Proceedings

Annals of Nutrition & Metabolism

Ann Nutr Metab 2015;66(suppl 3):42–44
DOI: 10.1159/000381246

Published online: June 18, 2015

Acute Kidney Injury in Poor Countries Should No Longer Be a Death Sentence: The ISN '0 by 25' Project

Norberto Perico[a] Giuseppe Remuzzi[a, b]

[a]IRCCS – Istituto di Ricerche Farmacologiche Mario Negri, and [b]Unit of Nephrology, Dialysis and Transplantation, A.O. Papa Giovanni XXIII, Bergamo, Italy

Key Words

Acute kidney injury · Mortality · Low- and middle-income countries · International Society of Nephrology (ISN) · Healthcare

Abstract

Acute kidney injury (AKI) is a common disorder throughout the world that is associated with severe morbidity, mortality and cost. Although deaths due to AKI occur in both high- and low- and middle-income countries (LMIC), the majority of avoidable deaths occur in LMIC nations. If managed adequately and in a timely fashion, the majority of these cases of AKI are preventable, treatable and often reversible with simple measures. AKI also has a major economic impact on healthcare expenditure. This is particularly true in poor countries where AKI especially impacts young productive people, imposing severe penury on their families. The International Society of Nephrology (ISN) has launched a long-term program, the '0 by 25' project, which advocates that zero people should die of untreated AKI in the poorest part of Africa, Asia and Latin America by 2025. The mission is to eventually lessen the high burden in terms of deaths consequent to this disorder in resource-poor regions worldwide. This is a challenging but potentially feasible and productive initiative that requires a broad vision about how the public and private sectors can work in partnership with the governments of the LMIC countries and leading nongovernmental organizations operating locally, to ensure sustainability of the 0 by 25 program and save many lives.

The Global Burden of Acute Kidney Injury

Acute kidney injury (AKI) is an important cause of morbidity and mortality worldwide. The AKI global burden is estimated to be 13.3 million cases per year, 11.3 million of which are in low-middle-income countries (LMIC) [1]. In industrialized nations, AKI is seldom a community-acquired disease; the condition develops primarily in hospitalized patients. In these regions, the incidence of hospital-acquired AKI exceeds that of community-acquired AKI by five- to ten-fold, with AKI being reported in 7 to 18% of hospital inpatients yearly [2, 3]. On the other hand, AKI commonly occurs in the community in less-developed nations [4]. However, here it is difficult to define the incidence of AKI, since no nationwide disease registries exist and data are usually derived from single-center experiences.

KARGER 125

E-Mail karger@karger.com
www.karger.com/anm

Giuseppe Remuzzi, MD, FRCP
Centro Anna Maria Astori, Science and Technology Park Kilometro Rosso
IRCCS – Istituto di Ricerche Farmacologiche Mario Negri
Via Stezzano 87, 24126 Bergamo (Italy)
E-Mail giuseppe.remuzzi@marionegri.it

In the developing world, AKI is generally a disease of children and young adults [4]. Children are often affected in these poor regions, in some series constituting more than 15% of AKI patients [5]. The impact of AKI on the young has important socioeconomic implications. What is particularly tragic is that children and young adults continue to die in large numbers in low-resource regions as a consequence of this disorder, which in many cases is preventable and potentially treatable with simple measures, with few, if any, long-term health consequences [1]. Those patients with acute renal failure due to acute kidney insult, who progress to the stage at which renal replacement therapy is indicated, die because dialysis is simply not available [2, 6]. This is unacceptable, 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. Gravity-driven peritoneal dialysis (PD) may help lower the mortality from AKI in resource-limited settings, given the relatively low cost and complexity as compared to hemodialysis, as well as its significant efficacy on acute renal failure [7, 8].

In our opinion, treatment of AKI in these low-resource regions has to become as much a part of human rights as it is to administer antiretroviral drugs to treat people living with AIDS in LMIC.

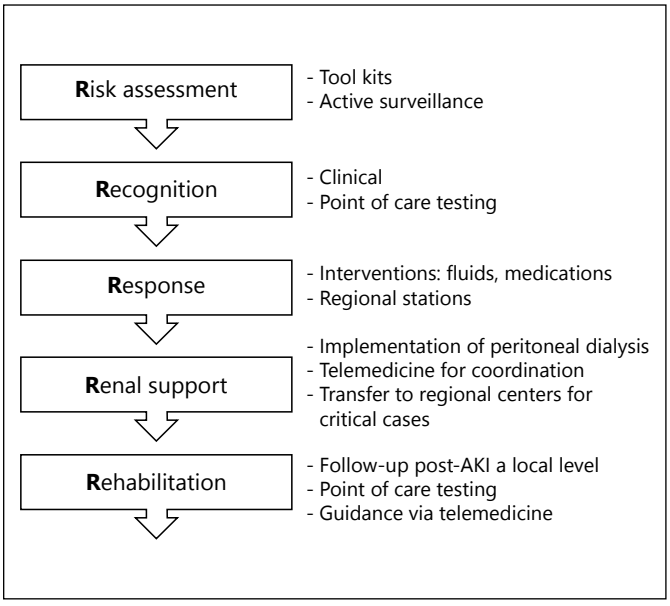

Fig. 1. The 5-R approach for a sustainable AKI care program within the ISN '0 by 25' initiative.

The ISN AKI '0 by 25' Project

The International Society of Nephrology (ISN) has created the human rights case statement '0 by 25,' which advocates that zero people should die of untreated AKI in the poorest parts of Africa, Asia, and Latin America by 2025 [9, 10]. For this initiative, under the project leadership of Ravindra Mehta, ISN has developed a multifaceted integrated programme with globally applicable strategies (available at www.0by25.org). They will operate at three levels, first to establish AKI as a contributor to Global Burden of Diseases. It will be pursued by collection of existing data and prospectively collected evidence. To address this issue, the 0 by 25 initiative has launched the *AKI Global Snapshot*, a prospective observational cohort study to compare risk factors, etiologies, diagnosis, management, and outcomes of AKI, the results of which have been presented at the World Congress of Nephrology (WCN) 2015 meeting in Cape Town. A follow-up longitudinal *AKI Cohort Study* will also be initiated in selected centers across the world during 2015 to capture sequential data on AKI and its long-term consequences. Second, the aim is to raise awareness of AKI in the worldwide community. Here, the target audience will be healthcare professionals, patients, academic researchers, worldwide organizations and foundations, country governments, politicians, as well as scientific societies. Finally, we would like to develop a sustainable infrastructure to enable 'need-driven' approaches for education and training, care delivery, and measurable outcomes. This approach will be tested in pilot studies in selected centers in LMIC, with the aim of rapidly scaling up the lessons learned for broader adoption at national and regional levels. The program is implemented according to five strategic components representing the 5R-approach as detailed in the figure 1.

The 0 by 25 initiative would be, however, sustainable if information and communication technology infrastructures as well as partnership with leading organizations operating locally will be developed to also allow renal healthcare in remote areas where non-specialist physicians and/or nurse practitioners are located to establish a connection with nephrologists in the tertiary hospitals. An additional component of long-term sustainability would be the involvement of different actors of healthcare policy worldwide, such as governments and WHO. Our responsibility as scientists is to establish connections among these organizations, providing them with the evidence to act so that their decision will have

an impact on people's health. Nongovernmental stakeholders such as pharmaceutical and non-pharmaceutical industries can also help improve access to care. For example, for the 0 by 25 project, dialysis companies should consider their right-to-health responsibility for the management of treatable AKI in resource-poor nations.

Conclusion

The demands for healthcare in low-resource regions and in many LMIC countries are changing. Ensuring access to clean water and sanitation, battling ongoing communicable diseases, and stemming the tide of preventable deaths such as those due to AKI should dominate the attention of those driving the healthcare agenda in many resource-poor nations. The hope is that ISN could catalyze an acceleration of these much needed changes by undertaking, over the next decade, a focused effort to markedly curtail treatable AKI-associated mortality and to improve healthcare outcome globally, especially in poor countries.

Disclosure Statement

Both authors have nothing to disclose.

References

1 Lewington AJ, Cerda J, Mehta RL: Raising awareness of acute kidney injury: a global perspective of a silent killer. Kidney Int 2013;84:457–467.

2 Lameire NH, Bagga A, Cruz D, De Maeseneer J, Endre Z, Kellum JA, Liu KD, Mehta RL, Pannu N, Van Biesen W, Vanholder R: Acute kidney injury: an increasing global concern. Lancet 2013;382:170–179.

3 Chertow GM, Burdick E, Honour M, Bonventre JV, Bates DW: Acute kidney injury, mortality, length of stay, and costs in hospitalized patients. J Am Soc Nephrol 2005;16:3365–3370.

4 Jha V, Parameswaran S: Community-acquired acute kidney injury in tropical countries. Nat Rev Nephrol 2013;9:278–290.

5 Esezobor CI, Ladapo TA, Osinaike B, Lesi FE: Pediatric acute kidney injury in a tertiary hospital in Nigeria: prevalence, causes and mortality rate. PLoS One 2012;7:e51229.

6 Couser WG, Remuzzi G, Mendis S, Tonelli M: The contribution of chronic kidney disease to the global burden of major noncommunicable diseases. Kidney Int 2011;80:1258–1270.

7 Ponce D, Berbel MN, Regina de Goes C, Almeida CT, Balbi AL: High-volume peritoneal dialysis in acute kidney injury: indications and limitations. Clin J Am Soc Nephrol 2012;7:887–894.

8 Chionh CY, Soni SS, Finkelstein FO, Ronco C, Cruz DN: Use of peritoneal dialysis in AKI: A systematic review. J Am Soc Nephrol 2013;8:1649–1660.

9 Schieppati A, Perico N, Remuzzi G: Eliminating treatable deaths due to acute kidney injury in resource-poor settings. Semin Dial 2014, DOI: 10.1111/sdi.12328.

10 Remuzzi G, Horton R: Acute renal failure: an unacceptable death sentence globally. Lancet 2013;382:2041–2042.