An increasing number of recent presentations and publications by the international nephrology community have questioned the value of Kt/V as a marker of dialysis adequacy. Why did Kt/V rise to become so dominant in the dialysis discourse? Why has it fallen? Should we have been more alert and aware of the fact that one small, relatively inert and harmless molecule, urea, has kinetics that would never represent all the waste removal from our patient's bodies? In hindsight one could say that Kt/V oversimplifies a complex matter: that of adequacy.

The utility of Kt/V was born from the post hoc analysis of the 1980s National Cooperative Dialysis Study (NCDS) that suggested there was limited clinical value of a Kt/V greater than 1.0 (Gotch & Sargent, 1985). The intent of these researchers was not to establish just one marker of dialysis adequacy, however, the idea of setting a minimum Kt/V dose was highly attractive and embraced, in particular by US dialysis programs. Subsequently, the NCDS was associated with decreasing dialysis treatment hours and increased mortality rates. Notwithstanding, Kt/V has remained the principal marker of dialysis adequacy and has dominated dialysis discourse for over three decades.

The dominance of Kt/V in our language has been linked to clinician's and administrator's desire to simplify a complex set of measures down to one mathematical number (Bennett & Neill, 2008). Although an efficient solution, urea kinetics (the movement of urea) does not reflect the kinetics of larger, protein bound markers commonly associated with dialysis morbidity such as β2-microglobulin (Casino et al., 2010). Therefore, although the one size fits all mathematical number is attractive to administrators, quality markers, program directors and policy makers, Kt/V is only one marker (Vanholder, Glerieux, & Eloit, 2015). Unfortunately Kt/V does not take into account other aspects of the dialysis treatment including ultrafiltration rates, dialysis hours, frequency of dialysis, removal of other toxic solutes and residual renal function.

A brief analysis of the original NCDS study is a useful case study on how evidence can be ‘over’-used to justify treatment efficiencies. Although the intent of the NCDS was not to decrease US dialysis treatment times, the ‘evidence’ was used to justify rapid dialysis. Shorter hours using increased blood pump speeds and dialysate flows made everyone happy. Administrators saw more activity and patients were not required to be stuck in a dialysis units for long periods of time. Unfortunately these same patients became sicker, more hospitalised, suffered more side effects, and died quicker. Paradoxically higher Kt/Vs were also associated with higher mortality (Salahudeen, Dykes, & May, 2003). The NCDS was just one study with limited parameters and strict inclusion criteria and the lessons learned from embracing one study have been hard.

The current trends for dialysis in Australia and New Zealand of higher flux dialyzers and convective treatments such as haemodiafiltration have further diminished the utility of Kt/V. These treatments are generally considered as superior to the cellulosic low flux dialyses that were used in the original NCDS study. Newer fibres combined with machine technology advances has seen an improvement in the patient experience on dialysis. Experienced nurses and nephrologists will attest to decreased dialysis treatment side effects such as nausea, vomiting, cramping and hypotension.

There has been no one marker identified to replace urea and to pursue this line may lure us into another Kt/V type non-marker. Nurses, caring for people living with end stage kidney disease know that it is not whether the patient has a Kt/V of 1.2 to 1.4 that makes them healthy. Instead it is a multitude of factors such as treatments fitting in with their lives, balanced healthy diets, and the ability to undertake activities of daily living. They are the measures that are important to all people, but especially those burdened with end-stage kidney disease. Kt/V and urea as the main measures of dialysis treatment adequacy, efficacy or quality are coming to an end and should be considered as a minimum standard or, better still, not considered as one clinical or research measure.
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