

Consciousness-guided space-time structuring  
active environment (neurophysiological studies)

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Human consciousness, according to legends that have come down to us from the depths of millennia, may have properties that modern researchers began to pay attention to, defining them as unusual phenomena of clairvoyance, telepathy, telekinesis, materialization, the liberation of consciousness from the body, etc.

For their study and as a result of this study in the field of neurophysiology and other brain sciences, a scientific worldview began to develop, changing the researcher's views on the paradigm "matter is primary, and consciousness is secondary" and allowing him to consider the properties of consciousness as a subject for specific experimental research. In the early 90s, at a scientific conference in Moscow at the Institute of Higher Nervous Activity and Neurophysiology of the Academy of Sciences of the USSR, which was held under the title "Consciousness as a problem of physiology of human higher nervous activity", for the first time neurophysiologists were given the task of studying the consciousness, subconsciousness and superconsciousness of a person ... The director of the institute, academician, professor P.V. Simonov [1] then gave the basic definitions,

Studies of brain activity in individuals with unusual healing abilities, as well as in individuals with certain meditation techniques, carried out at the FNECC TMDL MH, have revealed previously unknown types of brain activity accompanying unusual properties of consciousness. We are talking about the possibility of manifestation of consciousness as a physical reality in the form of a thought-controlled ability of the spatio-temporal structuring of the active environment (possibly the field) of the brain as a whole. These phenomena are found during meditative and hypnotic states of consciousness or during healing. They represent a kind of concentration in the depths of the brain of energy sources that generate surface bioelectric potentials and are distributed in the form of a "screen", "ray", "tunnel" depending on the type of activity chosen by the meditating subject.

Studies of operators' meditation states conducted earlier at the Institute of Brain of the Russian Academy of Medical Sciences showed a redistribution of the spectral power of the rhythms of bioelectric activity and an expansion of the zones of representation in the cerebral cortex of evoked potentials in response to peripheral stimuli.

The results obtained allowed prof. N.N. Lyubimov, head. laboratory of neurocybernetics, to conclude that the use of programs of mental techniques - Transcendental Meditation and TM-Sidhi - is accompanied in a person by an improvement in the perception of stimuli, improved intuition, analysis of stimuli and improvement of locomotor acts, which is associated with the mobilization of hidden reserves of the human brain. These were some of the first positive results in the study of altered states of consciousness in our country [2].

However, these works have not yet revealed the physical reality of the properties of consciousness. In them, a person's conscious activity was determined indirectly, through neural activity that forms evoked potentials on the surface of the head, i.e. in a previously known manner.

The physical properties considered in this study and discovered in various altered states of consciousness and in different participants are of a different nature.

An altered state of consciousness is a state of a special orientation and concentration of attention, a change in the function of handling attention with its special concentration on objects of the external or internal world or aspects of the relationship of individual objects of the external or internal world.

The currently widely accepted term "altered state of consciousness" is used to assess a state that differs from normal wakefulness and can occur under certain conditions or certain influences. For example, a hypnotic state of consciousness, meditative consciousness, a state of "leaving the consciousness out of the body" or "out-of-body experience". The latter, perhaps, is a key concept for the development of ideas about clairvoyance, telepathy, pro- and retroscopy, etc. It is assumed that this phenomenon can occur spontaneously, more likely during sleep, but it can also be caused with the help of special meditative techniques or hypnosis ...

The work examines the processes in the brain that develop during altered states of consciousness. Three types of preparation are distinguished: meditation on the "ray" emanating from the center of the forehead; meditation on the "inner screen"; hypnotic state of consciousness with "out-of-body experience". The main criterion for assessing the achieved state was self-reports of the subjects and the emergence of certain patterns in the form of changes in the biorhythms of the brain and unusual spatio-temporal localization in the deep structures of the sources of origin of these biorhythms.

As the most adequate methods for obtaining objective data, neurophysiological methods of registration with the use of modern computer complexes and programs for processing and converting brain signals were selected.

## METHOD

The research involved persons who knew the methods of meditation and persons in a hypnotic state of consciousness. For comparison, the biopotentials of the brain were recorded in the waking state with mental and muscle relaxation.

Thus, the following research groups participated in the work:

- a group of people who know the methods of meditation on the "energy ray",  
emanating from the center of the forehead;
- a group of people who know the methods of meditation on the "inner screen";
- a group of subjects with whom hypnosis sessions were conducted with getting "out-of-body experience";
- the control group in a state of wakefulness and drowsiness. Registration was performed on a 16-channel neurocartograph using standard monopolar leads in accordance with the internationally accepted 10-20% scheme.

The main purpose of processing the registration data was to compare the self-reports of the subjects, the patterns observed in the brain rhythms, and the localization of the dipole sources responsible for the origin of these patterns.

Along with a visual assessment of the dynamics of brain activity, a study of the distributions - mapping on the surface of the head - of the spectral power of individual oscillation frequencies of biopotentials in the delta ranges of 0.1 ... 3 Hz was carried out; theta - 4 ... 6 Hz; alpha - 7 ... 13 Hz; beta1 - 1 ... 4 Hz; beta2 - 21 ... 32 Hz.

In the present study, we used the possibilities of localizing the sources of origin of surface bioelectric activity in the deep structures of the brain. The localization of the centers of electrical activity in the form of equivalent dipole current sources calculated at each time point equal to the discrete interval of the data input into the computer was determined and monitored in the volume of the human brain. The program was used to trace the paths of movement of centers of electrical activity in the structures of the brain in various states of consciousness. In this case, the question of the correspondence of the localization of sources in the deep structures of the brain to the bioelectric activity that was recorded on the surface of the scalp was solved by a special algorithm [3, 4], which calculates the location of the source of far-field biopotentials in the brain,

## RESULTS

The manifestation of consciousness as a physical reality in the thought-driven spatial-temporal structuring of the active environment of the brain was confirmed by observations with different conditions for entering altered states of consciousness and different effects of their implementation.

As a baseline data for subsequent comparison, we used the results of processing data from a control group of apparently healthy individuals in a state of wakefulness and normal drowsiness. In the control group, the usual drowsy state is accompanied by the disappearance of the alpha rhythm, starting from the occipital leads, and an increase in the slow-wave activity of theta and delta ranges. The distribution of dipole sources is diffuse, local points of origin of surface bioelectric activity are either scattered throughout the entire brain volume, or concentrated mainly in the systems of ascending activation of the brainstem and diencephalic structures. A different picture is observed in the process of specific management activities

a state of consciousness.

In the first group, they meditated on the image of an "energy ray" emanating from the center of the forehead and further forward. Successive attempts to construct the ray were accompanied by changes in the background (basic) bioelectric activity of the brain, characteristic of normal wakefulness, and the occurrence of periods of regular high-amplitude and slower rhythm in the anterior regions. cerebral cortex. Also, sequentially, in accordance with the periods of altered, slower rhythms on the distribution maps of dipole sources, dynamic images were unfolded in the form of a "cloud" concentration in the anterior parts of the brain, first mainly in the left hemisphere, then with a transition to the right, then "screen", then separate phases of the "tunnel", which were held for several seconds. Finally, according to the self-report of the meditator, a "tunnel" was formed, and the dipole sources lined up in a channel - a "beam" directed towards the forehead and, possibly, beyond it. All these processes occurred as a result of targeted directed effort, accompanied by concentration of attention on the image of the ray and the implementation of special meditative techniques. In this case, the distribution of sources of bioelectric activity corresponded to the image of meditation - the image of a ray. It should also be noted that the concentration of dipole sources shifted to the interhemispheric region of the anterior region and could not be associated with the activity of neural networks in adjacent areas of the brain, since neural networks operate according to other neurodynamic laws. In addition, the teaching and practice of playing with energy rays in schools for training meditation techniques has shown that this image extends beyond the brain, The experiment and registration of the "beam" were reproduced in one of the subjects six times on different days. In different individuals, the formation of the "beam" varied in the speed and clarity of reproduction and the duration of holding.

Meditation on the visual image of the "screen" in persons trained in alternative vision, i.e. vision with closed or blindfolded eyes may be accompanied by increased regularity and amplitude, both alpha and slower activity in the occipital regions, which correspond to the visual cortex. In the process of meditation on the images of the "screen" there is a spatio-temporal concentration of dipole sources in the occipital (visual) areas of the cortex, both in the left and in the right hemispheres, with a shift to the interhemispheric region in the form of a column of structured energy rising to the surface of the cerebral cortex. In the normal state of wakefulness without meditation, the spatio-temporal distribution of dipole sources is, as a rule, scattered.

The most striking phenomena of altered states of consciousness are also observed in the somnambulistic phase of hypnosis, the study of which has attracted the attention of researchers in recent years. At the same time, the stages in the development of hypnosis, established 100 years ago by the classics of hypnotism, are, as it were, taken out of the brackets. This is not accidental: in the description of stages, an internal contradiction is hidden, as, probably, in all phenomena of altered states of consciousness. The subject is introduced into a certain state through a sequential restriction

degrees of activity, passing in the case of hypnosis - the arc of the continuum of sleep-wakefulness, and on the other hand, with further deepening of the state, it may appear both in deep sleep and in a state reminiscent of ecstatic overwakefulness with a large energy and emotional charge and a heuristic nature.

In the process of hypnosis with the participation of a psychotherapist (N.I. Oleinikova, Ph.D.) or under the influence of the distant influence of a healer (V, V, Glushenko), transitional stages of the hypnotic state of consciousness were observed, but this work considers only the stages of doubt with the transition to somnambulistic, accompanied by vivid figurative visions. A feature of these visions is the distortion of images and self-perceptions in time and space. It can be the world of the past or the future, the world of flatheads, the world with telepathic communication with its inhabitants, etc. On the maps of the power distribution of the biorhythms of the cerebral cortex, these stages of hypnosis are characterized by the successive disappearance of the alpha rhythm, starting from the occipital regions, and the development of low-frequency activity in theta and delta ranges. At the same time, against the background of low-amplitude slow waves, bursts of positive-negative polarity are observed, having the highest amplitude in the median parietal-central lead Cz. The same changes in the bioelectrical activity of the brain were observed by Michael Winkelman and M.A. Cooperstein, accompanied by an increase in interhemispheric interaction and an increase in specific power spectra, which, according to the authors, may be related to the supposed action of healers or psi phenomena [7].

However, additional studies have shown that the spatio-temporal distribution of dipole sources corresponding to the bursts of waves of positive-negative polarity has features in the form of their concentration in the form of a kind of column emanating from the rostral parts of the brain stem and directed to the surface of the head in the region of the crown (vertex). It should also be noted that the formation of this column occurs mainly in the interhemispheric region.

The maximum concentration of the energy of the biorhythms of the brain in the area that controls the activation of consciousness is apparently associated with the involvement of the brain activity in the process of transformation, which is necessary for the manifestation of hidden, not yet realized possibilities of awareness. The apparent inhibited state of the cortical regions of the brain is most likely a favorable background for the reorganization of certain functions and connections of the brain. It is possible that this transition means the state of readiness of the brain for such a transformation of activity, which makes it possible to realize the possibilities of consciousness that are not manifested in ordinary conditions, associated with the opening of alternative channels of perception and transmission of information. At the same time, the phenomenon of "exit of consciousness from the body", or "exteriority", as a result of energetic structuring and physical transformations, is not excluded.

## CONCLUSION

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Specific changes biopotentials are consequence certain psychophysical activity of the brain, controlled in altered states of consciousness and aimed at functional structuring of the spatio-temporal distribution of energy sources in the brain.

The processes of functional structuring differ depending on the type of meditation, hypnosis, or an induced change in the state of consciousness. It is not excluded that the concentration of the distribution of sources in a certain way can be a psychoenergetic resource for the emergence of such phenomena as "the exit of psychophysical energy" or "the exit of consciousness from the body."

The discovery of the property of human consciousness to transform into some physical reality, controlled by thought, is one of the key moments that allows us to reconsider from a new, different than before, point of view, possible ways of developing objective studies of consciousness.

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Koekina, O. I. Consciousness-controlled spatio-temporal structuring of the active environment (neurophysiological research) / O.I. Koekina // Traditional Medicine. - 2003. - No. 1 (1). - S.55-59.

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