



Chronic Kidney Disease of Unknown Aetiology (CKDu); A New Threat to Health

Introduction

At the beginning of the 21st century, an apparently new form of chronic kidney disease of unknown aetiology (CKDu) had emerged in several areas of Sri Lanka.

The CKDu is not related to diabetes, hypertension, snake bite or any other known causes of traditional chronic kidney disease. The disease is characterized by a slow, progressive, asymptomatic development, frequently starting at a younger age group. There is a possible propensity for it to be more prevalent among men engaged in agriculture, typically around the age of 40-60 years.



History of CKDu in Sri Lanka

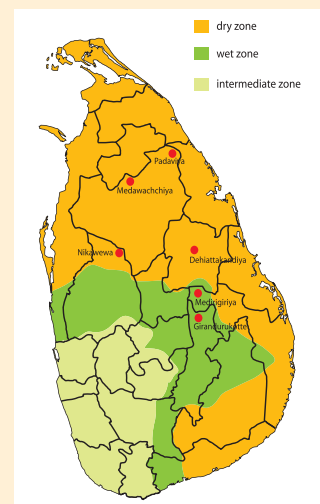
A range of studies of varying types have been carried out over the last 8 years with a view to elucidating the prevalence, nature & causes of CKDu in several parts of Sri Lanka. According to the data reported in the Annual Health Bulletin 2005, the hospital mortality rate for diseases of the genitourinary system has doubled during the period 1980 to 2005. Several studies have investigated the prevalence of this type of CKDu. However from the studies done so far over a period of 8 years, there has been no concrete evidence to support a particular environmental nephrotoxin.

Presence of high levels of fluoride, widespread use of agrochemicals such as pesticides and heavy metals (e.g. cadmium, lead, uranium) in soil and water sources could be postulated as contributing factors to the high prevalence of CKDu in certain areas.

As demonstrated in some studies, mycotoxins, use of herbal / ayurvedic medicines, smoking and history of snake bite are some other factors to be considered. A combination of two or more of the above factors, possibly a synergistic effect, could also be responsible

Geographical distribution of CKDu

The geographical distribution of CKDu appears to be biased towards the North Central Region (NCR) of the country in which North Central, part of North Western and part of Uva provinces are included. The populations at risk are scattered in the North Central Region with high prevalence observed at Medawachchiya, Padaviya, Dehiattakandiya, Girandurukotte, Medirigiriya and recently Nikawewa



Impact of CKDu

The total number of affected individuals is unknown, however speculations suggest that in excess of 6000 people are currently undergoing treatment for this condition.

In 2005, Anuradhapura Teaching Hospital alone recorded 742 live discharges and 140 deaths due to CKDu. Mortality due to genitourinary diseases was the leading cause of death in many districts, being the 11th leading cause of Mortality in the country. In 2005, about 350 million rupees (4.6% of the Annual Health Budget) was spent on the management of patients with Renal Diseases.



Initiation by Hon. Minister of Healthcare and Nutrition

A request was made to WHO headquarters in Geneva, in January 2008 by the Minister of Healthcare & Nutrition Hon. Nimal Siripala De Silva, to assist in elucidating the exact cause for the high prevalence of CKDu in the country. This was done as medical studies done so far have failed to establish a concrete link to any aetiological factor. In response to this request, WHO pledged to send a team to Sri Lanka to carry out a pragmatic & feasible research to elucidate a causative agent.



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CKDU research seminar

As an initial step towards achieving these objectives, the Epidemiology Unit of the Ministry of Healthcare and Nutrition in association with the World Health Organization organized a seminar on "Unusual Occurrence of Chronic Kidney Disease in Sri Lanka" on 7th - 8th May 2008 in Colombo. The main objective of this seminar was to review all available information, with a view to providing technical assistance for developing a research proposal to address prevention issues. A panel of International experts was in attendance in addition to all the local researchers and related stakeholders.

Development of the research proposal

A draft research proposal was prepared by the team of experts following this meeting. This research proposal provides a framework for program of research activities, the main arm of which is to identify the prevalence and main determinant(s) of chronic kidney disease. This coordinated series of activities is built upon evidence generated by a body of smaller research projects, but was designed to provide a more methodical approach and thereby generate more conclusive evidence regarding the aetiology of the problem. Once the aetiology is known, preventive strategies can be developed and implemented.

Feedback on the research proposal & stakeholder meeting



This draft research proposal was shared amongst the relevant stakeholders including the researchers, academics, consultants & local authorities for necessary feedback. A three day consultative meeting was held in Polonnaruwa on 3rd, 4th & 5th August 2008.

The complete research effort entails the following different research programmes

- Case Control study
- Cohort study
- Renal biopsy study (tissue and data collection)
- Environmental study group for case control phase of the study
- Environmental study group for analysis of water for case control study
- Post mortem study group (collection of organs and data)

- Human tissue (post mortem), urine and blood analysis study
- Chronic Kidney Disease registry and Geographical Mapping study
- Study group for analysis of animal tissues
- Nutrition and Sociology Study

Partners meeting on CKDU

A partners meeting was organized by the WHO Country Office (WCO) Sri Lanka in collaboration with the Ministry of Healthcare and Nutrition on 2nd October 2008. The main objective of this meeting was to highlight the importance of the issue of CKDu and request assistance from development partners to come forward to help in this emerging public health issue which is of great concern to the country. UNICEF, UNDP, USAID, JICA, Americares and Oxfam GB were the developmental partner agencies who were present.



WHO SEARO provided USD 40,000 for initial activities. The total cost for the two year period for the research would be approx USD 1,000,000. WCO has re programmed funds for CKD activities amounting to USD 100,000 with SEARO pledging a further USD 100,000 together with the Embassy of Poland contributing USD 50,000 through SEARO.

Way forward

There is a need for a comprehensive public health effort to effectively address this problem of CKDu. This should be taken as a National Priority with joint responsibility resting on Health and Developmental Partners. Ground level preparatory work has already been done which includes recruitment of field programme officer, selection of households and data collection as well as the formulation of a hospital based disease registry.

In addition, Terms of References were developed for the National Steering Committee on CKDu with addition of high level members representing the multi-sectoral agencies involved in this effort. A Management Committee, Scientific Committee & an International Steering Committee was also formed to assist in the implementation of this national research effort into CKD of unknown origin.