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PESTICIDE POISONING AS A FACTOR OF SEIZURE AND EPILEPSY DEVELOPMENT

Epilepsy is one of the most frequent human chronic neurological pathology accompanied by recurrent seizures. ILAE defines an epileptic seizure as “a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain”. Such abnormal neurone activity without the proper treatment can lead to cognitive deterioration and motor disabilities, neurodegeneration of brain tissues and even to death.

Today among the etiological factors nerve tissue malformations, encephalomas, craniocerebral injuries, blood-strokes, metabolic disorder complications, drug abuse, infections, hereditary factors are noted. Also exposure to toxins has a considerable impact on formation of epileptic focus or on brain activity increase.

Among the main groups of toxins, which are able to cause epileptic fits, we can highlight pesticides, chemical warfare agents, industrial chemicals, plant and animal toxins. What concerns the development of seizures and epilepsy**,** the particular interest is acute and chronic pesticide poisoning.

Such pesticides as thiophos, sevin, chlorpyrifos can inhibit an enzyme called acetyl cholinesterase. Their actions lead to hyperstimulation of cholinergic synapse in brain. Hyperstimulation of postsynaptic muscarine acetylcholine receptor causes increased glutamate exudation. Surexcitation of its receptors leads to neuropathological changes, which cause epileptiform activity in formed focus.

A focus can be formed in different centres of brain: cerebral cortex, hippocampus, thalamus and amygdala. Other pesticides, such as DDT, permethrin, fenvalerate are able to increase the activity of potentially dependent natrium channels, that increases neutron excitability. Such pesticides during poisoning can increase seizure activity of the brain and lead to convulsive seizure in healthy individuals. Entering the nervous tissue, pesticides of group 3 such as aacyclo, endosulfane, strychnine slow down inhibitory facilities. It leads to disinhibition of many neuron chains, that causes epileptic fit.

So, many pesticides which are used today can lead either to the formation of single seizures or to epilepsy due to chronic poisoning. Taking into considerarion the active processes of neurogenesis in young brain, such poisonings are dangerous especially for children.