FROM THE EDITORS

Technique Failure—Talking a Common Language

Technique failure (TF) is a daily reality for practitioners of peritoneal dialysis (PD)—the product of competing forces over which clinical teams have variable levels of control. It is a key measure of the success of the therapy, with high rates of TF being a common criticism leveled at it. Poor technique retention results in considerable cost to patients and healthcare systems, justifying the combination of TF and mortality being selected as the primary outcome measure of the international Peritoneal Dialysis Outcomes and Practice Patterns Study (PDOPPS) (1).

The documented causes of TF may be more or less robust, and indeed, clinical teams will be well aware how a given cause may impact on another. Thus, a peritonitis episode may be more likely to trigger transfer to hemodialysis in an individual who is not coping well on PD than in someone who is well supported at home, fully rehabilitated in the community, and for whom travel features strongly among their priorities. It is for this reason that PDOPPS has utilized a hierarchical approach to TF—permitting secondary and tertiary sub-causes to support the primary reason for TF. In their recent manuscript, the PDOPPS team reviewed the challenges around the definition of TF, including the variation in the collection of components of TF from registries across the world. Among these, the Australian and New Zealand Dialysis and Transplantation (ANZDATA) registry has the most granular information on causes of TF but, like all other registries, only analyzes the primary cause (1).

There is, however, in addition to cause, a second dimension to the definition of technique failure: the period of observation after the modality switch. Typically, in most studies this is defined as 30 days, although all too frequently it is not specified. In this issue of *Peritoneal Dialysis International*, Patrick Lan and colleagues (2) utilize transfers from PD in the ANZDATA registry to explore the effect of changing this period of observation among 16,612 patients who started PD between 1998 and 2002. Their stated aim was to determine an empirically justified definition of this dimension of TF, and so propose a framework for future reporting and research. Their approach was to examine the effect of stratifying the data by the subsequent period on HD that followed the switch from PD—ranging from 30 to 360 days. They also determined the effect this period of time on HD had on the chances of returning to PD after TF using a competing risks cumulative incidence function.

The impact of these different periods of time on HD on the definition of TF is several-fold. First, the likelihood of a patient

ever returning to PD is clearly influenced by the HD window that is used in the definition, with 24% returning if a 30-day interval is used but only 3% if that interval is 180 days. Second, and not surprisingly, the causes of TF are also influenced by that interval. Thus, potentially reversible reasons for TF that are likely to be temporary are more greatly represented in the shorter HD window, with irreversible causes being prominent if a longer definition is used. Mechanical failure was the reason for TF that was most likely to be associated with return to PD—with 46% of patients doing so within a year when the 30-day window was utilized. Importantly, infection was responsible for 28% of TF with the definition of 60 days, but this falls as the HD window extends. As the HD definition window is extended, reductions in mechanical and infective causes are balanced by increased mortality, which rises to 48% of TF when the 360-day definition is used. The authors suggest that since mortality is such an important cause of TF, it should be routinely included in the definition as a composite report of transfer to HD or death. They also propose, given the different information they provide, that both 30- and 180-day definitions be used. Their analysis also demonstrates elegantly the value of taking a competing risks approach. It is worth pointing out, however, that while they rightly focus their discussion on the differences seen when these different definitions are used, some of the causes of TF are remarkably constant. For example, ‘social’ cause of TF was not affected and was indeed remarkably low. One could speculate that this might have been a contributing factor more frequently than these figures suggest.

Where does this leave PDOPPS? The goal of PDOPPS is to better understand modifiable and measurable PD practices that impact on TF in order to identify those that may result in improved patient outcomes. It aims for ambitious data collection in a growing number of countries at both the patient and center level in a subset of randomly selected patients (both incident and prevalent) and centers. It currently defines a terminal event as death or permanent transfer to another dialysis modality, with more than 4 months being the selected interval to define discontinuation of PD. In light of this analysis by Lan *et al.*, it is clear that it would be more productive to undertake analyses at differing time intervals, thereby externally validating and extending the observations made in the ANZDATA registry. The possibility of linking specific practice patterns to particular causes and durations of TF has the potential to be very informative in shaping future guidelines and designing interventional trials.

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