

## Acute renal failure: an unacceptable death sentence globally

A 28-year-old male plantation worker in Bolivia, the father of two young children, was admitted to hospital with a history of vomiting, diarrhoea, and fever, causing severe dehydration. He had a serum creatinine of 396  $\mu\text{mol/L}$ . Despite vigorous intravenous and oral fluid replacement, his creatinine worsened to 598  $\mu\text{mol/L}$ . Gravity-driven peritoneal dialysis was available at the hospital. The patient was treated and, in a few days, his renal function recovered. He was discharged with a serum creatinine of 123  $\mu\text{mol/L}$  and returned to work in his rural area, his income being the only support for the family. Thanks to peritoneal dialysis, he survived to see his children grow, and maybe even become doctors.

In low-income countries, most people who develop acute kidney failure are not as fortunate as this patient. People continue to die as a consequence of this disorder, which is often preventable with simple measures (hydration or treatment of acute infection).<sup>1</sup> Those patients who progress to the stage at which renal replacement therapy would be indicated die because dialysis is simply not available. This fact is disturbing because there is an excellent chance of survival with full recovery when the kidney is given enough time to recover and life is sustained by dialysis. We believe that access to acute kidney failure treatment should be considered to be part of the right to the highest attainable standard of care.

The relevance of acute kidney failure as a major problem for public health has been recently emphasised in guidance issued by the UK's National Institute for Health and Care Excellence (NICE).<sup>2</sup> NICE estimate that acute kidney failure costs the UK National Health Service £434–620 million every year—more than do breast, lung, and skin cancer combined. Moreover, according to NICE, adequate care of acute kidney failure could avoid 42 000 deaths every year.

The global burden of acute kidney failure is calculated to be 13.3 million cases per year, 11.3 million of which are in low-income countries.<sup>3</sup> These numbers are based on the assumption that acute kidney failure has a similar incidence in high-income and low-income countries.<sup>3</sup> However, it is difficult to define the incidence of acute kidney failure in low-income countries, where more than half the world's

population lives. No nationwide disease registries are available, and data are usually derived from single-centre experience.

A recent study by Imani and colleagues<sup>4</sup> showed that among more than 2000 hospital admissions for gastroenteritis, malaria, and pneumonia in Kampala, Uganda, acute kidney failure was present in 13.5% of patients. In patients with gastroenteritis, the prevalence of acute kidney failure was 28.6%. The overall mortality rate was 25%, whereas mortality was 9.9% in similar patients who did not develop acute kidney failure.

In low-income countries, acute kidney failure commonly occurs in the community and is generally a disease of the young.<sup>5</sup> The high prevalence of acute kidney failure in young people, who are at their productive peak, has important socioeconomic consequences because their sickness imposes severe poverty upon families through deprivation of income. What is especially tragic is that, in low-income countries, patients frequently develop acute kidney failure as a complication of a single, potentially preventable, treatable, and reversible disease.

Access to renal replacement therapy is limited to fewer than 5% of patients who need it, especially in sub-Saharan Africa.<sup>6</sup> The common understanding is that dialysis treatment is too costly and too complex to be delivered in low-resource settings. Although true for haemodialysis or other extracorporeal techniques, this



understanding might not apply to peritoneal dialysis. In particular, gravity-driven peritoneal dialysis is an excellent candidate to become the renal replacement therapy of choice in low-income countries because it does not need additional equipment beyond simple consumables. The feasibility of acute peritoneal dialysis is shown by the rewarding experience in Moshi, Tanzania at the Kilimanjaro Christian Medical Centre,<sup>7</sup> and anecdotal initiatives in other sub-Saharan countries and in Asia, where positive results were obtained with peritoneal dialysis in acute kidney failure.

There is much goodwill in the international nephrology community to assist in the development of acute kidney failure programmes in low-income countries, although support should not be limited to provision of know-how for setting up peritoneal dialysis alone. A comprehensive programme is mandatory to assure its long-term sustainability. In our view, such a programme of care for acute kidney failure should be based on four elements: development of a training model for delivery of preventive care in local areas; development of small units to provide diagnostic services and prompt treatment (eg, fluid administration and drugs), including facilities for acute gravity-driven peritoneal dialysis in remote areas; development of specialised tertiary hospital centres for care of critical patients with acute kidney failure; and finally, involvement of regional or national health leaders. This programme builds on and would complement the Saving Young Lives project,<sup>8</sup> a partnership between the International Society of Nephrology, International Pediatric Nephrology Association, International Society for Peritoneal Dialysis, and Sustainable Kidney Care Foundations, which is already in place and supported by the Recanati-Kaplan Foundation.

The responsibility to improve access to care lies mainly with governments. However, non-governmental stakeholders, such as the pharmaceutical industry, share that responsibility too. Pharmaceutical companies can help to deliver the right to health. Dialysis manufacturers should consider their duty to support these rights.

Very low prices or even the donation of fluid, catheters, and other consumables for peritoneal dialysis would improve access to this cost-effective treatment for acute renal failure and, eventually, contribute to the saving of many young lives in poor countries. Our hope is that professional nephrology societies could undertake, over the next decade, to cut the acute-kidney-failure-associated mortality rate and improve health outcomes globally.

Strategies for the treatment of acute kidney failure could learn from the history of AIDS. The 3 by 5 initiative, launched by UNAIDS and WHO in 2003, set a global target to provide three million people living with HIV/AIDS in low-income countries with life-prolonging antiretroviral therapy by the end of 2005. The International Society of Nephrology should follow this example by launching a global target of 0 by 25—zero deaths of patients with untreated acute kidney failure in low-income countries by 2025.

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For The 3 by 5 initiative see <http://www.who.int/3by5/en/>