Translating innovation to clinical outcomes

There have been many significant achievements in the management of end-stage kidney disease (ESKD) patients on dialysis. We have seen progress in dealing with comorbidities, such as cardiovascular disease and diabetes among others. There has been progress in the care of dialysis patients in the management of access, bone mineral metabolism, anaemia, electrolyte imbalance, anticoagulation, etc. New evidence and technology pertaining to haemodialysis and haemodiafiltration have been launched in recent decades. Despite these developments to advance the care of ESKD patients, our community and our patients have always searched for innovations to further advance the care and ultimately the clinical outcomes for our patients.

Current dialytic therapies, such as low flux, high flux and haemodiafiltration, have been effective in the removal of the range of uraemic toxins from small solutes, such as urea, to middle molecules, such as β2-microglobulin. However, their ability to remove large uraemic toxins that play vital roles in inflammation, calcification and cardiovascular events has been limited. Therefore, there is an unmet need to address clearance of uraemic toxins, which are not effectively cleared by current therapies. In short, an artificial kidney membrane mimics the native kidney profile in clearing a wide range of uraemic toxins. Thus, an innovation in membrane technology that has the expanded capability to clear uraemic toxins closer to native kidney is needed.

The objective of this supplement is to provide new insights into the unmet needs in dialysis and the search for solutions. The articles will discuss the emerging science of large middle molecules and the increasing understanding of their roles on major causes of mortality and morbidity in dialysis patients, namely cardiovascular diseases and inflammation. The authors will discuss the innovations in membrane technology and how the technology can be translated to clinical solutions and outcomes.

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