

CONTEMPORARY STATE OF DOLPHIN THERAPY

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ABSTRACT — There is a survey of the literary and our own information concerning dolphin therapy in pediatric psychiatry and neurology. As a new method of rehabilitation to the contemporary children psychiatrists, dolphin therapy draws more and more attention rather of the parents of the sick children than the experts in this field. Owing to their persistence it has taken its considerable place among the auxiliary methods supplementing the complex therapy of infantile autism, psycho-organic disturbances, the backlogs of psycho-speech development, mental retardation and the other states. The authors voicing some doubts in validity of the therapeutic action of this method are not acquainted with the corresponding Russian literature. In process of the further humanization of psychiatry dolphin therapy will occupy a proper place among the ways of psycho-sensory integration of the developing brain as one of methods of animal therapy.

KEYWORDS — dolphin therapy, autism, mental retardation

Among the methods of animal therapy dolphin therapy is the second widespread method of rehabilitation of the patients of different age after hypotherapy (horse therapy). The attitude to it concerning the doctors and the parents of sick children fluctuates from «beliefs in a miracle» to the reproaches in the validity absence of its efficiency. The present article is an attempt to present an objective picture of the place of dolphin therapy in the rehabilitation process.

In 1960s the edition of the book of the American biologist John Lilli «People and Dolphins» has drawn attention of the world community. He proved that dolphins are our brothers as for intellect, even tried to teach them English. This book has generated a special tendency among some defenders of the wildlife nearly idolizing dolphins. But also it provided an opportunity to replace the utilitarian-pragmatic relation to these amazing animals promptly disappearing in the environment, with more careful one. Only in the Black Sea region (Bulgaria, Romania, Ukraine, Russia, Turkey) during the 20th century 5,5 million individuals of dolphins have been destroyed, basically for the cattle forage and for food (A.Berkin, S.Krivohazhin, 2007). Then the United Nations approved a convention, calling to put a ban for hunting of dolphins. Nevertheless in Turkey 20 years more they have been killed, and in

Japan and on Fiji Islands they kill them till now. Unfortunately, the indirect negative influence of the man on populations of dolphins proceeds: spreading of the fishing networks dangerous to dolphins; a destruction of a forage reserve at the expense of the excessive catch of fish; environment deterioration, including degradation of the ground biocoenosis. If these processes go with the same speed thus to the end of the century the dolphins will be necessary to bred in the artificial reservoirs.

The thought concerning the fact that communication with dolphins can have a medical effect, was also stated by Lille for the first time. It has had development and an attempt of a scientific substantiation in D. Natanson's works. In his works (Nathanson, D., 1980; 1989) he cited the examples with eight boys, suffering from some retardation of psycho-speech development as a result of the organic brain affection and oligophrenia. All the patients displayed speech accuracy considerably improved, especially the child with Down's syndrome. These first scientific investigations have generated a considerable number of imitations in different dolphinariums of the world.

Owing to the confluence of some factors Ukraine is a leader in the quantity of dolphinariums and their building abroad. The international recognition of this fact takes place. In 2008 in Odessa the international interdisciplinary congress «Sea Mammal of Golartika» was held. The leading experts of Ukraine, Russia, Canada, the USA, Japan, Finland, Denmark and other countries took part in it. The visit of the Odessa «Nemo», dolphinarium, the reports of L.N.Lukina (Sevastopol), A.P. Chuprikov (Kiev) devoted to dolphin therapy, have got the understanding and approval of the participants of the congress (B.Zhurid, 2008). At the annual meeting of the International academy of ecology (2011) in Kiev the report concerning the activity of dolphinariums of Ukraine has been approved.

In our country the priority in the field of using the therapeutic possibilities of dolphins belongs to the pediatricist, the Doctor of Medicine, professor L.N.Lukina who during the last 30 years has been conducted research work in the State oceanarium of the Ministry of Defence in Sevastopol where earlier the dolphins were trained for the participation in military operations.

The efficiency of dolphin therapy in many things was caused by the unique abilities of dolphins. They have developed the cognitive abilities and inquisitiveness. They possess a high degree of socialization that is

shown in a distinct zoo-hierarchy in the flock, allocation of the functions at the protection against sharks and hunting for fish. They concern the representatives of other kinds friendly, play with turtles, with other animals, and with the man.

The explanation of the benevolent relation of the dolphins to the person of A.J. Supin is known. The person is similar neither to any natural enemies of dolphins, or the object of hunting. That thing the person breathes air, the animals can define without the effort. From the point of view of a dolphin in water any person looks clumsy and helpless, as the sick relative who need to be supported: to push and keep him afloat. There was enough rare occurrences of rendering the assistance to the person so that the rumours concerning it widely spread all over the world, developing into the legends and myths.

In their communication the dolphins use various kinds of the sounds reminding squealing, crashing, trilling, clicking, clapping, and sometimes a roar, groaning and a howl. The sounds uttered by them, cover the unusually wide spectrum of frequency characteristics — from infrasonic to sound and ultrasonic ones. Their signals can be pulse and continuous. It is considered that for orientation the dolphins use lower and long (some milliseconds) signals, and for recognition — the signals of higher frequency. The pulse signals accompany echolocation. The skull and the soft tissues of the head concentrate sound fluctuations and play a part of some acoustic projector and a sound lens.

Though the brain of a dolphin is bigger than a human one, but the correlation of its weight to the weight of the dolphin's body is a bit less than such indicator observed at the person. The cortex has the more primitive structure, than the person's one - it has less layers of cells. The intellect of a dolphin has arisen in the water three-dimensional environment where the main meaningful image for it is a sound image, therefore the dolphin's brain is an ideal system, first of all for the reproduction and sound processing. They have sight developed worse. The ability to difficult behaviour and stability of the HNA are combined at dolphins with considerable inertness (Danduriant O., 2010).

It is considered that the dolphin's ability in pointed radiating the ultrasonic waves by its echolocator is an important component in medical value of dolphin therapy.

In the countries washed by the warm seas, the courses of sea bathing with the wild or tamed dolphins that come close to the shores from the high seas are popular. However the interaction with a dolphin in these cases is hardly operated and reminds thalassotherapy more, i.e. bathing in sea water.

In our country, in Crimea there are the dolphinariums working in a warm season where the animals are kept in the fenced part of the gulf. But they function strictly depending on the season and not for a long time. Besides, coastal sea waters both are essentially freshened, and dirtied by dumps of the industrial and household waste, therefore they are dangerous for the health of the dolphins. Keeping the dolphins in artificially organized environment (special pools), on the one hand, is rather costly production (a construction of a pool with a great volume of water, with power consumption and powerful filters, the acquisition of expensive fish etc.), on the other hand — it makes it possible to carry out dolphin therapy day and night, complying with standard conditions.

Dolphinariums in Ukraine usually carry out a commercial activity and receive incomes at the expense of the dramatized representations in which except dolphins fur seals, sea elephants, white whales participate. Dolphin therapy does not bring notable incomes, and sometime it is carried out at a loss to the owners, therefore its existence is an act of comprehension of the social responsibility and certain charity in relation to the children with special needs.

The maintenance of the dolphins makes the big demands to pool volume, a water chemical compound, its regular clarification, the high quality of sea fish which they eat, to a temperature mode. Such requirements should meet veterinary and ecological standards. Not less often than once a month each animal is surveyed by the veterinary surgeon.

All the employees of a dolphinarium having both a direct or indirect relation to dolphin therapy, should have medical books and pass corresponding medical examination in the target dates.

In dolphin therapy, the trainer of the animals having experience in social adaptation of animals usually participates in their education and training. The medical psychologist possessing knowledge in child psychology and pathopsychology, as a rule, is well acquainted in the behaviour of sea animals, and is able to supervise over them. The general control of dolphin therapy is carried out by the doctor having a specialization in the area of rehabilitology or medical psychology.

The trainer together with the veterinary surgeon determinate a state of the dolphin and its readiness for the carrying out the session of the dolphin therapy. In case of the prevalence of the motives in behaviour of the dolphin interfering its communication with children, for example, the aggressive behaviour, or sexual behaviour during the rut period; the animal is temporarily discharged of carrying out of the therapy sessions.

The main forms of interaction of a dolphin with the person in the dolphinarium in general can be described as follows.

1. **Controlled interaction.** The trainer directs a preliminary trained dolphin to the interaction with the patient by means of the corresponding stimuli, reinforcements and gestures. The fodder refreshment is the main motivational stimulus in establishing of the communicational relation a dolphin - a person and the maintenance of unconditioned reflexes by the methods of reinforcements and gestures.
2. **Active interaction.** One can find it less often and it looks like that: the dolphin shows the initiative to the interaction with the patient in the absence of stimulus and reinforcements. In this case the patient or the parents of the small patient can make the relations with a dolphin.
3. **The mixed type of interaction.** It can be met often. It looks as follows: It is enough to have small dose of food, the man's tender stroking and the dolphin hastens to execute and exceed a task in view. They treat the children with tenderness and keenness and in general not like adults; they are more interested in women in men. Dolphins are very attentive to pregnant women. Occasionally dolphins show the aversion of separate individuals and float with them with an obvious reluctance i.e. in the operated interaction the dolphin introduces its attitude to the concrete person.

To provide a productive contact of the dolphin with the child appeared to be a problem of the medical psychologist. Work experience of the Centre of dolphin therapy «Nemo» shows that the medical psychologist in this case should use the methods of behavioural, game, corporally focused and art therapies. The psychologist can stimulate the displays of adaptive behaviour of the child in and outside the pool, fix and encourage the constructive models of behaviour. Individually selected complex of exercises is usually directed to the development of motor, sensory and informative spheres of the child. Exercises are offered in the game form and carried out together with a dolphin that actively joins in their performance. The majority of children with physical and mental problems have violent notions about their own body and sensations of space. The water part of the session including a tactile contact with a dolphin during swimming and the fulfilment of the certain motor problems, promotes more complete comprehension of his body by the child, an orientation improvement in space and sensorimotor correction (according to Chuprikov A.P., Vasilevskaia N.J. and co-authors 2008).

When the talk turns to the validity of the therapeutic effect of dolphin therapy, thus as a rule, one quotes T.-L. Khamphris (2003) or F.Breiks and K. Uiliamson (2007) who doubt its medical utility. It is necessary to consider that some publications proceed from the «defenders of dolphins» who heatedly demand «to set the dolphins free from prisons» that are artificial pools. Other authors, trying to generalize the publications about dolphin therapy with some criticism, are not acquainted with domestic works in this direction and, first of all, with L.N. Lukina's monography (2007) and her thesis for the doctor's degree (1994), who was the chief of the laboratory of the medical and rehabilitation dolphin therapy of the State oceanarium in Sevastopol. The clinical researches conducted by her involving 2500 patients of the different age, suffering from psychological disorders. Almost 315 healthy people were under control too. They used like the patients, thalassotherapy (bathings in sea water). Except the fixation of the clinical (including clinically-psychopathological ones) data, the patients were observed with the means of the psychophysiological techniques and psychological tests. The groups of the surveyed people consisted of the persons with a syndrome of chronic weariness (80 people), the children with neurotic disturbances (530 people), the children with autism (173 people), children and teenagers from the areas of ecological disaster (357 people), children suffering from the consequences of the cerebral spastic infantile paralysis (135 people) and the other groups. It is possible to tell that according to the volume of the clinically-laboratory researches, the received data and conclusion persuasiveness of the L.N. Lukina's work and her employees are unique and, discussing dolphin therapy, we seem, they should not be neglected.

In Evpatoria dolphinarium, which since 1999 appeared to be a base of the Ukrainian of Research institute of science of children balneology and physiotherapy, the works under the program confirmed by Ministry of Health of Ukraine are carried out; 256 children have been treated. The obvious improvement in the state of health is registered at 17% of children; an appreciable improvement of the state of health is noted more than at 80%; the quantity of children who were not observed to display any effect, has made only 2% (Fedorov A.F., Zhbanov A.V., Kozunova R. O, 2010).

In dolphinariums «Nemo» as for the reports of trainers and psychologists the improvement of different degree fluctuates from 75 to 82%. However, as a result of processing by the method of the content-analysis of the journals supervisions over the children during and after the sessions of dolphin therapy which

were conducted not by the employees of the dolphinarium, but the children's parents. The share of positive effects has decreased by 12–14% that, in our opinion, reflected psychology of the parents and their high expectations from the conducted therapy. Parents noted that the communication improvement was peculiar to 60% of children. Thus almost a third of the children were observed by the parents to have an occurrence of new sounds, syllables, words and word combinations. The child starts to initiate a contact with the other children, shows a desire to play with them. The understanding of the directed speech also improves. Many children slept at night better, and some began to fall asleep for the first time in the afternoon.

G.V. Manzhosova (2008) at the Institute of the man's brain of the Russian Academy of Sciences has carried out a psycho-physiological investigation of children after swimming with dolphins. It has appeared that 54% of children had an attention improvement to be noted, 52% — an uneasiness decrease, almost everyone shown an increase of the level of the corporal comfort. During a session excitation fell down, children calmed down.

As the experts of different dolphinariums got the results close in the psycho-pathological content in treatment of the different clinical states so, they have been generalized in the information letter of the Ministry of Health of Ukraine «Dolphin therapy in child psychiatry» (2009).

Infantile autism. Owing to that the most widespread standards of treatment often yield insignificant results at this disorder, bathing with dolphins is quite popular among the parents of sick children, and first of all owing to the evidence of positive shifts in the child's behavior in the end of treatment course. On the first lessons one can often notice the protest forms of behavior both on a scaffold, and out of it. In most cases they come to the end till the third-fourth visiting and the child is actively involved in a game and swimming with a dolphin. It was noticed that a rough protest reactions (shouts, crying, escape) correlate with the advancements in development of speech activity, up to the occurrence of some new words or offers. The most surprising for parents is occurrence so-called «eye contact» when the child, earlier avoiding to look in the face, ceases to avoid it, looks in the face surrounding with an open sight. It means essential positive shift in communications with an external world, possibilities of perception of the various information from which the child has been fenced off by an aversion wall. As a rule, children become quieter, more friendly, at them nonverbal communications improve, at them appetite improves, they start to sleep for the first time in the

afternoon and is deeper, and sleep at night longer. In some cases the positive effect appears only the treatment second year.

A contra-indication appeared to be a complication of infantile autism by disintegrative mental disturbances with odd, uneven behaviour.

Dolphin therapy can be carried out on the background of the pharmacological treatment earlier selected; it can be combined with the pneumomassage, game psychotherapy.

Syndrome of hyperactivity. The given disorder is rather widespread among the children with the signs of the so-called minimum brain dysfunction which origin has pre- and perinatal roots with a certain dose of the hereditary factor. They are easier involved in a game with dolphins, concern the water immersion more easy as well. Such children become quieter; impulsiveness falls or disappears, the movements become more conscious and dedicated. For the first time such children are observed to have assiduity and concentration elements.

Mental retardation. Children with mental retardation of different origin (organic, chromosomal, mixed genesis) are involved in dolphin therapy rather easily. Under its influence ingenuity considerably improves, their ability to socialization increases as well. Probably, this way it is possible to explain an influx of parents with children, suffering from Down's syndrome in dolphinariums. The children with apathy, exhaustion and asthenia prevalence in behaviour become more lively, vigorous and more active. The children with some erectile dysfunction and excessive mobility become quieter, and their behaviour — is more ordered. The children with a light degree of mental retardation show great successes, than the children with deeper forms of mental retardation.

Neuroses. Among the neurotized children taking treatment of dolphin therapy, show the uneasiness and aggression decrease; fears, and also the day and night enuresis disappear. The children having logoneurosis were noted to show some improvement of the speech motility, especially when besides dolphin therapy, the lessons with the logopedist were conducted. The children and teenagers with subdepressive symptoms were observed to have an improvement of indicators of projective tests-drawings; the choice of colour shifted the accent to the bright and cheerful ones. Phobias, first of all of the reactive origin, either decreased, or disappeared absolutely.

Cerebral spastic infantile paralysis and other statokinetic disorders. Considerable experience of the

dolphin therapy application at the given disorder has been generalized in A.G.Smolianinov's publications (2009, 2011). More often he prefers to involve the participation of the child in groups (that, by the way, reduces the cost of the lessons). Together with A. Vanchova (Slovakia) he considers that a participation in dolphin therapy sessions of the group of children and also their parents at the same time creates many stimuli of informative, communicative, emotional and social character. It influences the results of training, intellectual development and the socialization of the child. According to supervision of biologist S. Gontar, the dolphin works the better, than more children are in a circle of its game. The presence of the parents at this creates an original «safety zone» and psychological comfort for the child with motility disorders. During a session of dolphin therapy such children with motility disturbances carry out the tasks and exercises of kinesiotherapy. It leads to the balancing of the muscular tone (especially at the hyperkinetic form) that is expressed in the form of the movement changes peculiar to the child towards an accuracy improvement, and also an expansion of the range of the performed actions; speech improves at the same time.

A contraindication for the dolphin therapy appeared to be epilepsy or epileptiform states the child has. It is connected not only with some danger of bathing in water for such children, but also with that dolphin therapy as the psycho-stimulating factor, is capable to strengthen convulsive readiness and to provoke attacks from time to time. It is only possible to hail that in some dolphinariums the children are permitted to swim with dolphins if there are the results of electroencephalography.

The price of the course of dolphin therapy sessions is rather high and many families are unable to pay it. Though, by the way, in the USA, the price is higher in 10–15 times and consequently it is also not accessible to all the Americans. The exit from this situation can be only one – the society should pay for bathing of the children-invalids. As an example of that we can consider Moscow where it has been carried out by the mayor for many years. In Donetsk some part of cost for bathing is incurred by welfare funds. Dolphinariums «Nemo» (Kiev–Kharkov–Odessa–Donetsk) practise 20% reduction of price from November till April. Also, by the way, in Odessa only for one year it has been distributed about 10000 free tickets among the children from orphanhoods and pupils. As well as in dolphinariums the children visit so-called terrariums where various reptiles, fish of the southern seas and a collection of insects are contained.

About advertising of dolphin therapy. In the Internet there are different announcements of miracle

consequences of bathing with dolphins — up to the recovery from autism and cancer. In our opinion, it is an example of the unfair advertising which can not be provided by those collectives that really value their authority. Here it is necessary to tell that separate statements in mass-media concerning the requirements for the interdiction of the keeping the dolphins in the artificial pools and bathing the sick children in them, i.e. an anti-advertising, lead to the opposite effect: the popularity of this kind of rehabilitation grows, and a waiting list of the people who want to get to the dolphinarium becomes longer. Besides, among the defenders of the nature there is no the complete unanimity concerning this question. Recently it was reported that the ambassador of one of the largest European zoo-protective organizations — ETN his royal highness princess Maya von Gogenzollern (Germany), sponsoring the program for the children suffering from oncological disease «Fulfil the Last Wish of Hopelessly Sick Child», has taken the group of sick children to Spain where they completed a course of dolphin therapy (ZN.UA №43 from 26.11. 2011).

Abroad in the last 15 years the statements specifying the possibility of using the effective and economically defensible alternatives of the dolphin therapy (Lukina L.N., 2007) have been published. It is offered to use the pulse ultrasonic generators with the action reproduction of the dolphin biocholorator, or the form simulating the wider spectrum of sensory impressions from dolphin therapy (S. Birch, 2001; and others). B. Natanson (1989) suggest to use the water neurophone producing the sounds of dolphins for the deaf and blind patients. It is necessary to tell that among the persons, using such kind of devices, those ones who had earlier some experience of communication with live dolphins, positively speak of their mood and state of health, and those ones who had no such experience, spoke only about a sensation of some relaxation. Today in many child hospitals in Ukraine there are the so-called «sensory rooms» in which the child receives colourful visual, acoustic, tactile and olfactory impressions. Our experience in using the records of sounds produced by dolphins for preschool children in a sensory room has shown that it could not be a complete alternative of dolphinarium visiting, but nevertheless, it enriches the sensory room with the new effective factor, and the children become calm. The mothers of children, who were present at the sensory rooms, clearly spoke about some relaxed state after the end of the session. Probably, that in the process of perfection of the radiators of the sound records produced by cetaceans, it is possible to expect their distribution and introduction in the rehabilitation practice.

Thus, today dolphin therapy is a popular kind of animal therapy all over the world, that provoke various discussions at times. At the careful and benevolent relation to the dolphins that were noted down to the Red book, they can live in artificial reservoirs for a long time and breed. The latter one is the evidence of their nervously-corporal comfort. If thus we manage to use their ability for the children's health recovery it, in our opinion, justifies those inconveniences which the animals can experience at this. Owing to the popularity of the dolphin therapy sessions and the other kinds of animal therapy among the parents of the sick children a necessity of integration of the medical science and practice in this field of knowledge has been about to happen. Today the optimal thing is considered when the doctor heads the centre of the dolphin therapy or work in it as a consultant. Then this kind of rehabilitation appears as one of the components of the series of measures towards the restoration of the normal course of the child's psychological development. Possibly, that time to strengthen a medical control over the dolphin therapy realization and its conformity to the standards and requirements of the Ministry of Health of Ukraine has come.

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