

DECLINING RENAL FUNCTIONS AMONG FISHING AND SUGARCANE FARMING COMMUNITIES: IMPLICATIONS ON CHRONIC KIDNEY DISEASE OF UNKNOWN ETIOLOGY (CKDU) IN SRI LANKA

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Chronic Kidney Disease of unknown etiology (CKDu) also named as Chronic Interstitial Nephritis in Agricultural Communities (CINAC) is a rapidly growing public health concern in Sri Lanka (SL). Heat stress and agrochemical exposure have been considered as the main etiological factors. CINAC is mostly prevalent only among dry zone farmers in SL, however the fishing community in the same dryzone is exposed to similar or higher heat stress. We postulated that if heat stress is an essential risk factor in CINAC prevalence, it should also be present in heat exposed fishing community in the dry zone of Sri Lanka. Therefore, we compared the renal markers of a fishing cohort in Mannar (MFish, n = 149) with sugarcane farming cohort in Buttala (BFarm, n = 168) in rural SL. Elevated SCr in BFarm (8.9%) was higher than MFish (4.5%), however SCr (P = 0.64) and eGFr (P = 0.78) were not significantly

different between the two cohorts. Serum uric acid was higher in MFish (4.7 mg/dl; Median) than BFarm (4.2 mg/dl; Median) indicating higher exposure to heat stress. However, albuminuria (ACR \geq 30 mg/g Cr) was higher in BFarm (9.5%) than MFish (6.4%) confirming higher CINAC prevalence among sugarcane farmers. Moreover, urinary biomarkers KIM 1 was higher in BFarm (841.6 pg/mg Cr) than MFish (667.8 pg/mg Cr) but NGAL levels (1.87 & 1.93 ng/mg Cr) were similar in both cohorts. It can be concluded that declining renal functions were more predominant among the farming community than in the fishing community in spite of higher heat stress in dry zone locations of Sri Lanka, and hence the farming community is more susceptible to CKDu.

Keywords: Kidney disease, Sri Lanka, Fishing community, Farmers, Heat stress