Shitikov T., Benony B. The question of children rehabilitation after craniocerebral trauma. Journal of Education, Health and Sport. 2015;5(12):409-416. ISSN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.35556
http://ojs.ukw.edu.pl/index.php/johs/article/view/2015%3B5%2812%29%3A409-416
http://pbn.nauka.gov.pl/works/682997
Formerly Journal of Health Sciences. ISSN 1429-9623 / 2300-665X. Archives 2011–2014 http://journal.rsw.edu.pl/index.php/JHS/issue/archive

Deklaracja.
Specyfika i zawartość merytoryczna czasopisma nie ulega zmianie.
Zgodnie z informacją MNiSW z dnia 2 czerwca 2014 r., że w roku 2014 nie będzie przeprowadzana ocena czasopism naukowych; czasopismo o zmienionym tytule otrzymuje tyle samo punktów co na wykazie czasopism naukowych z dnia 31 grudnia 2014 r.
The journal has had 5 points in Ministry of Science and Higher Education of Poland parametric evaluation. Part B item 1089. (31.12.2014).

The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 10.11.2015. Revised 15.12.2015. Accepted: 17.12.2015.

UDC 616.714 + 616.831]-001-036

THE QUESTION OF CHILDREN REHABILITATION AFTER CRANIOCEREBRAL TRAUMA

Shitikov T., Benony B.

Medical Institute of Traditional and Alternative Medicine, Dnepropetrovsk, Ukraine

Perceptions of functional (neuroorthopedic) pathology of the musculoskeletal system at children, as a result of non-optimal movement patterns formed on the mechanisms of brain dysfunction, filled with new information. This was made possible thanks to the introduction of new diagnostic and therapeutic technologies of new information fields of medicine, what is a manual medicine (MM). Existing methods of rehabilitation of children with disorders of the musculoskeletal system are aimed at a variety of pathogenesis, but their ultimate goal they see the improvement of social adaptation of the patient in the first place depends not only on the level of development of his motor functions, but also on the presence of residual manifestations of primitive locomotor reflexes (PLR) [1,2]. Based on the fact that the functional motor disorders are a major manifestation neuro orthopedic pathology, application of MM is most advisable it is in motor rehabilitation [3,4].

Diagnosis PLR by the method of manual muscle testing by Dr. Goodheart (1962) using specific provocative methods adopted by applied kinesiology helps to clarify the cause and location of damage to the brain and vertebral structures to differentiate between the effects of traumatic lesions of the skull, different levels of spinal cord neurotoxicosis, neurological disruption or genetic defect. Some authors believe that not even the presence of pronounced symptoms [5] can talk about the beginning of disorders of musculoskeletal system, visceral disease, vertebrobasilar circulation.

Due to the wide introduction of modern neuroorthopedic and neurophysiological diagnostic techniques at the first place - manual diagnosis, accumulated some experience to detect this disease at children. These facts indicate that applying cardiointervalography [8], we can quickly and accurately objectify pathological activity PLR under the effects of head injuries that occur much more frequently than it indicates the official statistics.

At the domestic medical literature are relatively few works devoted to the analysis of pathobiomechanical and clinical criteria [3] of the brain injury effects. According to studies by different authors [5, 6], the effects of traumatic brain and spinal cord are some of the most common clinical manifestations: convulsive conditions (epilepsy, tics, compulsive movement, febrile convulsions), cerebral palsy, vascular dystonia, intracranial hypertension, inadequate behavior, violation rates of psycho-intellectual development, allergic diseases, including asthma, disorders of the musculoskeletal system.

The aim of our study was to investigate the possibility of using the MM methods (manual diagnosis and manual correction) to treat locomotor disorders, arising as a result of the activity of the PLR , after the trauma of the skull.

The material for our work is based on data obtained from the 75 surveyed in the 2005-2012 year, children from 4 to 18 years who applied about headaches, dizziness, postural scoliosis. In 100 % of children identified dysfunction of brain structures with the activity of a number of PLR caused in 52 % of cases, the consequences of cranial trauma, 36 % - neurotoxicosis and 12 % of children - psycho- emotional stress. In 73 % of children at the neurological disorganization is revealed for the first time a targeted inspection.

In a study, we used the following **methods**: clinical examination, inspection neurologist psychosociometry, biomechanical manual testing, X-ray study (including MRI) stabilometry, cardiointervalography with provocation PLR, pulse oximetry apparatus G1B with the location of the sensor to the earlobe, bulbar slit biomicroscopy lamp with digital photography.

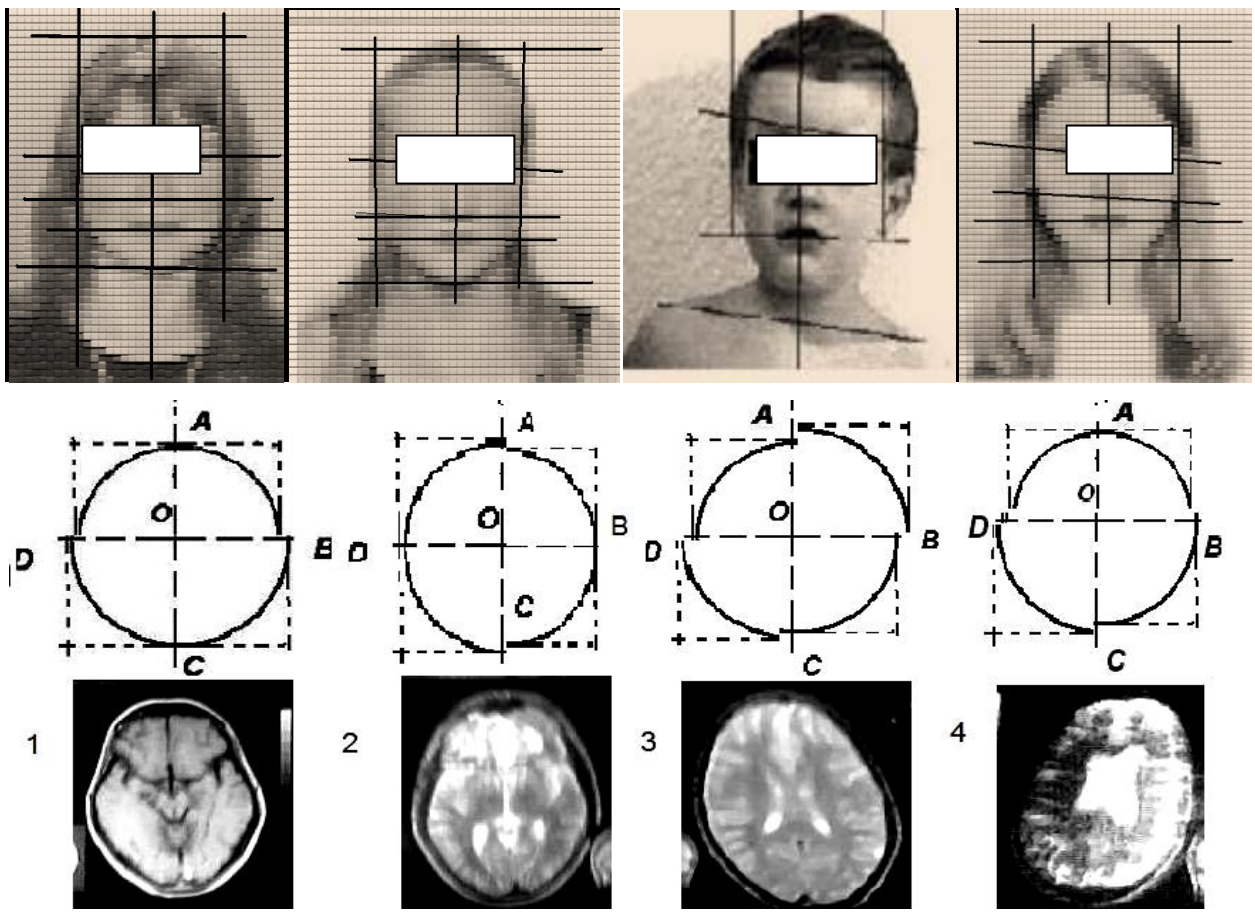
The study was conducted analysis of cardiac rhythm hardware complex "Cardio+" in the morning on an empty stomach in the sitting position after a 10-15 minute rest. Electrocardiography was recorded in the 2nd standard lead.

Apart from a state of rest study was conducted after provocation primitive reflexes. Provocation was carried out for 30 seconds. Then 10 seconds. break. During the study in the following sequence : 1 oral automatism , 2 - tonic neck , 3 - grasping , 4 - Galant, Perez , 5 - automatism gait , 6 - Moreau, 7 - the fear of paralysis.

At the absence of primitive reflexes on the patient's heart rate variability before and after the load has not changed. In the presence of residual manifestations of PLR provocation led to the activation

of the relevant section of the nervous system and is the basis for the formation of stereotyped locomotor adaptation reactions pathobiomechanical different versions of " cranial asymmetry " and cerebral hemodynamic [4, 6].

Visual and craniocephalometric study identified various options morphological cranial disorders. When viewed in 100% of patients found: asymmetric displacement of parts of the skull and the body vertically and horizontally, tilt the head forward in a standing position, rotation of the head and face right and left in a standing position, the broken state of occlusion, deformation of the arch of the spine to the right and the left (Pict.1). Also noted the asymmetric position of the pelvis : the deformation of the Michaelus rhombus, rear and top of the front upper iliac spines, the position of the symphysis, the iliac crest, buttocks, functional shortening the legs. Similar changes consistent with the observations of other authors [7,8] .



1 - flexion - extensional variant, 2 - latero - flexional variant , 3 - rotary variant, 4 - combined variant.

Picture 1. The results of visual, craniocerebral and MRI graphical analysis.

On 92 % of the children showed signs of activity PLR, vertebral- basilar insufficiency and pathobiomechanical change craniovertebral transition: the asymmetry of the face and posture, torticollis, asymmetric movement patterns, violations of cerebral venous hemodynamics, sleep disorders and appetite, limiting dilution hips, delayed psycho- motor development , medium and high levels of anxiety. A history in 94, 4 % of children had deviations in the natal period.

Pathobiomechanical change was the length of the functional asymmetry of the lower limbs, pelvis oblique arrangement, local pain at the upper region, thoraco-lumbar paravertebral area, there - slipping Kibler folds. All the children were "a symptom of the key" function block PDS, often at the level of C3-C4, Th4-Th5, sacroiliac joint. During the cardiointervalography children showed signs of delayed conversion of certain primitive reflexes, and the results are consistent with the method of manual muscle testing by Dr. Goodheart (tab.1).

Statistical material is treated in a medium MS Windows 6.0.

Table 1. Structure of the study parameters in the group of patients. ($P < 0.05$)

INDICATORS	With PLR	Without PLR
Anxiety on the Luscher test	7,6 ± 0,2	4,7 ± 0,2
Headache	5,7 ± 0,2	2,0 ± 0,2
HR, beats / min	77 ± 8	64 ± 6
DT mm Hg. Art.	110± 8	120 ± 8
Cranial asymmetry coefficient . SC	> 0,9 ±0,1	0,9 ±0,1
%SpO2	92,8±0,2	96,6±0,2
Arterio - venular index	2,3±0,3	3,5±0,4

On teaching clinic center DMI TAM and the city center of Sport Medicine, we conducted treatment of a group of children with PLR after head injury: manual therapy, physical exercise therapy, massage, etc. Preference was given to soft osteopathic techniques at school (6-8 on the course 1-2 times a week) including craniosacral, specific developed complex neuroreflex gymnastics, survey, auto- PIR (Pict. 2) .

1 	2 	3 
4 	5 	Picture 2. Manual treatment techniques. 1. The fronto - occipital grip. 2. The main grip. 3. Release sacrum 4. Technique CV4. 5. Skull relaxation by Gehenn.

If it is necessary, we use orthopedic devices, physiotherapy. The course of treatment ranged from 6 to 10 procedures 1-2 times a week, massage - every other day for 10 sessions. Neuroreflex gymnastics prescribe a course of up to six months or more. Selection of medical devices and procedures conducted by accepted of applied kinesiology algorithm: muscle testing, a provocation, a therapeutic localization, neutralization of provocations.

Neuroreflex exercises appointed to the daily courses of six months or more and included 8-12 exercises pathogenetic significance of the region (see picture 3).

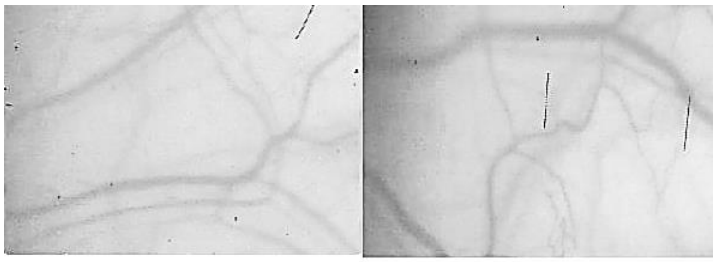
Exercise	Description	Primitive reflexes
	Raising the head of the prone position 10-12.	Symmetric tonic neck
	Raising the head of the position on the back of 10-12 times with a turn of the head to the side.	Cervical asymmetric tonic

	The rise in the ETS from the position on the back of 6-10 times, rocking on the back	Galant , Perez
	Lean forward from a sitting position with backbends 10-12 times	Moreau
]	Crawling on all fours homolateral and heterolateral for 2- 3 minutes	crawl Bauer]
	Climbing wall bars for 1-2 minutes.	Same
	Catching the ball (stick) 20 to 30 times.	Prehensile
	Walking step at a moderate pace for 2-3 minutes.	automatism gait
	Lifting up a notch on the average rate of 10-12 times.	Lower grasping

Picture 3. Driving patients gymnastic neuroreflex complex to stop PLR .

A positive effect was obtained in 92 % of patients , it is confirmed by clinical and laboratory and instrumental studies .

Dynamical cerebrospinal fluid circulation has stabilized, indicators of muscle tone , microcirculation in the internal carotid artery.



Picture 4. Status of the microvasculature bulbar conjunctiva before and after treatment .

The positive clinical dynamics and lack of activity at PLR cardiointervalography , normalization of vegetative balance in all treated children.

Conclusions: biomechanical changes in the locomotor system, as a consequence of head injury and the subsequent reduction of the saturation of tissues of the head of oxygen, leading to , and the emergence of a variety of autonomic dysfunction with neurovascular and neuromuscular changes in the skull, or in which a region causing disruption afferentation, antigravity reactions, neurotrophical changes tonnes - a delay in the conversion of the PLR .

Cardiointervalography and biomechanical testing manual by D. Goodheart are the most accessible, efficient and informative in identifying and monitoring the effectiveness of the correction of PLR. Biomechanical changes resulting from the injuries of the skull , may be corrected through the use of techniques of myofascial release techniques, visceral and craniosacral therapy.

References

1. Bobko Y.N, Chasnyk VG Non-surgical pathology of the spine and the formation of the child's body especially the typological formation of the child's body
// Applied kinesiology. - 2003. -№ 2. - S. 22- 25 .

2. LF Vasilyeva Algorithms manual diagnostic and manual therapy pathobiomechanical changes in the musculoskeletal system.-Novokuznetsk , 1999. -115 p.

3. Voronin D. Problems of physical rehabilitation for diseases of the nervous system in children // Sports Bulletin Dnieper. -№ 2-3. 2009. - P. 165-167 .

4. Donova N.A A method of treating long-term effects of traumatic brain injury by cranial manipulation // IX All-Russian Congress of Neurology . - Yaroslavl , 2006. - S. 570 .
5. Lopushansky P.G Visual diagnostics in manual therapy of children and adolescents // Chiropractic . - 2003. - № 2. - S. 78-79 .
6. Macheret E.L. Parnikoza T.P, Chuprina GM etc... The modern view on the problem of brain injury and its long-term consequences .- K. : exposure The , 2005. - 144
7. Chikurov Y. craniosacral manual therapy. - Moscow: Triada- X, 2003. - 154c.
8. Balls N.A Krasheninnikov VL Cardiointervalography objectification as a method of vegetative imbalance in patients with abnormal activity of primitive reflexes // Applied kinesiology. - 2003. № 3. - S. 22 - 24 .
9. J. Schaefer Applied kinesiology. Fundamentals craniosacral therapy / lane . c Eng. /. 1997, page -83 .
10. Shyshmakov Y. Perhaps diagnostic of cranial dysfunction// Applied kinesiology. -№ 8-9. - 2007. -C. 72 .
11. Sutherland W.G. The Cranial Bowl. -JAOA. -1948 , 43 (April). 348-353 .
12. Upledger, JE: Craniosacral Therapy, Somato emotional Release, Your Inner Physician and You. UI Enterprises, Palm Beach Gardens, Florida, in 1991

Summary: The article is devoted to monitoring the effectiveness of rehabilitation of children with functional disorders of the locomotor system , caused by the delay of converting primitive locomotor reflexes in the period long-term effects of traumatic brain injury. The author has used X-rays, cardiointervalography, encephalography, bulbar biomicroscopy for the diagnosis and follow-up of children during the treatment using a variety methods of manual therapy .

Keywords: brain injury disorders, craniosacral techniques, manual therapy.

Data about the authors:
Shitikov Tymofey Aleksandrovych – The Head of Department of traditional and alternative medicine, Medical Institute of Traditional and Alternative Medicine, Dnepropetrovsk. Ukraine.
Benony Bellamy Ebang Ella – 4 form student of medical faculty.
Address: 49005, Dnepropetrovsk, st. Sevastopol, 17, korp.4, oficce 36; mob . tel .: 8 (066) 5086521
E-mail: tshitikov@mail.ru