CHRONIC KIDNEY DISEASE OF UNKNOWN ORIGIN A MAJOR PUBLIC HEALTH PROBLEM.

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Chronic kidney disease of unknown origin (CKDu) is an emerging public health problem in the south Asia region with a population of 1.7 billion people. How does it differ from other forms of kidney disease. It is prevalent in certain geographical areas of the developing countries, it affects mainly the people belonging to lower socio economic status, the age group is young adults and middle aged, seen predominantly in farming communities, many members of the family are affected, it is progressive, the cause is not known. They have no risk factors such as diabetes mellitus or hypertension.

In the South Asian region it is prevalent in the north central province of Sri Lanka such as Anuradhapura, Polonnaruwa and Badulla districts, in the endemic area and Hambantota district in the non endemic area. In India in the state of Andhra pradesh Srikakulam district (Udhanam) which is a coastal area with beautiful landscape, greenery and fertile land, Prakasam are predominantly affected with nearly 13% of the population having different stages of CKDu. Clusters have also been identified in Goa and Orissa.

The Sri Lankan President His Excellency Maithripala Sirisena has formed a presidential task force for urgently looking at the screening prevalence and management of the patients afflicted with CKDu. A fund has been created named ISN Gardiner initiative for training and research in to CKDu in Sri Lanka. The stake holders are Sri Lankan society of Nephrology, The National Science Foundation of Sri Lanka Regional WHO and the government of Sri Lanka with local, regional and international participations. The patients have been grouped in to different stages of CKDu. And those who are in Stage V are being provided Dialysis, Transplantation with the help of the Government in Sri Lanka. As the Investigations for risk factors for CKDu Arsenic, cadmium, lead, selenium, pesticides and other elements were analysed in biological samples from individuals with CKDu and compared with age-and sex matched controls in the endemic and non endemic areas food, water, soil and agrochemicals from both areas were analysed for heavy metals. However the issue of genetic predisposition has not been looked at which is a daunting task due to the expenses involved. In one of the studies performed by Professor Gangadhar Thaduri Nephrologist from Andhra Pradesh found high silica content in the water and soil of Udhanam and in the urine of patients.

While speaking to Professor Muhibur Rahman Nephrologist from Dhaka, Bangladesh recently stated that they see a fairly large number of patients with Chronic Kidney disease of unknown cause. He said that the use of agrochemicals as fertilizers in Bangladesh led to increase content of Cadmium in rice and vegetables available in Bangladesh (published scientific data). Cadmium in excessive amount produces kidney disease. However no
studies have been done to identify whether CKDu in regions of Bangladesh exist or not. As the infrastructure for studying CKDu is unavailable at this time in Bangladesh a consorted effort by the Bangladeshi Nephrologists will be done in future to look for CKDu. CKDu information is not available from Pakistan, Nepal, Bhutan.

Just to explain about CKDu: The Kidney has four compartments are shown in the Fig:1

CKDu - IN SOUTH ASIA

they are the blood vessels which supply and take out blood from the glomerulus (filter), the glomerulus, the tubules which drain the urine, the interstitium which occupies the area between the tubules. CKDu is predominantly a disease of the the tubules and interstitium contrary to diabetes mellitus and hypertension which produce damage to the blood vessels
and glomerulus. The reason for the involvement of the tubule and the interstitium remains a mystery in CKDu. The tubule undergoes atrophy and interstitium develops scars (fibrosis) a condition called tubulo interstitial fibrosis (IFTA). Nobody knows why this happens and are there up regulation of genes in the tubulo interstitial region in producing IFTA in CKDu.

**THE CURRENT STATE OF MANAGEMENT IN INDIA**

The Government of AP has taken initiative to collaborate with ICMR whose Director General Dr.Soumya Swaminathan has delegated a scientific team including Dr.Prabdip Kaur to support the efforts. The TANKER FOUNDATION has been requested to convene a meeting of the core group of Nephrologists, Pathologists, Epidemiologists, Genetis and other environmental scientists from South Asia region to identify the cause of CKDu screening programmes, surveillance, follow up of the patients in already existing regions and new geographical locations in India and other regions. Professor Chacko Jacob (Vellore), Professor Sanjay Agarwal (AIMS New Delhi), Professor Ravi Raju (Vice Chancellor AP Medical University) will lead the different groups for discussion under the leadership of Professor Georgi Abraham and Latha Kumaraswamy of TANKER FOUNDATION. The group is joined by experts from Srilanka, Professor Chula Herath (President of Srilankan Society of Nephrology), Dr. Nalika Sepali Gunawardhana (WHO) who have advanced in their initiatives in tackling CKDu in Srilanka.

The objectives of the Core group meeting is to define CKDu in India, find out regions with CKDu which are not identified, look at the different causes which can lead to CKDu, Management of patients stratifying them in to various stages of CKD 1 – 5. Provide Dialysis treatment to patients at stage V CKD.

The Srilankan Government has taken initiatives to prevent environmental contamination by pesticides and other environmental toxins and provide safe drinking and cooking water. Professor Georgi Abraham and Dr. Prabdip Kaur from India were invited and involved in tackling the CKDu in Srilanka as members of the presidential task force and WHO. The respective state governments in India and health authorities with politicians and bueroocrates philanthropic organizations and scientists should work together to support the society with CKDu.

There should be special training for Nephrologists and physicians in environmental Nephrology with epidemiologists and social workers in addressing the issue of CKDu. The Indian Society of Nephrology under the presidentship of Professor Chacko Jacob and Secretary Professor Narayan Prasad and Editor in Chief of the Indian Journal of Nephrology Professor Sanjay Agarwal will use the Journal for disseminating the knowledge on CKDu continuously.

The CKDu core meeting supported by TANKER FOUNDATION and MADRAS MEDICAL MISSION HOSPITAL will hopefully work as a platform for the care of CKDu in the South Asia Region.