

Radioactive load among residents of Vilnius and beekeepers D. Stasitite-Bunevičienė (Institute of Hygiene of the Ministry of Health of Lithuania, Vilnius, Lithuania)

Biopathogenic loads are undoubtedly an important problem of our time. The study of the manifestations and influence of radioactive load (RAS) on the entire human body and, in particular, on its regulatory systems is now becoming more important for solving treatment issues, leaving preventive measures in the background. With unfavorable trends in morbidity, disability and mortality rates in Lithuania, a deeper and more modern study of environmental factors makes sense. 20 years after the accident at the Chernobyl nuclear power plant in Lithuania, the radioactive cloud over which passed in the first hours and days after the accident, the consequences of the disaster remain poorly understood. Two international conferences dedicated to the above problem did not give any clinical assessments of changes in population health, no practical curative or preventive recommendations [1, 2]. The radiation situation is currently assessed as favorable, and for this reason does not pose any threat to the population [3]. However, the pathology of the thyroid gland is becoming more and more frequent, the incidence of oncohematological diseases, cardiovascular pathology is increasing, and their rapid adverse outcomes are more and more often recorded. Working with local residents in Vilnius on the equipment of the IMEDIS Center since 2001 (n = 2464), we do not observe the absence of RAS, but the pathology of the thyroid and parathyroid glands occurs in 95-99% of all cases, pathological changes in the blood and lymph - in 92-98% of patients. However, the pathology of the thyroid gland is becoming more and more frequent, the incidence of oncohematological diseases, cardiovascular pathology is increasing, and their rapid adverse outcomes are more and more often recorded. Working with local residents in Vilnius on the equipment of the IMEDIS Center since 2001 (n = 2464), we do not observe the absence of RAS, but the pathology of the thyroid and parathyroid glands occurs in 95-99% of all cases, pathological changes in the blood and lymph - in 92-98% of patients. However, the pathology of the thyroid gland is becoming more and more frequent, the incidence of oncohematological diseases, cardiovascular pathology is increasing, and their rapid adverse outcomes are more and more often recorded. Working with local residents in Vilnius on the equipment of the IMEDIS Center since 2001 (n = 2464), we do not observe the absence of RAS, but the pathology of the thyroid and parathyroid glands occurs in 95-99% of all cases, pathological changes in the blood and lymph - in 92-98% of patients.

Beekeepers at all times were distinguished by good health, many of them reached old age. Being inextricably linked with herbal medicine, beekeeping and currently contributes to the health of the population as an indisputable and necessary form of healing. A large number of ancient and modern literary sources indicate the radioprotective properties of biologically active products of the bee colony, including propolis, pollen, pollen, bee bread, royal jelly and bee venom [4, 5]. Clinical and experimental studies of pollen and bee pollen, carried out by us in 1993–2003, also indicate pronounced antitoxic, antioxidant, hepatoprotective properties of the above bee products [6, 7].

The purpose of this work was the study of indicators of radioactive load (RAS) in residents of Vilnius (Lithuania) and an assessment of the possible manifestation of the radioprotective properties of pollen-pollen using the vegetative resonance test (VRT) "IMEDIS-TEST".

Object and research methods

The object of research is volunteers, residents of Vilnius (Lithuania), aged 8 to 79 years. The study included 226 people, 186 adults (132 women and 94 men) and 40 children.

The research was carried out in 2005-2006. on the hardware-software complex "IMEDISEXPERT", developed at the Center "IMEDIS" (Moscow) according to the methodological developments of Professor Gotovsky Yu.V. [8, 9].

As a control group, 52 beekeepers (male) aged 36–75 years, living in Vilnius and its suburbs, regularly using pollen-pollen in their diet were examined by similar indicators. Since such studies have not been conducted in Lithuania before, the results obtained were also evaluated by comparing them with the results of the studios of Moscow researchers [10, 11]. In the process of statistical processing of the obtained data, we used the SPSS software package of the 10th version.

Results and its discussion

When analyzing the data obtained, it was revealed that in the members of the main group, geopathies were found 2 times more often than in the control group ($p < 0.05$). Beekeepers are not affected by the electromagnetic field (Table 1). RAS was detected in all examined individuals of the main group, both in adults and in children, and much less often in individuals of the control group - only in 77% of all individuals. Electromagnetic loading in children is revealed more often than in adults. According to E.G. Avanesova. et al., in individuals of the control group - residents of Moscow - RAS was detected in 86% of cases [10].

Table 1

Distribution of biopathogenic loads among residents of Vilnius (2005-2006)

Load type	Volunteers n = 226 abs.ch ./%	Including adults n = 186 abs.ch ./%	Including children n = 40 abs.ch ./%	Control group (beekeepers) n = 52 abs.h./%
Geopathogenic	167 / 73.9	133 / 71.1	34 / 85.0	19 / 36.5 *
Radioactive	226 / 100.0	186 / 100.0	40 / 100.0	40 / 76.9
Electromagnetic	12 / 5.3	9 / 4.8	3 / 7.5	0

* p <0.05, comparing the indicators of adults in the main and control groups.

In the control group, RAS was absent in 23% of cases (Table 2). The presence of a radioactive load of varying degrees was revealed in both the main group and the beekeepers (control group). The intensity of RAS in individuals of the main group was also significantly higher; RAS of the 4th degree in individuals of the control group was detected only in 9.6% of cases, when in adults of the main group - in 64.5% (Table 3).

table 2

Distribution of radioactive load markers (RAS) among residents of Vilnius (2005–2006)

Load type	Volunteers n = 226 abs.ch ./%	Including adults n = 186 abs.ch ./%	Including children n = 40 abs.ch ./%	Control group (beekeepers) n = 52 abs.h./%
Irradiation x-ray. l.	1 / 0.44	1 / 0.53	0	0
Chernobyl precipitation	12 / 5.3	9 / 4.8	3 / 7.5	7 / 13.5 *
Both markers (1 + 2)	213 / 94.3	176 / 94.6	37 / 92.5	33 / 63.5 *
Absence of RAS	0	0	0	12 / 23.1

* p <0.05, comparing the indicators of adults in the main and control groups.

RAS indicators in children of the main group did not differ significantly from the indicators of adults are essential. According to a similar survey, a group of submariners and residents of Moscow, Russian Academy of Sciences of the 4th degree was revealed much less often - in 12% of cases [10]. According to V.B. Solovieva. and Sobolev V.A., in 52% of all cases of the persons they examined, RAS of the 2nd degree was detected [11].

Table 3

RAS intensity among residents of Vilnius (2005-2006)

RAS degree	Volunteers n = 226 abs.ch ./%	Including adults n = 186 abs.ch ./%	Including children n = 40 abs.ch ./%	Control group (beekeepers) n = 52 abs.h./%
1st degree	14 / 6.2	10 / 5.4	4 / 10.0	14 / 26.9 *
2nd degree	47 / 20.8	38 / 20.4	9 / 22.5	9 / 17.3
Grade 3	22 / 9.7	18 / 9.7	4 / 10.0	12 / 23.1 *
4 degree	143 / 63.3	120 / 64.5	23 / 57.5	5 / 9.6 *

* p <0.05, comparing the indicators of adults in the main and control groups.

The main target organ for RAS in both the main and control groups was the thyroid and parathyroid glands (Table 4). However, the indicators of the Vilnius study were lower than those in Moscow (Avanesova E.G. et al., 2004), in the control group - residents of Moscow, RAS was found in 98% of cases, when, during our work with volunteers, the thyroid and parathyroid glands were damaged in 86 % of cases. It is likely that the above data have a certain relation not only to dystyroidism, but also to osteoporosis, which are increasingly common in recent years. In adults of the main group, the target organs for the RAS are significantly more often than in beekeepers, the gallbladder and bile ducts, spleen, pancreas, bronchi and lungs, spine and blood are revealed, but the bladder and ureters

- much less frequently (p <0.05). Here it is advisable to recall the wide range of actions biologically active products of beekeeping [4, 12]. In children of the study group, the organs of target for the RAS are significantly more often than in adults, the liver, pancreas,

bladder and skin ($p < 0.05$). According to Avanesova et al. (2004), the results of the survey of Muscovites differ significantly from the data of the presented study. According to Moscow researchers, in the control group of Moscow, among the target organs for the RAS, the thyroid and parathyroid glands (in 97% of cases), the gallbladder and bile ducts (in 70% of cases), the pancreas, certain parts of the spine and the prostate were dominant. (about 60% of cases), with a slight spread to the blood. This indicator in the persons of the studied group of Vilnius residents exponentially correlates with the sharply increased hemato-oncology and once again suggests the different causes of RAS and other biopathogenic loads. Substances causing RAS were strontium, cesium, americium, europium, silver, boron, bismuth, radioactive water,

Table 4

Distribution of RAS by target organs among residents of Vilnius (2005–2006)

Target Organs	Volunteers n = 226 abs.ch ./%	Including adults n = 186 abs.ch ./%	Including children n = 40 abs.ch ./%	Control group (beekeepers) n = 52 abs.h./%
Thyroid and parachute. glands	186 / 82.3	154 / 82.6	32 / 80.0	34 / 85.0
Liver	96 / 42.8	72 / 38.7	24 / 60.0 **	12 / 30.0
Gallbladder and biliary excretion. etc.	44 / 19.5	42 / 22.6	2 / 5.0 **	2 / 5.0 *
Spleen	100 / 44.2	78 / 41.9	22 / 55.0	2 / 5.0 *
Pancreas. for	93 / 41.1	66 / 35.5	27 / 67.5 **	6 / 15.0 *
Bronchi and lungs	44 / 19.5	32 / 17.2	12 / 30.0	2 / 5.0 *
Kidney	29 / 12.8	27 / 14.5	2 / 5.0	6 / 15.0
Prostate	56 / 24.8	16 / 9.3	1 / 2.5	12 / 30.0
Ovaries	15 / 6.6	14 / 6.8	1 / 2.5	0
Spine	64 / 28.3	64 / 34.4	0	6 / 15.0 *
Bladder and urine the way	34 / 15.0	22 / 11.8	12 / 30.0 **	16 / 40.0 *
Leather	13 / 5.7	6 / 3.2	7 / 17.5 **	2 / 5.0
Blood	97 / 42.9	76 / 40.9	21 / 52.5	7 / 17.5 *
Other organs	31 / 13.7	26 / 14.0	5 / 12.5	2 / 5.0

* $p < 0.05$, comparing the indicators of adults in the main and control groups.

** $p < 0.05$, comparing the indicators of adults and children of the main group.

Results of the 2005-2006 survey. point to the peculiarities of the distribution of the radioactive load (RAS) and the frequency of its main characteristics among the inhabitants of Vilnius - individuals of the main group and beekeepers of the same region. The uniformity of the composition of radionuclides detected in individuals of both the main and control groups also indicates the specific reasons for the appearance of RAS, among which events of 20 years ago occupy a special place. It is necessary to emphasize the fact that reliable quantitative and qualitative differences in the manifestations of RAS in persons of the main and control groups can also be explained by the positive influence of regularly taken pollen-pollen, which, in the absence of contraindications, gives the right to more substantiated recommendations for its use in therapeutic and prophylactic purposes.

Conclusions:

1. When examining in 2005-2006. volunteers - residents of Vilnius with the help vegetative resonance test "IMEDIS-TEST" revealed 100% spread of radioactive load.

2. All persons of the main and control groups were found to have the same composition of radionuclides.

3. Statistically significant differences in indicators and intensity of manifestations biopathogenic loads in persons of the main group and beekeepers indicate a positive effect of bee products.

4. As an effective source of natural biomodulators, pollen-pollen deserves wider use for therapeutic and prophylactic purposes.

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