HYGIENIC SUBSTANTIATION OF THE SELECTION CRITERIA FOR MONITORING OF PESTICIDES AS RISK FACTORS FOR DEVELOPMENT OF THYROID DISEASES

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Pesticides are chemical exogenous factors of anthropogenic origin, which can adversely affect the thyroid gland. The system of social and hygienic monitoring in Ukraine does not take into account the assessment of the potential risk of harmful effects of plant protection chemicals on the thyroid gland. Therefore, the establishment of additional and specific criteria for the selection of thyrotoxic pesticides for monitoring research is an actual problem.

The purpose of our work was hygienic substantiation of the selection criteria for monitoring of pesticides as risk factors for development of thyroid diseases.

Materials and methods. Methods of field and laboratory hygienic experiments were used, during which organoleptic, sanitary-chemical, sanitary-microbiological, chemical-analytical (high-performance liquid chromatography), physical methods, methods of variation statistics, correlation and regression analysis, methods of empirical and theoretical research of scientific information, namely analysis, synthesis, induction, deduction and systematization, epidemiological methods were used.

Results. Carrying out hygienic monitoring of pesticides affecting the thyroid gland, need, first of all, areas with intensive agriculture, such as Vinnytsia, Cherkasy, Poltava, Kherson, Odesa, Mykolaiv regions. However, in other areas such monitoring is desirable, as plant protection chemicals are actively introduced into agriculture in Ukraine, including private farms, practically not controlled, which makes it difficult to determine the volume of application of pesticides in them.

When deciding on the need for monitoring in Ukraine for a pesticide that affects the thyroid gland, evaluate each of the proposed toxicological indices, hazard criteria

for the environment and the human body in points and find their total amount. If the formulations based on the test compound is used on different crops or in different soil and climatic conditions, the evaluation takes the greatest value of the half-life.

If in the region where the issue of monitoring is solved, there is a decrease in the level of iodine, radioactive or chemical industrial pollution of environmental objects, then the total score is added by 4 points each of the above indices.

After adding all the points received, the need for monitoring is assessed as follows: with a total of 11-16 points – monitoring is not necessary; 17-27 points – monitoring is desirable; 28-38 – monitoring is mandatory; 39-44 – pesticide use should be prohibited.

Conclusion.

Thus, we have improved the system of monitoring of pesticides that can affect the functioning of the thyroid gland, namely: it was proposed a point assessment of selection criteria for monitoring studies, proposed additional (index of potential pollution of ground and surface water, an integral index of danger after water consumption, an integral index of danger after agricultural products consumption) and specific criteria (impact on the thyroid gland as a target organ, the severity of pesticide-induced tyrosinemia (plasma tyrosine level, nmol/ml)).