



NEUROTOXICAL INJURIES OF WORKERS IN PROFESSIONAL CONTACT WITH HEAVY METALS

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The gradually, symptomless beginning, atypical course, attenuated clinical picture is a characteristic sign of professional diseases today. The first stages and often the whole course of the chronic poisoning with heavy metals are represented mainly by neurological symptoms.

The aim of our investigation is the establishment of early pathological changes in the peripheral nervous system, peripheral microcirculation and central nervous system of workers in professional contact with lead and aluminium aerosols.

We have investigated 110 workers exposed to Pb and Al aerosols with mean duration of the length of service of 10 years and mean age of 41,6 years. Depending on the specific length of service 3 basic groups are made: I group - length of service up to 5 years - 28 workers (25,4%); II group - length of service from 5 to 10 years - 35 workers (31,8%) and III group - length of service more than 10 years - 47 workers (42,7%).

The subjects were divided in two professional groups: I group - smelters - 25 (50%), and II group - fitters - 25 (50%).

The investigation was performed on the plant. We have examined the following parameters: professional history, clinical somatic and neurologic status, functional-vegetovasal status and local status of the upper extremities. The results were compared with these of the control group with the same age and without contact with heavy metals. The results were statistically processed.

We have found the presence of risk but not specific subjective symptoms represented mainly by neurasthenic and vegeto-sensor symptoms.

Complaints of shivering of the upper extremities - 18 (33,9%), pain in the wrist, palms and fingers - 15 (28,3%), weakness and emotional irritability - 16 (30,2%) are among workers with contact of Pb with highest frequency. Among workers in contact with Al-aerosols with highest frequency are the complaints of headache - 12 (21%), emotional lability and irritability - 8 (14%), pain and shivering in the wrists, palms, and fingers - 7 (12,3%).

The objective neurological investigation established the presence of hypaesthesia from distal type for superficial sensitivity in 14 workers (26,4%) in lead-contact and hyperaesthesia in 8 workers (15%), increased tendal and osseous reflexes in 10 workers (18,9%), digital tremor (5,6%). The objective changes in the neurological status were with higher frequency among workers with length of service more that 10 years.

Among workers in contact with Al-aerosols in 10 workers (17,5%) was established hypaesthesia from distal type for superficial sensousness, hyperaesthesia in 6 (10,5%), hyperreflexia (14%), digital tremor (22,8%).

We have observed trophical changes of the hand in 43,63% and hyperhydrosis in 29,8%. The functional investigation of the vegetative nervous system established hypothermy in 24,5% and prolonged recovery of skin temperature at cold stress in 43,3%. In the basic groups we have found expressed peripheral vasospasm in 33,9% - more expressed among fitters with length of service more than 5 years.

The results allow the differentiation of diagnostic constellations on the basis of discrete diversions in the vegeto-vasal status, polyneuritic syndrome in combination with diversions in the toxicological indices, relatively specific under the influence of lead and aluminium aerosols.

The stage of the neurotoxic influence is in direct correlation with the concentration of the lead and aluminium aerosols and the length of service.

The results of the investigation objectify the neurotoxic influence of the lead and aluminium compounds in early and preclinical stages of injury of the risk contingents.

Future direction of this investigation is the influence of heavy metals on the mnesitic functions of man.