

INVESTIGATION OF FACTORS RESPONSIBLE FOR THE KIDNEY DISEASE IN MEDAWACHCHIYA DIVISIONAL SECRETARIAT IN ANURADHAPURA DISTRICT, SRI LANKA

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In recent years, a significant increase in patients of Chronic Kidney Disease of unknown etiology (CKDu) has been reported in many parts of Sri Lanka, specially, in North Central and Uva Province. Occurrences of CKDu in dry zone of Sri Lanka are a serious health issue for more than a decade and among them, highest numbers of patients were reported from Medawachchiya Divisional Secretariat area.

The studies are being conducting regarding CKDu issue by various specialists those who interested their fields more than one decay. It is easy and essential that, to find the correlations of CKDu issues with different governing factors by using GIS technique. This research describes the method of study of multi criteria analysis by using GIS software for the Chronic Kidney Disease Uncertain etiology (CKDu) in Medawachchiya Divisional Secretariat area. This study was done by correlating distribution variation of fluoride, total hardness, total alkalinity, electrical conductivity of deep wells, morphological patterns, and land use trends with CKDu distribution in Medawachchiya DS area.

The geographic distribution of the CKDu in Medawachchiya DS area shows that disease is spreading in several patterns but not very significant considering considered factors. The Medawachchiya North, Medawachchiya East and Kattuwela *Grama Niladari* (GN) divisions cover Medawachchiya town area and numbers of CKDu cases are very low considering other GN divisions and it is less than 2.6 percent. These two areas water supply is given by groundwater sources, by the NWS&DB and community base water supply schemes. Both of them are using deep production wells and shallow dug wells as water source for more than 14 to 30 years which shows almost same water quality with considering other boreholes in other GN divisions. Majority of the people in these areas are government employees, private sector employees, businessmen, who do not deal with agriculture directly and other GN divisions majority of them are farmers. It is considerable indicator for the further studies regarding CKDu, the factors not considered yet such as direct absorption of agro chemical to the human body, those who apply and deal with them in different effect of different environment. Even though, maximum percentage of CKDu patients reported as 16.5% from Mahadiuwalwewa GN division, surrounding GN divisions of CKDu cases reported less than 6% and except Etaweeragollawa GN division which is reported as 8.1%. CKDu patient percentage distribution in the GN division do not have a significant trend and there are isolated GN divisions reported more CKDu patients and very low CKDu patient reported.

However, spatial distribution of the CKDu patients (patient location) is very important to conduct further studies to identify the hotspots and findings would be very useful for the prevention of CKDu. Further research needs to be done by using GIS technique for different environment to simplify the findings for the all areas in Sri Lanka. GIS technique is very important tool to understand and analysis different environmental criteria.