ASSOCIATION BETWEEN FARMING ACTIVITIES AND RENAL MARKERS IN THE SERRANA REGION OF RIO DE JANEIRO, BRAZIL

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INTRODUCTION: Agriculture has been linked to renal health impacts, particularly due to potential exposure to chemicals such as pesticides. Evidence indicates kidney damage in humans, with documented cases of acute kidney injury associated with insecticides and herbicides. However, the long-term effects of these exposures on kidney function and their potential role in chronic kidney disease (CKD) remain inconclusive.

OBJECTIVE: This study aims to evaluate the association between farming and renal markers in agricultural populations in Nova Friburgo and Teresópolis, Rio de Janeiro.

METHODS: This is a cross-sectional study of individuals participating in the Health Study of Agricultural Workers in Rio de Janeiro cohort from Nova Friburgo and Teresópolis. Sociodemographic data, self-reported exposure to pesticides and other chemicals, agricultural activities, medication use, dietary habits, and morbidity were collected through questionnaires. Blood and urine samples were analyzed for renal markers, including serum creatinine, urea, microalbuminuria, and urinary albumin. Individuals diagnosed with acute or chronic kidney disease were excluded. Linear regression with 95% confidence intervals was used to assess associations, adjusted for sex, race, education level, hypertension, diabetes, water consumption, and salt addition to food.

RESULTS AND CONCLUSION: From January 2024 to January 2025, the cohort recruited 241 individuals. Farmers had lower education levels, with higher rates of illiteracy and elementary education ($p=0.015$). Additionally, 77.4% of farmers added salt to their food, compared to 60.1% of non-farmers ($p=0.009$), and 70.3% of farmers drank water more than three times a day, versus 57.1% of non-farmers ($p=0.015$). No significant associations were found between agricultural activity and serum creatinine, urea, microalbuminuria, or albumin levels. This study found no significant associations between agricultural activity and renal markers in a cohort sample from Rio de Janeiro, Brazil. While the background discusses potential chemical exposures, the study focused on farming as a broader occupational category without directly measuring pesticide exposure.

KEYWORDS: Farming Activities; Renal Biomarkers; Cross-sectional Study