

STUDY ON PUBLIC PERCEPTION ABOUT POTASSIUM IODIDE (KI)

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Abstract

Armed conflicts between the Russian Federation and Ukraine carry the risk of a possible nuclear accident. This situation has triggered agitation among the population of our country, respectively discussions and debates related to potassium iodide and its importance. Despite the information provided by qualified sources, part of the population was alarmed, agitated and even resorted to the purchase of iodine-based preparations (even from abroad). Experts have informed the population that potassium iodide is only taken in the event of a nuclear event. Improper administration of potassium iodide tablets may cause thyroid dysfunction. To assess the situation triggered by the need for Potassium Iodide, we conducted a questionnaire-based study that was viewed by nearly 200 people, but only 80 people completed the questionnaire. The results reflected the lack of knowledge and lack of real interest in the subject of those surveyed.

Keywords: potassium iodide, thyroid gland, knowledge

INTRODUCTION

On April 26, 1986, reactor 4 exploded at the Chernobyl Nuclear Power Plant in Ukraine. This is still one of the greatest nuclear catastrophes in human history. According to statistics, more than 60,000 people have died due to radiation, and more than 2 million people have had and still suffer. The nuclear explosion occurred around 1:30 a.m. when the concrete capsule around the reactor was destroyed. It was found that a very large amount of xenon, or half that of cesium and radioactive iodine, was released into the atmosphere. (Păvălucă L, 2020) Due to the geographical position and the meteorological conditions, the radioactive emanations also affected Romania. This has led to high levels of radioactivity in some parts of the country. The highest degree of pollution was reached in Iasi. Prof. Dr. Constantin Dumitrache came up with the idea of administering potassium iodide to the population. He explained that "Radioactive iodine reaches the thyroid gland and is used to form thyroid hormones" (Țimonea D., 2019). The only measure was to find an antidote that would block the thyroid's uptake of iodine ". In that period of time, iodine was also administered in

schools to prevent endemic goiter. After the Chernobyl nuclear accident, the Ministry of Health distributed iodine pills to the population. The quantities existing at that time in Romania proved to be sufficient.

To stop the radioactive emissions, the active area of the reactor was covered by a concrete shell. Both Chernobyl and Prypiat were evacuated. These areas will never be inhabited again. The radiation level will reach normal levels around 2525. (Greenpeace Romania, 2021)

Armed conflicts between the Russian Federation and Ukraine are currently a matter of concern due to the possibility of bombing in the Chernobyl area. Given the risk of a new nuclear incident (which would involve radioactive iodine emissions), the Ministry of Health has ordered a series of measures related to the manufacture and distribution of potassium iodide tablets needed by the population in such situations. At the same time, the general population began to circulate various ideas and concepts related to potassium iodide. (Paraschiv C, 2022).

MATERIAL AND METHODS

The aim of this paper is the perception and attitude of the general population related to potassium iodide tablets.

In order to achieve the proposed objective, we completed a questionnaire structured on questions. We followed the conception of the population and the attitude of the population regarding potassium iodide tablets. The questionnaire was created using the “Survio“-application and was disseminated on multiple social networks. The data were collected from 7th to 14th, April 2022. According to the data obtained, more than 190 people viewed the questionnaire, but it was completed by a small number of people, obtaining a total of 80 complete answers. This questionnaire was mainly addressed to the population aged 18 to 40 years.

RESULT AND DISCUSSION

Analyzing the demographic data of the respondents, it can be seen that out of a number of 80 respondents, 5% are 18 years old, 10% are 19 years old, 10% are 20 years old, 12.5 are 21 years old, 12.5 are 22 years old, 2.5% are 24 years old, 2.5 are 26 years old, 2.5% are 37 years old, 2.5% are 39 years old, 2.5% are 41 years old, 2.5% are 42 years old, 5% are 43 years old, 10% are 44 years old, 10% are 45 years old, 70% are female and 30% are male.

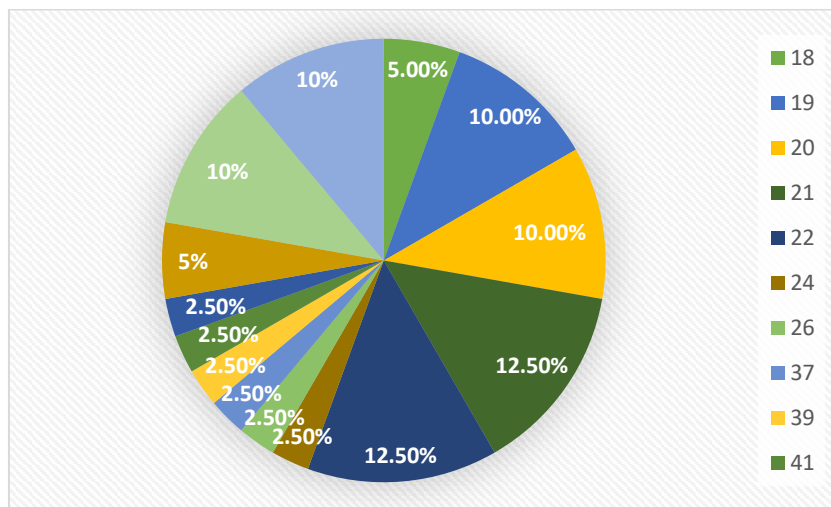


Fig. 1. Age of the surveyed population

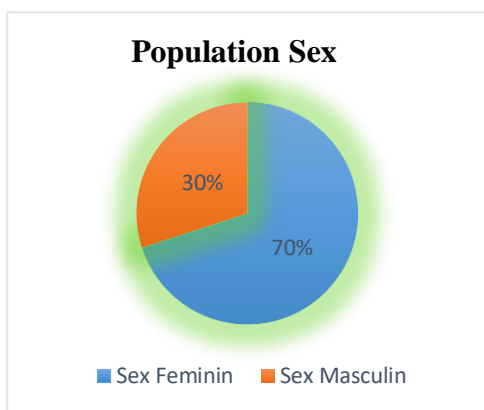


Fig. 2. Sex of the surveyed population

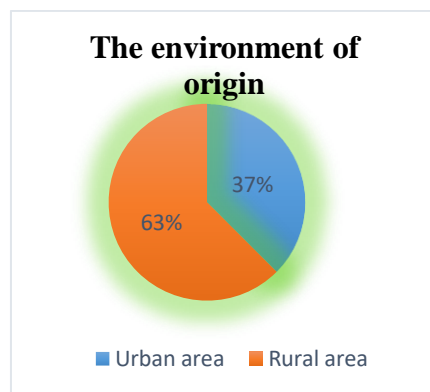


Fig. 3. Environment of origin of the population

63% represent the rural population, and 37% represent the urban population. According to statistics, 50 people are from rural areas, and 30 people are from urban areas.

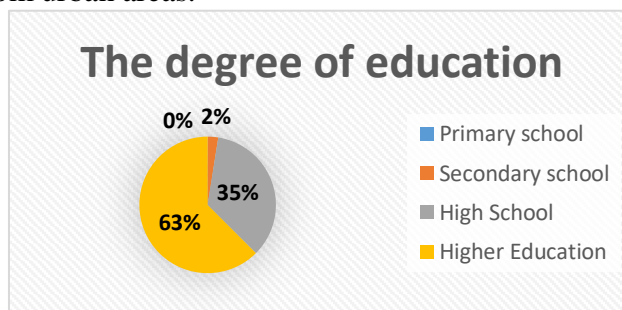


Fig. 4. The degree of education of the surveyed population

According to the results recorded: 63% of those who answered the questionnaire have higher education, 35% have completed high school, and 2% have only 8 grades. None of the respondents have limited education in primary school.

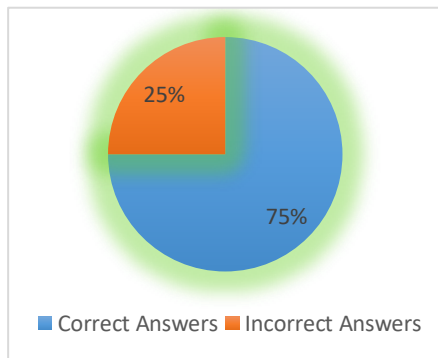


Fig. 5. People's perception of the role of iodine in the body

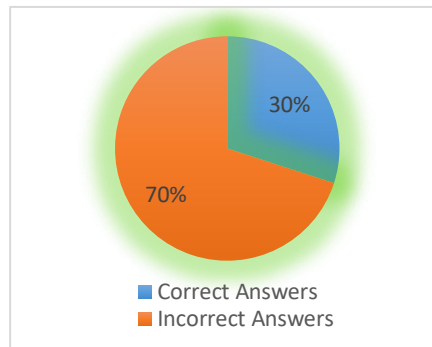


Fig. 6. The role of potassium iodide tablets

When asked about the role of iodine in the body, 60 people (75%) mentioned the need for iodine for thyroid hormone synthesis, while 20 people (25%) had incomplete, incorrect, superficial answers. they did not answer at all. Many people have written that iodine helps in the normal functioning of the thyroid or has a protective role against radiation. There were also people who did not answer this question, so their answers were invalid.

To the question "*What is the role of potassium iodide tablets?*", according to statistics, 26 people answered correctly, representing a percentage of 30%, and 54 people (70%) had erroneous answers. The correct answer to this question was that the administration of potassium iodide tablets has the role of blocking the thyroid from capturing radioactive iodine. Part of the population surveyed wrote that the role of administering potassium iodide tablets helps to eliminate toxins or has a role in protecting the body against radiation. These answers were considered incorrect.

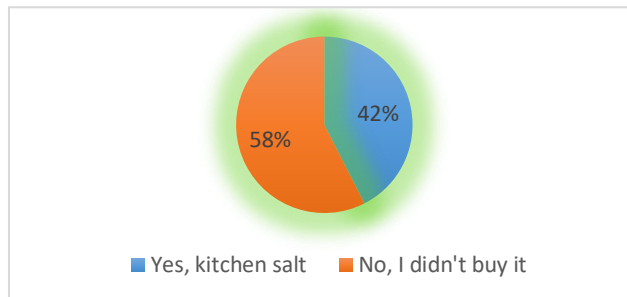


Fig.7. Procurement of iodine-based products

To the question “*Did you buy iodine products? Which?*” 34 people stated that they bought iodine-containing products, referring to table salt (sodium chloride - a food enriched with a minimum amount of iodine according to the law). 46 people did not buy iodine-based products, and they represent a percentage of 58%.

At present, the legislation (Government Decision no. 568/2002) regulates the conditions for universal iodization of salt for human consumption, animal feed and use in the food industry, in order to prevent iodine deficiency disorders. (Popeanga M, 2009).

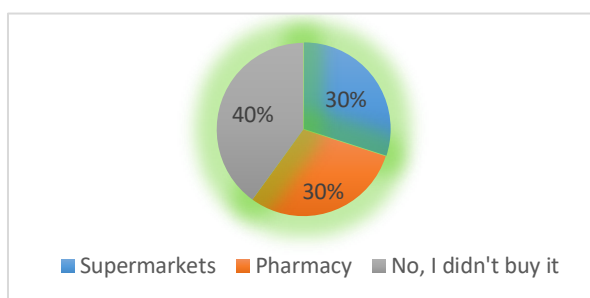


Fig. 8. Where did the population in question purchase iodine-based products?

The respondent was asked where they bought their iodine products. 30% bought from the pharmacy, 30% bought from supermarkets, and 40% did not buy iodine-based products.

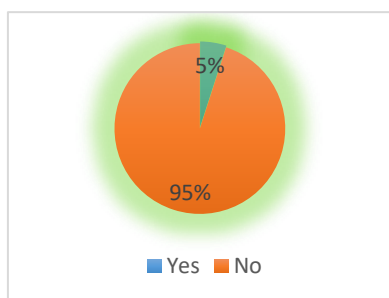


Fig. 9. The share of those who resorted to the preventive administration of KI

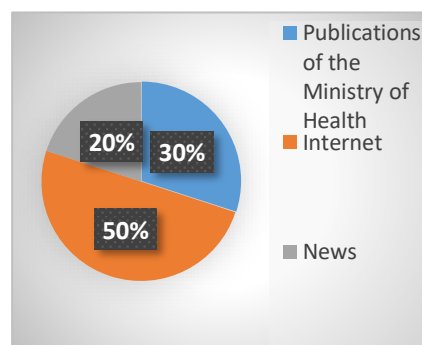


Fig. 10. Sources of information

The population was asked whether or not to take potassium iodide pills as a precaution, and according to statistics, 76 people, or 95%, did not take potassium iodide pills, but 2 people took potassium iodide pills as a precaution, which means 5% of those surveyed.

Regarding the sources of information regarding KI, the respondents are informed mainly from the Internet (40 people - 50%). 24 people (30%)

are informed by the official publications of the Ministry of Health, and 16 people (20%) are informed by the news broadcast through the media.

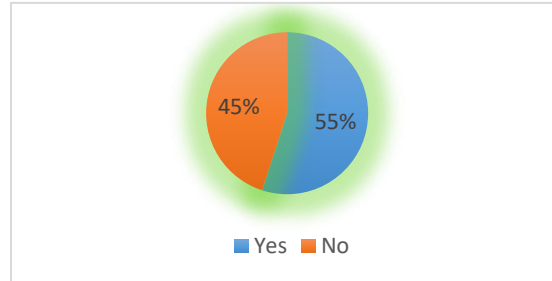


Fig. 11. Confidence in the potential of the State to provide the necessary medicines

To the question *"Do you think that the state will be able to provide the necessary tablets for the population?"*, 44 people (55%) who answered this question believe that the State will be able to provide the Romanian population with the necessary tablets of potassium iodide, while 36 people are skeptical about the possibility that the Romanian State will provide the necessary tablets of KI population.

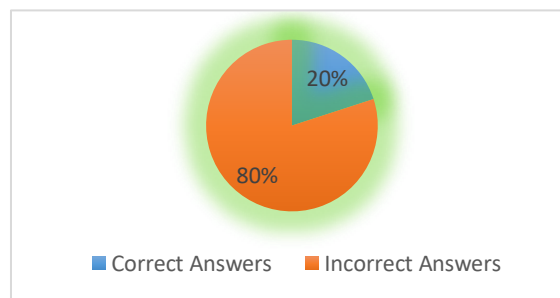


Fig. 12. Knowledge of the risks associated with the usual administration of potassium iodide

To the question *"What are the common risks of taking iodine?"* 64 people did not know the usual risks of taking potassium iodide, which is 80%. Only 16 people answered the question correctly, meaning 20% of the surveyed population. The correct answers mentioned thyroid dysfunction. Some believe that it can cause imbalances in the body. There were also some people who could not answer the question.

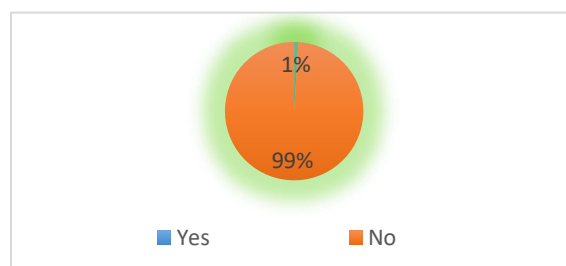


Fig. 13. KI 65 mg tablet vs other iodine preparations

The respondent was asked if they knew the difference between the KI 65 mg tablet and other iodine-based preparations. The results reflected a profound lack of knowledge, as only 2 people answered this question correctly (the concentration of iodine in the preparations), while the remaining 78 people (99% of the surveyed population) could not answer the question.

Following the evaluation of the answers obtained based on the 10 questions in the questionnaire, less than 50% of those who were related to the questionnaire, gave interest to the subject and, implicitly, to the completion of this questionnaire.

The Ministry of Health and the Government of Romania have developed the General Information Campaign for the Romanian population. Potassium iodide tablets should only be used in case of exposure to radioactive iodine as a result of a nuclear incident, within the first 6 hours after the announcement by the authorities, in a single dose. Only the recommended dose will be given for each age group. (Roman B, 2022)

The Ministry of Health mentions that "at the moment, there is no danger that would make it necessary to administer potassium iodide pills" answer stated by Prof. Dr. Alexandru Rafila. (Ministry of Health, 2022).

According to studies cited in the Guide to Prophylaxis of Iodine after Nuclear Accidents developed by the World Health Organization (WHO) increases in thyroid cancer in children have been documented up to 500 kilometers from the site of the nuclear accident. Of all children, newborns have been and still are the most vulnerable to the effects of radioactive iodine. In the first days of life, the activity of the thyroid gland of a newborn is very intense. In this short time, the amount of radioactive iodine absorbed by the thyroid gland is four times higher than in other age groups. (Antonescu O, 2021).

CONCLUSIONS

- Iodine and potassium iodide tablets have become a topic of interest to the population following the armed events between Ukraine and Russia.

- Regardless of the degree of education, the knowledge of the population related to Iodine, respectively KI, is minimal or ambiguous.
- 70% of those surveyed know the role of iodine in the body, but not the role of potassium iodide tablets.
- The population confuses iodine-containing pharmaceuticals with table salt (which has no iodine in its chemical structure, is only enriched with iodine)
- Because they are unaware of the difference between KI 65 mg tablets and other pharmaceuticals, because they are skeptical of the state's ability to provide the necessary KI tablets, and because they are unaware of the side effects of high-dose iodine administration, 60% of those surveyed purchased various iodine-based preparations.
- Many are influenced by information on the Internet (which often proves to be out of line with reality).
- We believe that a "storm" of opinions has arisen around the administration of KI 65 mg tablets, which is not supported by knowledge or scientific basis. At the same time, there are many who show unconsciousness or incompetence.
- We recommend information from reliable sources (Ministry of Health, specialized medical staff).

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