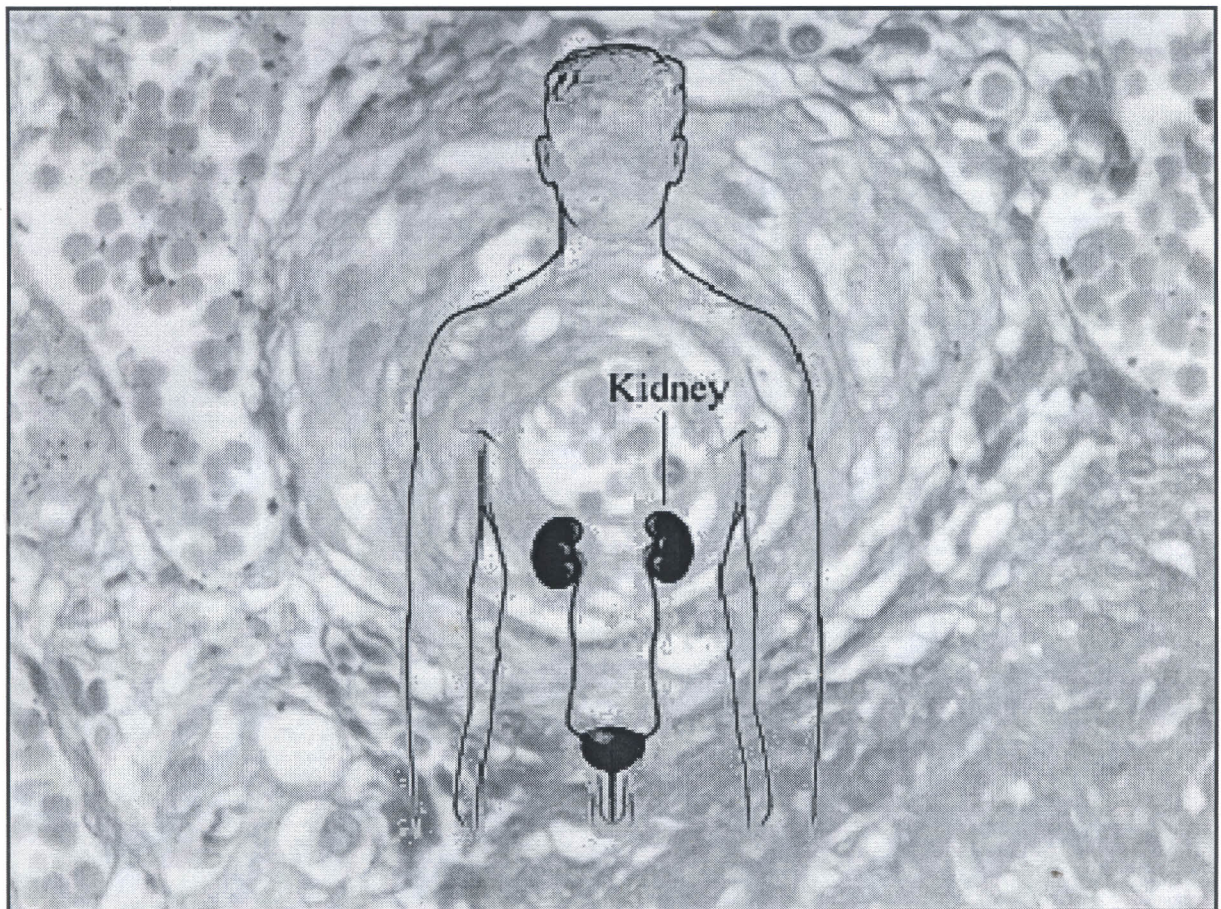


**Epidemiology, Geographical Distribution and  
Investigation of possible Hydrological Relationship of  
Chronic Renal Failure Patients in  
North Central Province of Sri Lanka**

**Research Grant - ASP / 06 / R / 2007 / 12**



**Mrs. H.M.J.R. Herath**

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# **Epidemiology, Geographical Distribution and Investigation of possible Hydrological Relationship of Chronic Renal Failure Patients in North Central Province of Sri Lanka**

## **Abstract**

Despite, Sri Lanka has attained impressive health indices such as low infant mortality, maternal mortality, and high life expectancy. rapidly changing life styles and deterioration of the environment have accelerated the prevalence of Non Communicable Diseases (NCD), which includes Chronic Kidney Disease (CKD). CKD is defined as the presence of sustained abnormalities of renal function and results from different causes of renal injury. End-stage renal disease (ESKD) can be defined by the necessity for life-saving dialysis or kidney transplantation. As recommended by the scientific committee of the National Research Programme of Ministry of Health – Sri Lanka, aetiology of CKD will be considered as “Uncertain or Unknown” if all the criteria stated below are satisfied. i.e. No past History or current treatment for Diabetes Mellitus or Chronic and/or Severe Hypertension, Snake Bite, Urological Disease of unknown aetiology or Glomerulonephritis, Normal HbA1C (>6.5%) and BP < 160/100 mm Hg untreated or < 140/90 mmHg on up to two anti hypertensive agents.

CKD among people of North Central Province continues to be an emerging health problem. Chronic Kidney Disease of Unknown Aetiology (CKDU) has reached crisis proportions in the main agricultural region under reservoir based irrigation, in the North Central Province (NCP) of Sri Lanka.

Objective of the study is to study the geographical distribution and characteristics and any links to hydrological factors in the aetiology of Chronic Renal Failure patients in NCP and compare these factors with other provinces of Sri Lanka.

The study was a Descriptive Cross Sectional one and utilized a structured pre-tested interviewer administered questionnaire for data collection. Sample was selected from diagnosed ESRD patients who were taking treatment in 8 Hospitals in Sri Lanka. Data was collected during the month of September 2009 and all patients who came for Renal Replacement Therapy (RRT) i.e. for Peritoneal Dialysis, Haemodialysis and Renal Transplant were included for the study.

Most of the CKD patients in NCP are Males (81.7% of the total), Farmers (41.9% of the total), people with poor income level and People of lower socio economic classes, while nationally higher income groups, higher occupational groups and socio economic classes were affected by CKD. Even nationally mostly affected were Males. There were 93 ESRD patients with in the North Central Province with 70 in Anuradhapura and 23 in Polonnaruwa District, (75.3% and 24.7% respectively). Mean Age of these patients were 47.61 +/- SD 11.44 years.

Anuradhapura District has 86.53 ESRD patients per million population and for Polonnaruwa District it was 57.5. The prevalence of ESRD patients was 76.92 per million population for NCP. These figures were much higher when considering the national figure of 24.43 per million population.

44 patients in NCP (47.3% of the total) were classified as having CKDU. 75% of them were residing in Anuradhapura. For Sri Lanka, this figure was 25.51%. For NCP prevalence of CKDU was 36.39 patients per million population with 43.26 and 22.5 patients per million population for Anuradhapura and Polonnaruwa districts respectively. This prevalence value was almost six times higher than the National figure of 6.23 patients per million population.

Within NCP, Galnewa, Thirappane, Anuradhapura New Town, Mihinthale, Padawiya, Horowpothana, Palugaswewa, Galenbidunuwewa, Kahatagasdigiliya, Hingurakgoda and Thamankaduwa District Secretariat (DS) Divisions had high prevalence of (more than average of NCP) ESRD with unknown aetiology. Except for first four areas, all the DS Divisions were located towards more North East of the province and rest were situated towards South West of the province. Most of the areas of these DS divisions, had higher levels of Fluoride in the soil in excess of 3.0 ppm and lie outside the usual areas of higher prevalence. This indicates that, there is a relationship with higher fluoride levels in soil and higher prevalence of ESRD patients.

There was no increase of ESRD with Unknown Aetiology among recently migrant populations (within 25 years) and there was no association with the source of Drinking Water.