

The Surveillance of Monitoring of the Iodized Salt in the Southeast Area of Albania

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Abstract:-

Aim: Iodine deficiency disorders (IDD) are one of the worldwide public health problems of today. IDD remains a public health problem in Albania. We have done this survey in the Southeast area of Albania, to determine the level of iodine in salt samples at the household level.

Methods: For the determination of the iodine of the salt the children brought the samples at school. Samples of the salt collected in plastic glasses (about 20gr salt for each person) were analyzed in the Food Chemistry Laboratory of the Institute of Public Health (IPH).

The iodine content of iodized salt samples is measured using a Standard iodometric titration prescribed by DeMaeyer, Lowenstein and Tilly (WHO, Geneva 1979). Iodine is liberated using sulfuric acid. The free iodine is titrated with sodium thiosulphate, using starch as an indicator. We have analyzed 508 samples of the iodized salt from them 240 are collected from the city and 268 samples from the village.

Results and conclusions: The median of iodine concentration of the salt samples was 24.63 mg/kg. Iodine content was found to be adequate in 71.20 % of salt samples in total. There is a difference between the median concentration in the areas city (48 mg/kg) and the median concentration in the areas village (33.5 mg/kg). 22.8% of the samples in the city area is and 27.2% of the samples in the village area are non adequately iodized (>15 mg/kg). Our study showed that IDD-s is still an important public health problem in our country.

Keywords:- Iodine deficiency disorders -median iodine concentration - school children- Albania.

I. INTRODUCTION

Iodine deficiency disorders (IDD) are one of the worldwide public health problems of today. IDD remains a public health problem in Albania. We have done this survey in the Southeast area of Albania, to determine the level of iodine in salt samples at the household level. In majority of countries affected by iodine deficiency, the most effective way to control iodine deficiency is through the salt iodization. Salt iodization is the recommended strategy for control of iodine deficiency because:

- ✓ salt is one of few foodstuffs consumed by virtually every individual;
- ✓ salt intake is fairly consistent through the year; in many countries salt production and importation to a few sources;
- ✓ iodization technology is simple and relatively inexpensive to implement;
- ✓ the addition of iodine to salt does not affect its color or test;
- ✓ the quantity of iodine in salt can be simply monitored at the production.

WHO/UNICEF/ICCIDD recommends that iodine is added at a level of 20-40 mg iodine/kg salt. Salt iodization remains the most cost effective way of delivering iodine and of improving cognition in populations who are iodine deficient. We have choice to do the surveillance in the Southeast area of Albania because the sources of the microelement of the iode are very few. We have analyzed 508 samples of the iodized salt from them 240 are collected from the urban zones and 268 samples from the rural zones. The samples are collected from the children in: Elbasan, Devoll, Librazhd, Korce, Gramsh, Pogradec and Erseke.

II. MATERIALS AND METHODS

For the determination of the iodine of the salt the children brought the samples at school. Samples of the salt collected in plastic glasses (about 20gr salt for each person) were analyzed in the Food Chemistry Laboratory of the Institute of Public Health (IPH).

The iodine content of iodized salt samples is measured using a Standard iodometric titration prescribed by DeMaeyer, Lowenstein and Tilly (WHO, Geneva 1979). Iodine is liberated using sulfuric acid. The free iodine is titrated with sodium thiosulphate, using starch as an indicator. We have analyzed 508 samples of the iodized salt from them, 240 are collected from the city and 268 samples from the village.

III. RESULTS AND DISCUSSION

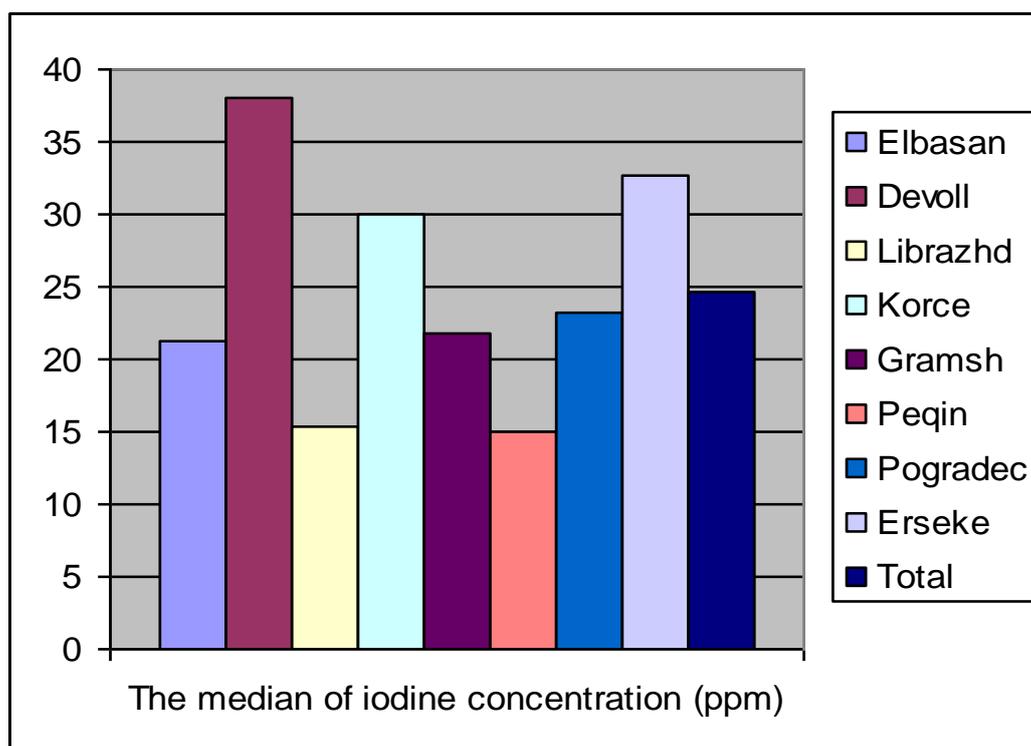
A total 508 school children aged 6-13 years were included in the study. The distribution of the sample according the regions is given in the table below:

| | Elbasan | Devoll | Librazhd | Korce | Gramsh | Peqin | Pogradec | Erseke |
|----------------|---------|--------|----------|-------|--------|-------|----------|--------|
| City | 45 | - | - | 59 | 41 | - | 65 | 30 |
| Village | 57 | 18 | 15 | 54 | 16 | 20 | 63 | 25 |
| Total | 102 | 18 | 15 | 113 | 57 | 20 | 128 | 55 |

The median of iodine concentration of the salt samples was 24.63 mg/kg. Iodine content was found to be adequate in 71.20 % of salt samples in total. There is a difference between the median concentration in the areas city (48 mg/kg) and the median concentration in the areas village (33.5 mg/kg). 22.8% of the samples in the city area is and 27.2% of the samples in the village area are non adequately iodized (>15 mg/kg). Our study showed that IDD-s is still an important public health problem in our country.

Salt iodine levels according the zones:

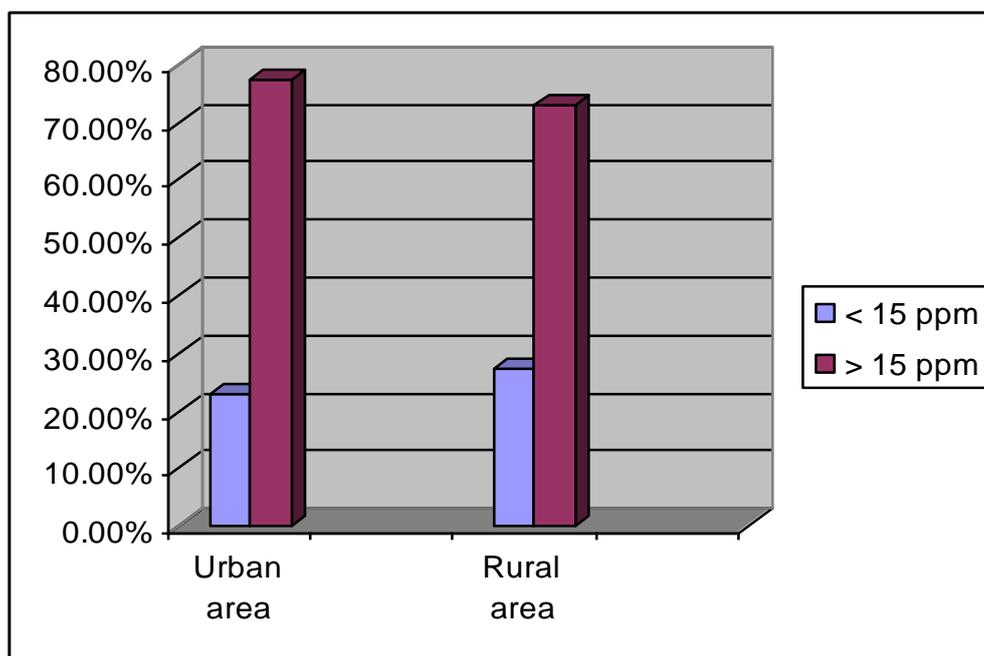
| The principal zones of Southeast of Albania | The median of iodine concentration (ppm) |
|---|--|
| Elbasan | 21.27 |
| Devoll | 38.02 |
| Librazhd | 15.44 |
| Korce | 29.93 |
| Gramsh | 21.7 |
| Peqin | 14.94 |
| Pogradec | 23.15 |
| Erseke | 32.62 |
| Total | 24.63 |



Salt iodine levels according the urban and rural part of the southeast area of Albania:

| Area | < 15 ppm | > 15 ppm | Total |
|-------------------|----------------------------|-----------------------------|----------------------------|
| Urban area | 22.8 % 53 | 77.2 % 187 | 100 % 240 |
| Rural area | 27.2 % 73 | 72.8 % 195 | 100 % 268 |
| Total | 126 | 382 | 508 |

Graphic presentation of percentage of the level iodine in household salt in rural and urban area:



In total, 50.72 % of the salt samples have the concentration >15 ppm. This is an indicator used to assess the progress in a country toward reaching the goal of universal salt iodization. As indicated by WHO/UNICEF/ICCIDD criteria, the goal for IDD elimination as a public health problem is that the proportion of the households consuming effectively iodized salt should be >90.

| Indicator: Salt iodization | Goal | Survey result |
|--|------------------|----------------|
| Proportion of households consuming effectively iodized salt | > 90 % | 50.72 % |

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