On the other hand, the implemented methods of children rehabilitation have to be highly interactive. You cannot expect a disabled child to be ready to live on its own, to take part in school, social and family life unless he is taught to do so. And that is not only a physician`s and parent`s job, but also a social worker`s task. The whole environment needs to change to motivate them, and at this point the other children proper approach towards them is important [15]. That can be achieved when developmental issues are considered an ordinary condition that does not draw an end line in front of the disabled child. Doctors can only achieve their young patients rehabilitation, but without motivating them to work on their skills on daily basis, their progress will fall into pieces immediately.

Last but not least, another issue is the available rehabilitation equipment. Few European countries have achieved good results in creating new rehabilitation machines. They eagerly sell those machines abroad; however, the price usually prevents hospitals from getting new technologies into usage. For example, a highly effective medical device called MotionMaker™ costs around 1 million dollars. The device combines mechanic and electro stimulation for active mobilization of the lower limbs and helps to achieve maximum mobility and autonomy of the patient. The solution lies in the hand of the government and non-state sponsors to incentives to domestic manufacturers into creating new technologies. On the first steps of this effort, new equipment may be produced using foreign manufacturers’ parts but later on, the machines can be built up from the beginning in Russia. If the government supports these studies and grows a connection between clinics, scientists

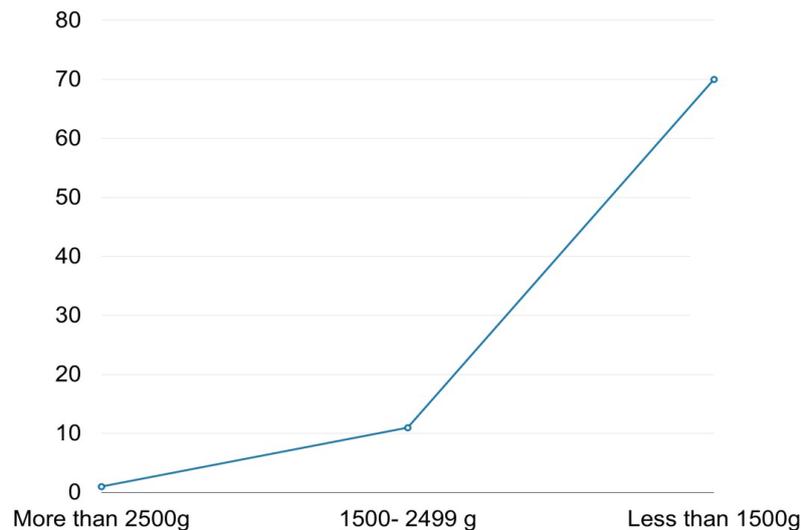


Figure 1. Chances of getting CP per 1000 cases

and engineers in several years we should be able to provide all the rehabilitation centers with equipment needed.

CONCLUSION

To conclude, I would like to mention that rehabilitation physician does not just help child to go through medical procedures, he helps to solve various amount of problems that a young patient and his family have to face. Well known Russian doctor V. Shatalov once described specialists in children's rehabilitation as a child's chaperon into a future life; This is because doctors do not treat the disease, they treat the patient, helping him to create his personality. Answering the question raised in the head of the article we should announce to the world that CP can and must be treated and those kids can live a happy healthy life. Yes, the reform is not going to be easy or quick, a but child's smile is worth every effort for finally being able to sit or walk on its own. So let us put up our efforts into creating a new rehabilitation model to give kids every single chance to make their wishes come true.

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CONFLICT OF INTEREST

The authors confirm that this article content has no conflicts of interest.

AUTHOR CONTRIBUTION

All authors contributed to the study design, interpretation of the literature data, and the manuscript drafting. All authors read and approved the final version of the manuscript for publication.

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REFERENCES

1. Johnson AN. Prevalence and characteristics of children with cerebral palsy in Europe. *Dev Med Child Neurol.* 2002; 44 (9): 633–640.
2. Ehrenkranz RA, Dusick AM, Vohr BR. Growth in the neonatal intensive care unit influences neurodevelopmental and growth outcomes of extremely low birth weight infants. *Pediatrics.* 2006; 117 (4): 1253–1261.
3. Imms C. Children with cerebral palsy participate: a review of the literature. *Disabil Rehabil.* 2008; 30(24): 1867–1884.
4. Paneth N, Leviton A, Goldstein M. et al. A report: <http://isjm.kaznmu.kz/>

- The definition and classification of cerebral palsy. *Dev Med Child Neurol.* 2007; Suppl. 109: 8–14.
5. Forsberg H, Eliasson AC, Redon-Zouitenn C. Impaired grip–lift synergy in children with unilateral brain lesions. *Brain.* 1999; 122 (6): 1157–1168.
 6. Kolawole TM, Patel PJ, Mahdi AH. Computed tomographic (CT) scans in cerebral palsy (CP). *Pediatr Radiol.* 1989; 20 (1–2): 23–27.
 7. Ashwal S, Russman BS, Blasco PA. et al. Practice parameter: diagnostic assessment of the child with cerebral palsy: report of the Quality Standards Subcommittee of the American Academy of Neurology and the Practice Committee of the Child Neurology Society. *Neurol.* 2004; 62 (6): 851–863.
 8. Steultjens E, Dekker J, Bouter LM et al. Occupational therapy for children with cerebral palsy: a systematic review. *Clin Rehabil.* 2004; 18(1): 1–14.
 9. Smith M, Sandberg AD, Larsson M. Reading and spelling in children with severe speech and physical impairments: a comparative study. *Int J Lang Commun Disord.* 2009; 44(6): 864–882.
 10. Heinen F, Desloovere K, Schroeder AS et al. The updated European Consensus 2009 on the use of Botulinum toxin for children with cerebral palsy. *Eur J Paediatr Neurol.* 2010; 14(1): 45–66.
 11. McDonagh MS, Morgan D, Carson S, Russman BS. Systematic review of hyperbaric oxygen therapy for cerebral palsy: the state of the evidence. *Dev Med Child Neurol.* 2007; 49 (12): 942–947.
 12. White H, Jenkins J, Neace WP et al. Clinically prescribed orthoses demonstrate an increase in velocity of gait in children with cerebral palsy: a retrospective study. *Dev Med Child Neurol.* 2002; 44 (4): 227–232.
 13. Farmer JP, Sabbagh AJ. Selective dorsal rhizotomies in the treatment of spasticity related to cerebral palsy. *Childs Nervous System.* 2007; 23 (9): 991–1002.
 14. Nieuwenhuijsen C, Donkervoort M, Nieuwstraten W. et al. Transition Research Group South West Netherlands. Experienced problems of young adults with cerebral palsy: targets for rehabilitation care. *Archives of Physical Medicine and Rehabilitation.* 2009; 90 (11): 1891–1897.
 15. Donkervoort M, Roebroek M, Wiegerink D. et al. The Transition Research Group South. Determinants of functioning of adolescents and young adults with cerebral palsy. *Disability & Rehabilitation.* 2007; 29 (6): 453–463.