212 HEAT STRESS: A CAUSE OF CHRONIC KIDNEY DISEASE ALONG THE MESOAMERICAN WEST COAST?

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Objectives High incidence of chronic kidney disease (CKD), unrelated to conventional risk factors and anecdotally linked to young male sugarcane workers, occurs along the Pacific coastline, from south-Mexico down to north-Costa Rica. We hypothesise occupational heat stress with chronic dehydration as a major risk factor.

Methods We discuss four recent Central American studies, three Nicaraguan and a Salvadorian, as the basis for the heat stress hypothesis.

Results All studies observed high prevalences of CKD ≥ stage 3 (glomerular filtration rate <60 ml/min/1.73m2) among men in agricultural lowland villages (14–20%). The first Nicaraguan study identified increased CKD among male and female lowland agricultural workers, and miners; the second among male non-specified agricultural field workers, and among banana, rice, corn, and sugar mill but not cotton workers; and the third did not observe a relation with occupation. The Salvadorian study showed associations, for men and women, between years worked on lowland sugarcane and cotton plantations and CKD, whereas CKD was not increased among sugarcane workers at higher altitude or among subsistence farmers at any altitude. Differences between studies seem related to selection (age, gender, volunteers) and analytical approaches.

Conclusions Harsh and hot work on plantations and in mines in the Pacific lowlands appear related to the Mesoamerican CKD epidemic, possibly through chronic dehydration interacting with other environmental or occupational risk factors. The heat stress hypothesis can be tested measuring heat exposure in different occupations and settings, together with mechanistically sound intermediate outcomes.