

Agricultural Risk Factors of Chronic Kidney Disease of Unknown Aetiology in North Central Region of Sri Lanka

J.M.K.B. Jayasekara¹, D.M. Dissanayake¹, M.D.N. Gunaratna², S. Thilakarathna⁴ and R. Sivakanesan³

¹*Department of Pathology, Faculty of Medicine, University of Peradeniya*

²*Department of Mathematics, Faculty of Engineering, University of Moratuwa*

³*Department of Biochemistry, Faculty of Medicine, University of Peradeniya*

⁴*Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, University of Peradeniya*

Health professionals in Sri Lanka have noticed a high incidence of a new form of chronic kidney disease of unknown aetiology (CKD-U) in farmers of North Central Region (NCR).

The aim of the study was to identify the risk factors related to farming in order to implement preventive strategies. Potential agricultural risk factors and other information were collected through interviewer-administered questionnaires given to 315 CKD-U patients and 321 healthy controls that were randomly selected. The relative risk of each factor was compared in terms of Odds ratios (ORs) and 95% confidence interval (CI) by applying the linear logistic model.

Involvement in paddy farming activities (OR = 1.945, 95% CI: 1.256-3.010), usage of agro-chemicals (OR = 2.034, 95 % CI: 1.297-3.190), poor preventive measures when using agro-chemicals (OR = 2.845, 95% CI: 1.788-4.527), high operated paddy extent without exchange of labour (OR = 4.734, 95% CI: 2.586-8.665) were identified as significant contributory risk factors for CKD-U ($p < 0.005$). Cultivating a large land extent without hiring labour was a significant risk factor for the disease ($p < 0.05$). Furthermore, cultivating smaller land extent without hired labour (OR = 1.558, 95% CI : 0.47-1.56) had higher risk than cultivating larger land extent with hired labour (OR = 1.40, 95% CI: 0.42-1.42). In addition to the agricultural activities, being a male, age > 60 years, smoking, alcoholism, family history of CKD-U, history of malaria and snake bites ($p < 0.05$) were identified as other contributory factors.

There is a strong occupational risk factor in the pathogenesis of the disease where the male farmers of > 60 of age were at a high risk probably due to long term exposure to the aetiological agents (risk factors). Agricultural activities involving intense physical activity were related to CKD-U. Further studies are indicated to identify the effect of dehydration and physical exertion on the renal functions of these individuals. Poor preventive measures in agrochemical usage related to the disease indicate the need to educate the farmers on safe agrochemical usage.

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