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Green Dialysis and its Relevance in Asia

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While human beings are living in abundance at present (with better health and wealth than ever before), we have reached this point by putting relentless pressure on our planet. Our activities are altering the oceans and ecosystems. This is to the extent that the current era has been described as 'Anthropocene'- a new geological age where humans have had the most impact on the planet. Human activities are changing our climate rapidly, with significant changes in CO₂ emissions, global temperatures and melting of ice masses since the 1960s. This has led to the UN intergovernmental panel on climate change (IPCC) calling a 'code red' for humanity.

We have all seen some of the recent impacts of climate change with drought and flood across the globe. The inequity of climate change impact becomes evident when comparing maps showing the regions contributing to highest carbon emissions vs regions most likely to be impacted by climate change. For countries in the South-East Asia region, the effects are likely to impact all countries from glacier melt in the Himalayas that will increase flooding and reduced food and water resources. Endemic diseases like cholera and dengue are expected to rise disproportionately along with scarcity of food and potable water.

In the Republic of Korea for instance, which has one of the highest population densities in the world, air temperature and sea level has risen by 1.5 C and 1-6 mm/year respectively between 1990-2000 with increasing numbers of hot days in Seoul.

Climate change is the biggest global health threat of the 21st century. It is already impacting health in many ways, including by leading to death and illness from increasingly frequent extreme weather events, the disruption of food systems, increases in zoonoses and vector-borne diseases, and mental health issues. These climate-sensitive health risks are disproportionately felt by the most vulnerable and disadvantaged people and communities. We are likely to have an additional 250,000 deaths from 2030-2050 due to CC with very high direct costs to healthcare. Unfortunately, **developing countries are least likely to cope without assistance to prepare and respond**. For instance, the largest climate crisis refugees come from some of the most populated developing parts of the world (such as China, Bangladesh and India).

The climate crisis can also affect renal patients on dialysis. Dialysis units in vulnerable areas need effective climate crisis management plans. Patients in vulnerable areas may need education on early evacuation and always have an emergency kit available.

Climate change may potentially increase episodes of acute kidney injury (via heat stress mechanisms), chronic kidney disease (the CKD-U epidemic), vector borne diseases and kidney stone disease.

If healthcare was a country, it would be the 5th largest greenhouse gas emitter in the world. A large portion of emissions comes from the healthcare supply chain itself. Both hemo and peritoneal dialysis (HD and PD) contribute to environmental issues.

HD is water intensive- a standard 4-hour session can draw up to 500L of mains water. Most reverse osmosis (RO) machines reject 2/3rd of feed water (highly purified). Up to 1 million L per annum can