LETTER TO THE EDITOR

Urgent action needed: Addressing the growing risk of kidney disease in Pakistan amid extreme heat

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Dear Editor, Chronic kidney disease (CKD) is a growing global health concern, increasing morbidity and mortality by elevating cardiovascular risk and leading to end-stage renal disease (ESRD). Over the past three decades, the incidence and prevalence of ESRD have steadily risen.[1] Projections suggest that by 2050, between 4.902 and 7.083 million people worldwide will have end-stage kidney disease and need renal replacement therapy. In Pakistan, the prevalence of ESRD is estimated to range from 12.5% to 31.2%.[1] Acute Kidney Injury (AKI) impacts 8% to 16% of hospitalised patients, raising mortality rates and hospital stays. Incidence varies, with over 5,000 cases per million annually for non-dialysis and 295 per million for dialysis-requiring conditions. AKI affects 1.9% of inpatients and over 40% of Intensive Care Unit patients with sepsis.[2] Risk factors for kidney injury include social deprivation, smoking, alcohol consumption, obesity, low awareness among the elderly, advanced age, male gender, pre-existing CKD including diabetic nephropathy, and environmental factors like lack of clean water, inadequate sanitation, and exposure to toxins.[1,3]

Elevated ambient temperatures have been progressively identified as a risk factor for acute kidney injury across various countries.[3] Chapman et al. found that higher levels of hyperthermia and dehydration during physical activity in the heat significantly raise AKI biomarkers, increasing the risk of AKI.[14] An Australian study found that heat impacts AKI immediately, without a specific temperature threshold for increased emergency visits. Males, individuals over 64, and those with diabetes, hypertension, heart failure, or chronic kidney disease are more vulnerable to heat-induced AKI.[3]

Kidney-related diseases and deaths are prevalent in Pakistan, a nation frequently experiencing extreme summer temperatures of 45º to 55ºC in most regions, along with frequent power outages, poverty, poor housing ventilation, inadequate healthcare, rapid population growth, and low public awareness.[5] These factors collectively elevate the risk of acute kidney injury, especially for individuals with pre-existing kidney conditions. Preventing CKD is less expensive than treating it and managing its associated comorbidities.[1] Nephrologists and healthcare professionals must research the link between high temperatures and renal mortality on a larger scale. The health department and government should improve healthcare quality, boost employment, and raise public awareness, especially in summer. Addressing climate change, combating global warming, and ensuring economic stability are also crucial to mitigating extreme heat's health impacts and reducing kidney disease-related morbidity and mortality, ensuring a healthier future for all Pakistanis.

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