WATER-RELATED PROBLEMS OF THE RURAL POPULATION FROM IAŞI COUNTY

Lucian Laurentiu INDREI, Catalin Dragos GHICA, Adriana ALBU
Grigore T. Popa University of Medicine and Pharmacy, Iaşi, Romania
Corresponding author: Catalin Dragoş Ghica, e-mail: dragos.ghica@yahoo.ro

Keywords: *drinking water, intoxication, diarrheal disease.*

Introduction. Water is an essential environmental factor for maintaining good health. Unfortunately, the rural areas face many problems related to water supply. These problems are due to the lack of central water supply systems and sewerage systems. Improvised water supply systems (wells) and the absence of sewerage systems (latrine type toilet) are a major public health problem. There is an increased risk of water pollution and contamination that needs to be known and considered.

Material and Methods. The evaluation was carried out on a number of 60 public wells/springs in Iaşi County in 2020. The number of consumers per water source varies from 4 to 400 people. The water was analyzed chemically and microbiologically. Chemical analyzes included the determination of oxidability, ammonium, nitrites and nitrates levels. The values obtained were compared with the reference values found in the national legislation. The microbiological examination included the determination of coliform bacteria, *Escherichia coli* and enterococci. The values obtained were compared to those stated in the current legislation.

Results. The oxidability values did not show any major problems, there were only 4 wells (6.66%), the level being between 5.88 and 9.32 mg O_2/L (normal value 5 mgO_2/L). Ammonium showed high values in 7 wells (11.66%), which ranged from 0.660 mg/L to 3.04 mg/L (normal value max. 0.5 mg/L). Nitrites were within normal limits in all wells as they decompose very quickly. Unfortunately, nitrate accumulation has occurred, which means that a large amount of organic matter has decomposed. There are 39 wells (65%) in which the nitrate concentration ranged between 56.18 and 882.0 mg/L (compared to a maximum acceptable level of 50 mg/L). However, there was a low number of intoxication, viz. only 3 cases reported per year. The challenging problem is related to the microbial contamination that has often far exceeded the allowed values. Coliform bacteria were within normal limits (0 germs/100 ml water) in only 4 wells (6.66%). The values ranged from 20 to 90 germs/100 ml of water, which is a risk to the health of the population. *Escherichia coli* was absent in 19 samples (31.66%). In most wells the values ranged from 10 to 80 germs/100 ml of water, compared to the recommended level of 0 germs/100 ml of water. Enterococci were within normal limits (0/100 ml water) in only 9 samples (15%). Samples from the other wells reported values from 10 to 90 germs/100 ml of water. In this context, the risk of acute diarrheal disease is very high. In 2020, 4225 people were diagnosed with acute diarrheal disease, which is an alarming signal. Unfortunately, local authorities have little interest in these aspects of public health.

Conclusions. It is necessary to carefully monitor the water sources and the water supply of the population since there is a high risk of waterborne disease outbreaks.