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**PATHOPHYSIOLOGICAL MECHANISMS OF MOVEMENT DISTURBANCES AMONG
PERSONS, SUBJECTED TO THE IONIZING RADIATION AS A RESULT OF THE CHERNOBYL
ACCIDENT**

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Clinical and neurophysiological investigations were performed in 75 Chernobyl NPP accident consequences cleaning-up participants (ChNNP ACCP) 1986-1987, all - men in age from 25 till 56 years, irradiated in doses from 0,05 to 4 Sv. Control group consist of 25 healthy individuals. The algorithm of neurophysiological examination was created to test functional state of different levels of the efferent (movement) system and consist of: 1) electroneuromyography (median nerve motor (M-response) and sensory evoked potentials, H-reflex parameters, motor and sensory median and ischiadicus nervous conduction velocities); 2) computerized EEG; 3) nervous system evoked potentials study - brainstem auditory evoked potentials (BAEP), pattern reversible visual evoked potentials (PRVEP), somatosensory evoked potentials (SSEP). Neurophysiological investigations were performed on "Multibasis" apparatus of "ESAOTE Biomedica" (Italy) and computerized 19-channel EEG apparatus "Brain Surveyor", SAICO (Italy). Statistical analysis was carried out with the help of programs Excel 4.0a and Statistica 4.3.

Pathology of movement system was clinically presented by encephalopathies with asthenic and autonomic disturbances with neurological syndromes of extrapyramidal, pyramidal and vestibular-cerebellar insufficiency. Main results of neurophysiological examinations in irradiated persons were as follows: 1) motor and sensory evoked potentials amplitude decrease, spinal -motoneurons excitability intense disturbances; 2) brain electric activity intense disturbances (E.A. Zhirmunskaya's (1991) EEG integral coefficient of deviation was 10,640,34); 3) BAEP amplitude decrease, BAEP peak and interpeak latencies increase; 4) decrease of latencies and increase of amplitude of P PRVEP component, as well as PRVEP late components characteristic deformation; 5) increase of latencies and decrease of amplitude of N and P SSEP components.

²⁰ According to obtained neurophysiological results main pathophysiological mechanisms of movement disturbances among ChNNP ACCP are as follows.

1. Disturbances of the excitability of the peripheral motor neurons stipulated by infringement of physiological suprasegmental and peripheral influences motivate as a pathophysiological basis of realization of movement pathology.

2. Pathological peripheral influences on the spinal motor neurons are stipulated by vegetative-trophical disturbances.

3. Pathological suprasegmental descending influences are motivated by structural and functional faults of supreme movement centers - the most characteristic among them are as follows: intense oppression of pontine and mesencephalic reticular formation; intensification of activity of specific and non-specific thalamic structures or their irritation; striatal nucleuses activity fault; oppression of the cortical activity.

4. Fault of perception and processing of somato-sensory information by afferent systems (that control activity of efferent systems) is one of the pathophysiological mechanisms of movement disturbances.

Disturbances of functional state of brainstem structures as well as intense peripheral autonomic and trophical disturbances revealed in ChNNP ACCP may play an important role in organic asthenic disorders pathogenesis. A decrease of maximal amplitude of M-response seems to be one of the objective neurophysiological criteria of organic asthenic disorders in irradiated persons.