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LETTER TO THE EDITOR

Letter to the Editor

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Sir,

This refers to the excellent review [1] on chronic kidney diseases (CKD) in Sri Lanka by Dr. Wimalawansa [Your journal 2014, 19:375–394] which gives a critical evaluation of the roles of proposed causative factors and its multi-factorial nature; the terminology introduced by Dr. Wimalawansa, CKD of multi-factorial origin. It also succinctly rejects the hypothesis based on arsenic–glyphosate-hard water as a causative factor [2], for which no data are available to date. Paper by Jayasumana et al., in Int. J. Environ. Res. Public Health did not add any useful scientific knowledge to this subject, except confuse the issue. This theory does not explain the specific geographical distribution of the disease since identical conditions exist in several non-endemic areas with similar agricultural practices and similar geographical terrain. One of the most recent findings on the causative factors is the high ionicity of the drinking water in the affected areas [3]. This is a valid hypothesis brought about by the increasing use of low quality agrochemicals (phosphates) and the accelerated Mahaweli project which carries a large amount of fertilizer runoff from the up country vegetable growing areas. The damage to kidney tissues due to ions such as ammonium, phosphate and fluoride according to the Hofmeister series is likely.

The only geo-environmental factor which correlates well with CKD distribution is fluoride [4]. Without exception, all patients have consumed fluoride-rich water (i.e., levels above 1.0 mg/L). The absence of this disease from other areas where fluoride is also present may be due to the Ca/Na ratio as suggested by Chandrajith et al. [5]. Data and detailed maps on the distribution of fluoride, hard water and the prevalence of CKD in the North Central Province (NCP) in Sri Lanka have been available for over a decade now. Fluoride is at the top of the series of anions which could damage kidney tissues according to the Hofmeister series, hence a likely candidate working with other chemicals in precipitating CRF.

As rightly pointed out by Dr. Wimalawansa et al., the negative socio-economic impact from this disease is huge [1] and largely ignored to date. Finally, I congratulate Dr. Wimalawansa for putting together this broad review article, very useful, accurate and a review based on the current data, in the EHPM that adds much value to the subject. It also systematically expelled several myths and misunderstandings in this field, giving scientists' breath of fresh air and new research directions, especially to consider the potential effects of multiple agents that are likely to contribute in contracting this disease.

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