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Lancet study reveals worrisome picture for kidney failures

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Latest research by The George Institute for Global Health published today in *The Lancet* shows that each year more than two million people globally die unnecessarily because they cannot access treatment for kidney failure (dialysis or a kidney transplant).

The research shows that the largest number of these preventable deaths occurred in India, China, Indonesia, Pakistan, and Nigeria, where less than a quarter of eligible patients receive treatment for kidney failure.

Lead author, Professor Vlado Perkovic of The George Institute, said the findings present a grim picture of the prevalence of kidney failure, which is worse than previously thought. "The sad reality is that most of these deaths are preventable and the biggest burden lies in low to middle income countries where there are instances of less than a quarter of patients receiving treatment for kidney failure," he said.

"The data shows that previous estimates of the number of patients who develop end stage kidney failure and die without getting treatment in India seem to be gross under-estimate. Over coming decades the number of patients with kidney failure rates will grow rapidly and millions of people appear doomed to die without access to dialysis without specific action, with India being hit hard," said Prof. Vivekanand Jha, executive director, The George Institute Global Health, India and Secretary, Indian Society of Nephrology.

"We urgently need to find ways to get people the treatment they need by making dialysis affordable, and by implementing preventative measures so fewer people develop kidney failure in the first place," he said.

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Explaining the correlation of Chronic Kidney Disease (CKD) in disadvantaged populations in India, Prof. Jha said, "Poverty-related factors such as infectious diseases secondary to poor sanitation, inadequate supply of safe water, environmental pollutants and high concentrations of disease transmitting vectors continue to play an important role in the development of CKD in low-income communities in India. A high prevalence of CKD of unknown aetiology has been reported in rural agricultural communities from India too. The strong association with farm work has led to suggestions that exposure to agrochemicals, dehydration and consumption of contaminated water are probable causes."

"Effective kidney disease prevention strategies include controlling blood pressure and glucose levels, taking proven protective medications and managing key risk factors like diabetes and obesity, but archaic and inconsistent models of care and gaps in treatment such as lack of access to local health professionals stop people from getting these."

The cost of dialysis is a major barrier in low and middle-income countries including India, and the impact on health expenditure is vastly disproportionate to the numbers of people who use it. In the US for example, dialysis provision costs over $40 billion, consuming over 6 percent of health expenditure for treating a fraction of a percent of the population.

"In India, less than 10 percent of all End Stage Renal Disease (ESRD) patients have access to Renal Replacement Therapy (RRT). Despite recent progress, the transplant rates remain abysmally low. There are major disparities in renal care in India, with poorer states having fewer nephrologists and dialysis and transplant facilities. As a result, people living in these states receive less care," said Prof. Jha

"An Indian study shows, over 70 percent of patients undergoing kidney transplantation experienced catastrophic health-care expenditures. Entire families felt the impact of this, including job losses and interruptions in education of children. In India almost two-thirds of the patients are unable to continue dialysis beyond the Ã¯Â¬?rst 3 months because of Ã¯Â¬?nancial reasons," added Prof. Jha

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The way forward

"Dialysis has been around for half a century, yet the technology hasn't evolved substantively, remaining hugely expensive despite its simplicity," explained Professor Perkovic, "Computers have shrunk from the size of buildings to that of a watch in this time; that's the kind of radical overhaul needed."

As a result of this research, a world-wide competition is being launched today to design the world's first affordable dialysis machine, attracting a prize of $100,000.

"Dialysis machines purify the blood, replacing an essential function of the kidneys. If we can develop an affordable dialysis machine with low operating costs, that runs on solar power and uses local water sources, many more people will have access to the treatment and millions of lives could be saved," said Professer Jha. "India is a hub for developing affordable innovation, and we expect that Indian scientists and engineers will take this up as a challenge in the spirit of the Prime Minister Modi's call

for 'Make in India' and help millions of patients with end stage kidney failure not only in India, but worldwide."

The competition is sponsored by The George Institute, the International Society of Nephrology and the Asian Pacific Society of Nephrology, with the support of the Farrell Family Foundation.

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Incoming president of the International Society of Nephrology, Professor Adeera Levin of the University of British Columbia said that the International Society of Nephrology is proud to support the Affordable Dialysis Prize.

"We hope it will attract interest around the world, particularly in those countries where kidney patients stand to benefit the most from creative, innovative approaches to treatment at a price everyone can afford," said Professor Levin