

TEN-YEAR ANALYSIS OF OSTHEOPATIC DIAGNOSING AND TREATMENT EFFICIENCY IN EARLY INFANTS WITH SOMATIC DYSFUNCTIONS

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Basing on many complex experimental researches, we evaluated the prospects and the efficiency of osteopathic methods for diagnosing the condition, providing rehabilitation and forecasting reeducation treatment efficiency in various somatic dysfunctions of early infants.

Keywords: *osteopathy, functional condition, osteopathic indexes, somatic dysfunctions, functional change, osteopathic status, standard treatment, osteopathic treatment*

По результатам многолетних комплексных экспериментальных обследований оценены возможности остеопатических методов и показана их высокая эффективность в диагностике состояния, эффективности реабилитации и прогнозе успешности восстановительного лечения при различных видах соматических дисфункций у детей раннего возраста.

Ключевые слова: *остеопатия, функциональное состояние, остеопатические показатели, соматические дисфункции, функциональный сдвиг, остеопатический статус, стандартное лечение, остеопатическое лечение*

Present-day osteopathy is an integrated system with philosophical approach to diagnosing and treatment, where a person is considered as the aggregate of his/her mechanical, hydrodynamic and nervous functions. This is an independent trend within the traditional medicine that includes understanding diseases through the cause-effect relationship between mechanical damage to human tissue and abnormality that may result from it. In osteopathy, while both diagnosing or treating, doctors' hands remain the main operating tool.

In 2000 — 2010, in the Institute of Osteopathic Medicine (St.-Petersburg, Russia), while doing a number of complex experiment researches, we evaluated the prospects of osteopathy methods for diagnosing patients' condition, providing efficient rehabilitation and forecasting reeducation treatment efficiency in various somatic dysfunctions of early infants.

It has been proved that applying osteopathic treatment contributes to great improvement of the functional condition in infants with somatic dysfunctions as early as within 1-2 years after the treatment begins, especially at the age of 5-6. It can be seen in improving the infants' subjective state, in normalizing the activity indexes of the cardiovascular, digestive and musculoskeletal system, as well as neurological, logopedical and orthodontic status. It has been proved that the birth pathology factors, fetus status and the mother's condition in pregnancy play the leading role in the risk structure of somatic dysfunctions development (accounting for about 83% of the total dispersion), and this has to be taken into account when organizing the healthcare system for early infants.

In the course of osteopathic examination of 300 full-term infants under 3 years old with somatic dysfunctions, the most common pathologies were relocation or rotation of cervical vertebrae and hyoid bone as well as disturbances of SBS mobility, vomer or palate structure. We have discovered that, in infants with somatic dysfunctions, osteopathic indexes were directly connected with results of medical tests revealing the organism's func-

tional state, such as screening assessment of birth injury severity level (for cervical spine and spinal cord) or follow-up scale of psychomotor development. We have shown the role of clinico-physiological and functional indexes, including osteopathic ones, in the evolution of somatic dysfunctions with different severity, and in the choice of rehabilitation treatment programs for infants, aimed to increase their health level and general life quality. Following up both treatment programs (standard and osteopathic) we have acquired new data regarding functional state of cardiovascular system in early infants with somatic dysfunctions (boys and girls under 1 year old). Diversified correlation and factorial analysis has resulted in obtaining new data that allow better understanding of compensatory reactions in those infants. We have scientifically justified the utility of osteopathic treatment while correcting disturbances of their organism's functional state. We have also revealed main risk factors leading to the development of somatic dysfunctions; and formulated criteria and algorithm of forecasting somatic dysfunctions of different severity. Basing on this information we are now able to control, record and manage risks in different clinical cases; besides, these results can be very useful when elaborating general principles of healthcare for early infants. According to the results of our research, we can offer a range of valid indexes in osteopathic testing that can help diagnose functional state and optimize rehabilitation procedures in infants with somatic dysfunctions. In addition, we have formulated some guidelines about assessing and prospecting efficiency of rehabilitation treatment in early infants. Following these guidelines may greatly improve efficiency of prevention and treatment measures aimed to maintain and repair those infants' health [I. Egorova, 2008].

We have concluded that the nature and intensity of unfavorable functional changes in young organisms depend considerably on their age and somatotype. The most intense negative changes were observed in microsomatic and macrosomatic somatypes, against mesosomatic one. Among children of these somatypes there were

more frequent (1.5 to 2.0 times) complaints about disturbed sleep, lack of appetite and sucking troubles, more cases (1.5 to 1.7 times) of thorax deformation and posture troubles. Growth in infants of macrosomatic somatotype, against mesosomatic and microsomatic ones, was associated with more frequent apparition of such indexes as gross motor delay (1.5 to 1.6 times), manual skills delay (1.3 to 2.0 times), speech development delay (1.2 to 1.6 times) and social adaptation delay (1.7 to 2.3 times).

Disregarding the age and somatotype of children with somatic dysfunctions, their main neurological symptoms were: changed neuroreflex irritability (100% of the cases) and vegeto-visceral syndrome (100% of the cases). 100% of macrosomatic type children, in addition, manifested signs of hypertension syndrome, tongue deviation and perioral muscles tension.

While evaluating osteopathic status in early infants with somatic dysfunctions, those of macrosomatic type frequently had signs of C₂-C₃-C₄ vertebrae displacement (93 to 100% of cases), which is between 1.6-1.8 times ($p < 0,05$) and 1.8-3.0 times ($p < 0,05$) higher than in mesosomatic and microsomatic types, depending on the age group.

In mesosomatic children, disregarding their age, signs of limited mobility of the SBS were diagnosed in 80% to 100% of the cases; in macrosomatic ones in about 100% of the cases. Infants over 1 year old had gothic palate in 100% of the cases, independently of their somatotype. Signs of displaced occipital bone parts were diagnosed in 100% of the macrosomatic children and in between 76% (if under 1 year old) and 100% (if over 1 year old) microsomatic children. As for children of mesosomatic type, these signs tended to decrease with age (from 95 to 80% of the cases). Signs of displaced sacral segments also decreased with age in children of mesosomatic type (from 46% to 19% of the cases) and macrosomatic type (from 86% to 0% of the cases) but increased in microsomatic children (from 0% to 100% of the cases).

After 1 year of standard treatment, there was a slight progress in the functional state of early infants with somatic dysfunctions, especially in those belonging to mesosomatic type; however, serious progress was not revealed.

After 1 year of standard treatment, 100% of microsomatic type children had signs of sinus tachycardia and functional systolic murmur; functional oxygen saturation of blood represented 85%. In mesosomatic type children, signs of sinus tachycardia and functional systolic murmur were detected in 52% and 89% of the cases, respectively. After the treatment, disregarding somatotype, 90% to 100% of the children manifested signs of changed neuroreflex irritability and vegeto-visceral syndrome. Microsomatic type children, besides, manifested more intense signs of pyramidal insufficiency and tongue deviation. In all age groups of microsomatic type children, signs of delayed acquirement of manual and speech skills, as well as those of misbalanced mental development, were revealed in 100% of the cases. In mesosomatic group, signs of delayed gross motor and speech development were revealed in 100% of the cases, those of misbalanced mental development in 45-55% of the cases. 100% of microsomatic type children still had gothic pal-

ate and 67-75% had displaced sacral segments after 1 year treatment. In mesosomatic group, 33% of infants under 6 months old and 64% of children over 2 years old had signs of displaced sacral segments.

Mesosomatic type children receiving osteopathic treatment manifested considerable progresses in their condition after 1 year treatment, disregarding the age. These progresses consisted in improvement of subjective state (according to parents' complaints), of musculoskeletal and neurological status; normalization of cardiovascular indexes (lower heart rate, systolic blood pressure, pulse pressure and minute blood volume, no signs of functional systolic murmur or heart rhythm disturbance, 100% functional oxygen saturation of blood, decreased cranial pressure) and of osteopathic status (increased mobility of SBS and vomer, normalized palate structure, lesser displacement of occipital bone and sacral segments); improved psychomotor development (signs of normal or advanced development of gross motor and manual skills, speech and social adaptation), normalization of indexes revealing CNS functional state (lesser size of lateral ventricles VLS and VLD, of longitudinal cerebral fissure and of arachnoid cavity).

The results of our research prove greater efficiency of osteopathic diagnosing and treatment in early infants suffering from dysarthria, syndrome of cervical insufficiency, troubles of preverbal and speech development, stammering, sleep disturbances and syncopal states.

Children with dysarthria manifested substantial improvement according to Doppler test results on all studied levels: lesser asymmetry in the medial cerebral artery, posterior cerebral artery, vertebral artery and anterior cerebral artery, both on the transcranial level and in the vertebro-basilar system, even during speech tests; lower venous dyschemia in jugular veins. Functional activity of the brain was also improved, according to EEG results (greatly increased alpha-rhythm and its frequency, possibility to register alpha-rhythm in form of separate wave groups D = S above parieto-occipital lead; more frequent EEG signs revealing diffuse changes in mesencephalic stem structures and local changes above deep structures of the left temporal lobe). In children receiving standard treatment no improvement of this kind was discovered.

Osteopathic approach can be very efficient in removing pathobiomechanical causes of cervical insufficiency syndrome, by the way of restoring normal interrelation of cervical vertebrae and improving blood circulation in vertebral arteries. After 6 months of osteopathic treatment the above mentioned indexes were normalized in 85% of children and considerably improved in 15%. However, after standard treatment hemodynamic indexes deteriorated in 20% of the cases.

In cases of preverbal development troubles in 3 to 9 month-aged infants, caused by birth injury, the osteopathic approach can eliminate displacements of cervical vertebrae and hyoid bone that lead to hypotonic tongue and perioral muscles. This treatment helps accelerate the development of speech functions and avoid delayed preverbal development.

Osteopathic diagnosing can reveal SBS compressions, sutural dysfunctions in coronary and parieto-sphenoid sutures, as well as intraosseous lesions in sphenoid

noid and occipital bones. Detected lesions, associated with mentions about pathological labour or pregnancy and with discovered neurological symptoms (pyramidal insufficiency, muscular dystonia etc.) allow us to forecast children's alalias very early and with high probability. According to the research results, 2-3 weeks of osteopathic treatment contribute to twice faster speech function restoration (regression of neurological symptoms, increasing verbal and social activity, increasing global power of alpha and beta rhythms, decreasing activity of theta and delta rhythms).

Removing SBS compression and intraosseous sacral lesions is a good start for an efficient osteopathic treatment of stammering in children.

We have proved that birth injuries (especially intraosseous lesions of occipital bone and displacements of cervical and sacral vertebrae) is the main factor leading to blood and CSF circulation disturbances and sleep troubles in early infants. 1.5-2.5-month long osteopathic treatment (5-7 sessions once a week) has led to complete recovery in 57% of the cases and to improvement of the condition in 36% of the cases, which is more efficient than allopathic treatment.

Osteopathic correction of birth-associated dysbacteriosis in early infants helped to normalize intestinal microflora, to eliminate complaints and allergic reactions. In

case of 1st degree dysbacteriosis, the osteopathic treatment took about 40 days and the standard treatment about 95 days. In case of 2nd degree it took about 121 and 183 days, respectively.

The results of our research have proved higher efficiency of the osteopathic approach, which can be used to complete or replace traditional rehabilitation treatment of early infants' somatic dysfunctions.

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