



HEAL CKDu: Limiting chronic kidney disease of unknown origin in Andhra Pradesh – May 2020



The George Institute
for Global Health India

Facts:

- CKD is the 8th leading cause of death in India and the number of people dying from the disease in the country doubled between 2003 and 2013.
- CKDu is the second largest contributor of the CKD burden, affecting mostly young males.
- Unpublished cross-sectional data has indicated the existence of CKDu clusters with prevalence ranging from 30% to 60% and more than 5,000 deaths in the last 10 years in the Uddanam region of India.

Project cycle:

2020-2023

Partners:

The George Institute, India
The George Institute, Australia
Sri Ramachandra Institute of Higher Education and Research

Supporters:

Department of Health Research,
Ministry of Health and Family Welfare,
Government of India
The George Institute for Global Health

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Background:

- Chronic kidney disease of unknown etiology (CKDu) is a form of chronic kidney disease (CKD) with high-burden geographic clusters reported in Andhra Pradesh, Odisha, Maharashtra and Goa in India. The best known of these 'hot-spots' is the Uddanam region of Srikakulam District, Andhra Pradesh.
- Despite the reported high burden of CKDu, systematic estimation of the prevalence of CKDu or its causes in this region has not been undertaken.
- Andhra Pradesh has experienced repeated heat waves for the past four-to-five years. However, the impact of heat exposure on kidney health has not been evaluated in patients with CKD in Andhra Pradesh.
- The effect of heat stress on kidney function is an emergent area of research, particularly in the context of climate change and its effect on kidney health.

Aims:

- The overall goal of the Heat Exposure and Environmental Action for Limiting Chronic Kidney of Undetermined etiology burden in Andhra Pradesh (HEAL CKDu) project, the first of its kind in India, is to assess kidney health risks due to environmental heat stress in the Uddanam region.
- The project aims to determine if heat exposure is responsible for the high burden of CKD in this region by evaluating the role of heat stress in the development of acute kidney injury.

Methods:

- The first phase will recruit individuals representing occupations that involve prolonged heat exposure and physical exertion and compare them with age- and gender-matched controls without these exposures from the same geographic area. Heat exposure will be measured, along with change in kidney function during the course of the day in both groups.
- The second (intervention) phase will study the effect of hydration, protective clothing and behaviour change interventions aimed at minimising heat exposure and its effects on day-to-day kidney function on these individuals.

Impact:

- This study will contribute to improved insights into the role of heat stress on kidney health in the Indian population.
- The study's intervention component will help identify public health initiatives that can help prevent or minimise the risk of recurrent acute kidney injury and its progression to CKD.
- Standardised methods for estimating heat stress and its impact on kidney health will be developed and validated through this study.
- The results from this study will inform policy around occupational health of those exposed to extreme heat environments and develop preventive strategies that could translate into the occupational guidelines and standard monitoring mechanisms.

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