

REPRODUCTION IN FAMILIES OF WORKERS EXPOSED TO 2,4,5-T INTOXICATION

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At present we have accumulated certain material related to a wide biological i.e. immuno-toxic, theratogenic, cancerogenic, phyto and embrio toxic, mutagenic and other dioxine effects on laboratory animals, while reliable data on the above effects on human beings have not been available. The question of dioxine danger to man is still open. We assume that mutagenic, phyto toxic, embriotoxic dioxine effects are to influence the reproduction function of humans exposed to dioxine, as well as their off-spings. This kind of supertoxicant may affect man's reproductive functions. The functional system of "mother-embrio-newborn" is most sensitive to environment. A pregnant woman's body responses to toxicant danger by a greater number of threatened abortions, spontaneous abortions, premature labours, inborn development deviations, etc.

We have carried out a research into the reproductive function, quantitative and qualitative features of production parameters, effects on the embrio and babies health in the cohort of people who in the past, 30 years ago, were exposed to 2,4,5-T and affected by intoxication on the Ufa "Chimprom" plant production area. The mean age of those affected is 21.5 ± 1.5 . The in-

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vestigation was performed by interviewing families and analysing their medical documentation whenever necessary.

415 cases of pregnancies were discovered in 100 female patients within the whole period of their reproductive life, which amounts to 4.2 pregnancies per woman, 47.7% of the conceived babies were delivered, 5.9% were lost as a result of spontaneous abortions, 46.7% - were aborted. It turned out that 33.2% of all pregnancies ended in labours during the pre-2,4,5-T contact period, i.e. before the male in question started working in the herbicide production shop. The majority of the pregnancies that occurred in the pre-2,4,5-T contact period resolved in births, which is only natural, since they had been first and, as a rule, welcome pregnancies.

The reproductive function analyses, carried out during chloracne period and after the intoxication exposure, demonstrated that 96.7% of the victims' wives conceived. Two families were discovered to be barren: their husbands had been affected by intoxication. One of them, an apparatus operator, had been contacting 2,4,5-T during 2 years before he reached his 30 years career at "Chimprom" plant. He was affected by chloracne in 1966 and had three childless marriages. The other instant is a woman, laboratory assistant, who had worked in the above shop 2 years, and had been at the plant 16 years. She conceived 4 times. 3 pregnancies ended in spontaneous abortions and one ended in a medical abortion for health reasons. Both the workers, affected by intoxication in 1966, have developed arteriosclerosis complicated by brain and heart affects, blood hypertension, discirculatory encephalopathy, gastritis, pancreopathy.

316 pregnancies per 100 people exposed to 2,4,5-T contact intoxication during work have been recorded, i.e. 3.1 pregnancies per person. Among them 13.3% had only one pregnancy, 26.6% - 2 pregnancies, 16.6% - 3 pregnancies, 17.0% - 4 pregnancies, 26.5% - even 5 or more pregnancies. 46.1% of the above ended in births, 47.0% - medical abortions, 6.9% spontaneous abortions.

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These figures well correlate with those for the Republic and Russia on the whole. A decrease in birth rate during 20-30 years has recently become conspicuous. The number of spontaneous abortions in the cohort is somewhat higher (6.9%) than that among other population (5.6%) and amounts to 7.3%, including those who worked at the plant 10-15 years, they are going on 40 years of age and older. Among first pregnancies, occurring on the average after 1-2 years of 2,4,5-T contact, there were 46% of spontaneous abortions. A second pregnancy occurred 3.8 years after the 2,4,5-T contact and the part of spontaneous abortions increased to 5.0%. The third pregnancy came on the average 7.4 years after the 2,4,5-T -contact while 7.7% ended in spontaneous abortions. The fourth pregnancy occurred 9.7 years after the 2,4,5-T contact with 4.5% of spontaneous abortions. Spontaneous abortion rate is definitely bigger with women laboratory assistants (7.2%) than with men's families (6.7%). The number of premature births in the cohort is somewhat higher (6.8%) than that in the population of the Republic (5.4%) according to official reports.

100 workers who had suffered intoxication gave birth to 190 children during their entire fertile period, of which 52.6% were first (births) children, 38.6% - second ones; 7.9% - third and 0.9% - fourth children. In 1977 there was one instant of dead-born baby. Thus the parameters to characterise the general state of the children that year are typical for the children born in other years and listed in table 2. There were no instances of inborn development defects, neither were any lethal cases. The analyses of the results of the embryo and newborn babies in the cohort of the population of the Ufa city, the Republic of Bashkortostan as well as Russia, did not show noticeable differences.

Anyway newborn boys are more scarce in the cohort than girls. This disproportion is obvious among children of all births. It is noteworthy that each tenth of the newborn children

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weighed less than 3 kilos. The part of such children among first births is 12.5%. Two of the first-born babies (1.8%) were noticed to lag behind in the psyche development. Both children were diagnosed as entselophalopathic. They were born of parents who have after the intoxication developed cerebroscerosis and entselophalopathy. We have also analysed the health of both their children and grandchildren.

Thus we can state that people subject to 2,4,5-T intoxication showed bigger rates of spontaneous abortions, premature births, sex dispropotion, newborn children hypotrophy, which may be regarded as a result of dioxine phyto- as well as embrio toxicity. The indicator parameters of inborn anomalies, dead births, lethal results, birth rates, fertility are not much different from the control or common population groups.