

LETTERS TO THE EDITOR

Pesticides and the Epidemic of CKD in Central America

To the Editor:

In a recently published article in *AJKD*, Dr Correa-Rotter and colleagues' attempt to disentangle the causes of an epidemic of chronic kidney disease (CKD) of unknown origin that is devastating farming communities in Central America, reviewing potential risk factors and causes and summarizing evidence for and against each. We believe the method used to assess the evidence was flawed; consequently, the authors' proposed priorities for future research are misguided.

Specifically, the authors conclude that heat stress likely is a leading risk factor in this CKD epidemic and should be a high priority for future research.¹ However, they also state that "[a]n etiologic role of pesticides in MeN [Mesoamerican nephropathy] is not likely but cannot be completely ruled out."^{1(p513)} We contend that heat stress cannot explain cases of CKD found in non-sugarcane workers and women. Moreover, CKD of unknown origin, which has been documented in Sri Lanka² and Central America, is virtually absent in other countries with similar weather conditions and long traditions of sugarcane cultivation.

Unfortunately, Central America has a long-standing and well-documented history of agrochemical misuse.³⁻⁷ The mere fact that some pesticides used regularly in Central America are clearly nephrotoxic⁸⁻¹⁰ should be sufficient reason to take them into account in the research agenda for this epidemic. Underestimating the role of pesticides in this epidemic could seriously undermine efforts to develop effective—and urgently needed—public health interventions for the CKD epidemic in Central America and other health problems that could be related to pesticide misuse.

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In Reply to 'Pesticides and the Epidemic of CKD in Central America'

To the Editor:

We thank Drs Orduñez and Silva¹ for their letter. We maintain that research-based evidence for pesticides as causal agents is weak. Although it is true that ubiquitous use exposes agricultural workers and communities to pesticides,² this does not indicate causality. New studies have results consistent with toxic environmental exposures, yet lack data on pesticides specifically.^{3,4} Although some weak associations have been reported,^{5,6} other studies have found no associations.^{2,7} As stated in our review, toxic pesticides constitute a major hazard for public health and may be implicated in Mesoamerican nephropathy. Moreover, given the enormous concerns of communities and governments, we agree that Mesoamerican nephropathy research should be upgraded to high priority. However, we require valid analytical designs exploring associations, with solid exposure assessment.

Recurrent dehydration and heat exposure remains a highly viable hypothesis,^{8,9} and heat stress also has been recognized as a risk factor for chronic kidney disease in a Thai population.¹⁰ The lack of additional reports does not argue for the absence of a heat stress cause, but rather for further investigation. Notably, dehydration promotes increased absorption of toxins into the kidney and may amplify their effects. It is premature to conclude that the epidemic in Sri Lanka and Mesoamerica have the same cause, and there is no proof of this assertion.

That said, we agree with Orduñez and Silva¹ that we cannot delay interventions based on our present knowledge; occupational heat stress is preventable, as are exposures to pesticides and other toxins.

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