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Chronic kidney disease of multifactorial origin: A recent-onset, fatal kidney disease affecting poorer farming communities

Sunil J Wimalawansa

Cardio Metabolic Institute, USA

Chronic kidney disease of multifactorial origin (CKDmfo) or CKD of unknown origin (CKDu) is an unusual form of tubulointerstitial CKD first observed in tropical, dry-zonal, agricultural areas of El Salvador, Nicaragua and the Balkan region in the mid-1960s. In the mid-1990s, the disease observed in Sri Lanka. Although no cause was identified, consumption of polluted water over a long period seems likely the source. Postulated causes of CKDmfo include heavy metals, agrochemicals, fluoride, fungal and bacterial toxins, fructose, chronic dehydration, climate change and behavioral factors, but no single offending agent has been identified. Other prevalent nephrotoxic factors include, abuse of non-steroidal anti-inflammatory drugs, illegal drugs and illicit alcohol and microbial agents and tropical diseases such as leptospirosis, Hantavirus, leishmaniasis and schistosomiasis. However, additive or synergistic effects of nephrotoxins, in combination with the presence of unhealthy habits have not been studied. Heterogeneous geographical distribution and long latent time and decades of failure to find common CKDmfo causing nephrotoxins, strengthen the hypothesis that the disease is occupational and geo-water-environmental-related and has a multifactorial etiology. Causes of CKDmfo- detailed mechanisms, consequences and treatment and prevention options will be discussed. In affected countries, the incidence of CKDmfo is doubling about every 5 years. In Sri Lanka, approximately 5,000 farmers, mostly males, die annually of the disease and more than 240,000 people are affected. In addition to a holistic approach, the following steps are needed to eradicate CKDmfo: Large awareness campaign, preventing environmental pollution, lessening malnutrition, modifying acquired unhealthy behaviors and harmful habits and providing safe water devoid of nephrotoxins. Coordinated, targeted and cost-effective approaches are needed to prevent and eradicate CKDmfo.

suniljw@hotmail.com