

POLLUTANT CAUSED NEWBORNS DISORDER IN TIEN-SHAN REGION

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We analysed structures of the biosphere pollution in Tien-Shan territory for the last years. First point of our mind is unfortunate background - self-purification of nature processes (in air, soil, water) are very weak. It is due to mountain-ring close character of ecosystems, thin layer of soil, etc. Second point - there were any suspicions about aggravation of chemical influences on background of: continental climate, hypoxia and high natural radioactivity in the region. Third point - human health impact may be recognised by study of vulnerable group (pregnants, newborns). Results have shown in recent article. Methods.

It had been based on three types of environmental-health estimation /ref. N 2/: chemical damages (industry and geochemical origin), climatic damages, biological damages (includes zoo-antropozoses, cattle-cemeteries, and tropical diseases possibilities). After that had been done draft map of the common damages, and map-map lies joint account of health damages of the territories. Accordingly five ranks of complex classification of the Kyrgyz territory influences to human health: rank 5 - comfortable zone (a very few square, in autumn or summer only), 4 - not danger for adults (few square too), 3 - unfavourable, 4 - danger territory, 1 - extremely danger (38% of whole square - in alpine and high polluted zones).

We had used the GeoInfoSystem and independent mining-pollution estimation /ref. N 4/.

Sometimes, we founded 2-4 leading environmental factors of health. For example: in rural territory there were pesticides and helminthes, latest very similar with Latin American cases, /ref. N 5/, and in settled areas and pivot roads - industrial and car pollutants.

Special analysis has been done in storages and dumps of previous (Soviet-era) mining-industry in Kyrgyzstan and burial place manufactures wastage- mercury, antimony, uranium, rare-minerals and golden (with cyanide technology) ones. The last example, economic analysis and possible profit from mining industry restoration had been done additionally /ref. N 4/.

Chemist analysis: it had been used latest Manual International Chemist Analytic Association.

Results and discussion.

The North region data (in towns, suburbs, and pivot roads).

Marks: underline - leading factor, POP - persistent organic pollutants.

Fine particles (soot, a dust) up to 2,5-10 microns and more; Nitrogen oxide; Carbon mono and dioxide; Sulphurous gas, sulphuric acid, sulphur dioxide; Heavy metals (lead, cadmium, vanadium, mercury, arsenic); Hydrocarbons (formaldehyde, phenol, toluene, xilol, benzine); POP; Toxic radicals of oxygen, nitrogen, sulphur and ozone;

In rural regions: Fine particles (soot, a more high dust level), most of them allergenic; Bacteria and protozoa; POP and hydrocarbons; Nitrates and nitrites; Trace elements.

In Alpine regions (with cattle-briges), 1700-2500 m above sea level:

Microelements disbalance (iodine, phosphorus, calcium, magnesium); Bacteria and protozoa; background - immune deficit by hypoxia, vitamin and protein malnutrition.

It has been estimating health markers:

- compliance of pregnant and woman recently confined by special questionnaire (latent-illness and environment unfortunate);
- child death reason with additional anatomic-histological revision;
- fruit and child clinical peculiarities: weight, ultrasound picture, etc;

- morpho-biochemical dates immune status in 1,2,3- levels; clearance of urine;
- permeability of cell membrane: several fermentus in serum.

We estimated correlations among several pollutants and several health markers by map-map comparison /ref N 3/, and mathematical methods /ref N 1/.

It has shown: most part of early child death in downtown and rural regions areas are caused with asphyxia, patrimonial trauma, congenital anomalies. There are twice high of early child death rate in the regions, compared with „pure” zone. There are 55-67% higher of several illness in childs of the mentioned unfortunate regions.

We estimated the biosphere pollution in the valleys and towns. Firstly - self-purification natural processes are very weak (due to close character of valleys ecosystems and thin lie of soil on granite in the mountain region), and secondly - there were suspicions about aggravation of chemical influences on background of: continental climate, high nature radioactivity and hypoxia.

The facts has shown - low concentration xenobiotics demonstrating non-linear (or quasi- nonlinear) model of non-threshold action. And same concentration (and doses) are dangerous for contingents having sensitivity to concrete chemical agents. In process of increase of xenobiotics concentration – rise the dose of early age children in total population, which demonstrating illness reactions on it. Several mutagenic-molecules are enough to cause a chromosomal, a gene mutations or congenital anomaly at embryos. It is impossible to remove mutagens completely from an environment .

The major feature of children's age is the critical periods of growth and development, in these periods sensitivity of a children's organism to pathogenic external influences (xenobiotics aggravating with physical factors) raises. Due to increasing body weight – rise conditions for accumulation in a tissues of non-metabolising molecules (polychlorinated, dioxines, heavy metals). Thus, they are selectively deposited in certain tissues and cells.

About Hygienic Standards.

Standard Limit problem (avoid false formal assessment). The standard hygienic specifications regulating safe for the person pollution of biosphere, are „Permit-limit value“ (PLV) of chemical agents. The problem, however, safe level of environmental contamination does not happen by genetic and immune reasons. Additionally, hygienic specifications of „PLV“ of harmful substances in biosphere are of studying reaction of adult people and even experimental animals as basis. They do not provide existence for age variations of sensitivity. Moreover, it does not establish dose-dependence of action anthropogen-filling-pollutants in environment (in a range before-threshold nontoxic concentration especially) on health of a fruit and newborns in cases of PLV over-doses. Therefore PLV for a fruit and pregnant women are unknown (as Russian genetic Dubinin wrote in 1999). And several european researches write about „no minimal dose for radiation“. Surely, the same for POP.

CONCLUSION

It is pointed out that pollutant factors (POP mostly), may do health damage in the region. They are resulting in summarising and potentiation of toxic effect in hypoxia background.

Sensitivity chemical agents at embryo, newborn and the child of early age are reliably higher, compared with adult.

So, it is impossible to remove mutagenic pollutants completely from an environment or to remove natural hypoxia and radiation. But we must do outstanding effort to avoid it.

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