5th International Conference of Multidisciplinary Approaches (iCMA), 2018
Faculty of Graduate Studies,
University of Sri Jayewardenepura,
Sri Lanka
ISSN: 2386 – 1509

THE INFLUENCE OF DRINKING WATER AND SELECTED SOCIO ECONOMIC PARAMETERS ON THE DISEASE INCIDENCE OF CHRONIC KIDNEY DISEASE UNIDENTIFIED – A CASE STUDY IN PADAVIYA DIVISIONAL SECRETARIAT, SRI LANKA

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ABSTRACT

Chronic Kidney Disease Unidentified (CKDu) is one of the widely attended human health issue in Sri Lanka especially prevalent in the dry zone. It was originally discovered among the rice paddy farmers in the North Central Province (NCP) of Sri Lanka in Anuradhapura and Polonnaruwa Districts. The disease has now spread to neighboring districts in the North Western, Eastern, and Uva as well as the Central and Northern Provinces. The CKDu prevalent area covers approximately 17,000 km with a predominantly rural population of 2.5 million. The etiology is suspected as a combination of factors among which drinking water quality is considered high on the agenda. The present study aimed to investigate primarily the relationship between drinking water quality and the disease incidence. Attempt had also been made to correlate other socio economic factors to the disease incidence. The scope of the study was to evaluate two GN divisions in Padaviya Divisional Secretariat having high incidence of CKDu. Purposive sampling method was used to select households in which at least one member is having the CKDu disease. Non CKDu households were used as control. Using a structured questionnaire the households were interviewed for a number of socio economic parameters. Water samples were collected from the well used for drinking water purposes. The water samples were brought to the laboratory in clean bottles and analysed for hardness and heavy metals including Cadmium, Lead, Chromium and Zinc using titrimetric and the Atomic Absorption Spectroscopy method respectively. The results showed that there is a statistically significant ($P<0.05$) relationship between the disease incidence and hardness of the drinking water. The heavy metals tested in all the water samples were within the World Health Organisation (WHO) allowable limits. The results of the questionnaire survey showed a positive correlation between the disease incidence and following parameters; no of years of consumption of water from the same source (20 years or above), education level (higher in people having up to GCE O/L), age (people above 60 years more significant), gender (more males affected), hours of working in the field (10 or more hours), period of exposure to agrochemicals (20 or more years). The alcohol or tobacco consumption, heredity, use of ayurvedic drugs, the drinking water source while working, snake bites did not show a significant relationship to the disease incidence. The study recommended to improve the hardness in water by purification and introduce methodologies to regulate the purchase and use of the agrochemicals as a prevention strategy for the incidence of CKDu.

Keywords: Chronic Kidney Disease, Total hardness, heavy metals, Padaviya