WATER RESOURCES, DRINKING WATER QUALITY AND WATER RELATED DISEASES IN CENTRAL SERBIA

Tanja Knežević[1], T.Ille*, D. Živadinović**, D.Stojiljković***, K.Spasović
Federal Institute of Public Health, Belgrade, Yugoslavia
* Faculty of Medicine, Department of Statistics and Biomedicine
Informatics, Belgrade, Yugoslavia
** Institute of Public Health of Serbia, Belgrade, Yugoslavia
*** Faculty of Mechanical Engineering, Belgrade, Yugoslavia
E-mail: yuhealth @ ptt.yu

Introduction

The primary aim of ensuring water resources and quality of potable water is to protect public health. The chemical and microbiologisal contamination of water resources and drinking water sources are reflected on drinking water quality and caused some of water related diseases. The pollution of water sources usually become from environment, increasing discharges of industrial and municipal wastewater and the increase of non point pollution. Drinking water can become contaminated in three ways: the source water is itself contaminated, contamination arises during treatment, or the materials that are used to convey water are contaminants and become ingested by consumers. For that reason the quality of potable water in waterworks sometimes does not meet national standards for drinking water quality, and the present chemical pollutants and microbiological agents caused water related diseases with adverse effects on health status of consumers.

Scope

The paper is based on the relevant data of contamination of water resources, potable water quality from different sources of water and water supply systems in Central Serbia during the period 1990-1999., and avialable statistical data of water related diseases in the same period.

Findings and results

In Central Serbia the quality of water resources is different, depending of pollution which include industrial, agricultural and pharmaceutical contaminants and pathogens from human and animal wastes.
The main pollutions present in water resources are inorganic substances, nitrate, iron, manganese, organic substances, ammonia nitrogen, phenols, and pathogenic microorganisms

some of which cannot be removed effectively by the traditional water treatment processes. For that reason, there are significant variations in potable quality water among some regions.

The mostly water supply sources is groundwater (around 63%) and than surface and mixed water (around 27%). During this period, 96,5% of urban water supply systems and 42,6% of local water supply were controled.

The survey showed the water supply situation of urban households was better than that of rural households. A total of 97,9% of households receives water from supply systems with minimal differences between the regions. Data on water supply of rural areas in Central Serbia showed that only 69,9% rural households have water from water-supply systems.

In regard to total water samples analyses, 5,1% of samples exceeded standards for micro-biological, and about 17,1% of water samples exceeded standards for chemical quality of drinking water.

In local water supply systems on the average 27,3% of analyses water samples were bacteriological contaminated and 24,5% of water samples were chemical contaminated. The results showed that frequency difference between satisfactory and unsatisfactory water samples is not statistical significant in regard to bacteriological quality (F = 146.384; p> 0.05). Also there are no statistical significant difference between satisfactory and unsatisfactory water samples in regard to chemical quality of drinking water (F = 57.264; p > 0.05). That mean, that in this period the drinking water has constant quality.

As a results of drinking water quality 46 outbrakes of waterborne diseases were registrated, with significant correlation between causes and diseases (p = 0.997; p < 0.01).

The results showed high morbidity rate of some waterborne diseases.

Also in the same period were occurs some of water wasched diseases (Trachoma and Aschariasis) with vary less morbidity rate.

In this period the most frequent chemical contaminant were nitrate, nitrite, iron, magenese, ammonia nitrogen, phenols and trichalommetanes but there are no avialable data of diseases related to chemical contamination of potable water.

Conclusion

Economical and social changes in the given period are significantly reflected on the environment, quality of water resources and quality of drinking water. Since the drinking water supply is an indication of a country's overall development, and an indicator of the people's health, it is very important and necesary to improve the environment water resources and the drinking water quality.

References

1. Annuel Reports of Infection diseases in Yugoslavia (1990-1999).
2. Annuel Reports of Drinking water quality (1990-1999).
3. Kneževiđ T., Vučić-Janković M: (1998) Epidemiological risk of drinking water from different sources of water supply, Water Sanitation and Health, WHO Conference, Proceeding book, Bad Elster, Germany p 42-49.