

## Early Dialysis Initiation, a Look from the Rearview Mirror to What's Ahead

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### Looking Back

The article by Slinin *et al.* reported in this issue of *CJASN* presents some interesting trends regarding provider and patient care characteristics and early start of dialysis in the United States in 2006 (1). As reported by others, their study found that older patients, patients with diabetes, and patients with higher reported comorbid conditions and low body mass index initiated dialysis early (2,3). Four new findings concerning early start were that (1) more seasoned physicians started later than less experienced nephrologists, (2) graduates of foreign medical schools (FMGs) tended to start patients earlier, (3) 0–12 months of predialysis care versus no care was related to an earlier start, and (4) the presence of an arteriovenous (AV) access versus a dialysis catheter at the time of dialysis initiation was associated with an earlier start.

The first new finding is easy to understand and is not unexpected. Nephrologists with more years of experience may be accustomed to starting dialysis much later, as was done in the 1980s and early 1990s. The dependence on United States guidelines that suggested an early start may have been more prevalent with recent nephrology trainees. The reason for an earlier start by FMG nephrologists is not easily explained. Also confusing is the finding that Medicaid as insurance was associated with an earlier start, while geographic areas with lower incomes were not associated with earlier start. Supplemental Table 1 in Slinin and colleagues' article reveals that FMGs tended to have poorer, Medicaid-insured patients. One hypothesis that could explain the higher early start in patients with an AV access, with some predialysis follow-up and for FMGs may be the "convenience factor." By this I refer to the easier management of patients with advanced CKD by thrice-weekly dialysis versus occasional outpatient follow-up. This approach is more likely in patients already followed by a nephrologist and may become easier to implement when a patient has a working AV access. One could theorize that FMG nephrologists were more likely to practice in less populated rural areas where they may have less physician coverage for their advanced CKD patient population. This situation may increase the likelihood of convenience-related early dialysis. Starting dialysis early in patients with an

AV access is "convenient" but may also be justified by the notion that use of a new AV access may help it mature.

### A Look Ahead

Recently, Rosansky and Clark reported that the trend toward an early dialysis start might be reversing, starting in 2009 (4). Many things might relate to this international trend, including no benefit from early start in the IDEAL (Initiation of Dialysis Early or Late) randomized controlled trial, as well as evidence of possible harm of early start of dialysis in a 1996–2008 United States cohort of persons under age 65 years with low comorbidity (5,6). For the United States population of persons age  $\geq 67$  years newly starting dialysis, Crews *et al.* reported that patients with an early dialysis start have comorbidity-adjusted greater mortality and hospitalizations than patients who start at a lower estimated GFR (eGFR) (7).

Other factors that may support the trend away from an early start are the failure of continuous hemodialysis therapies to provide a meaningful mortality or morbidity benefit; an appreciation of long-term potential stability of renal function even in advanced CKD; and multiple reports of the harms associated with dialysis, including higher rates of stroke after initiation of dialysis (8–12).

The most recently published European guidelines on dialysis initiation emphasize renal failure–related symptoms to justify dialysis initiation (13). Although symptoms of renal failure may drive dialysis start in the future, a recent European survey of nephrologists found that eGFR is still an important consideration (14). The 2012 Kidney Disease Improving Global Outcomes guidelines on dialysis initiation state that renal failure symptoms are likely to occur at an eGFR of 5–9 ml/min per 1.73 m<sup>2</sup> (15). Unfortunately, there is almost no information on levels of renal function and associated symptoms related to renal failure (8). In fact, although most national and international published guidelines on dialysis start assume that the renal failure–related symptoms would occur before an eGFR reached 5 ml/min per 1.73 m<sup>2</sup>, this has never been documented (8). Many patients may remain asymptomatic at an eGFR < 5 ml/min per 1.73 m<sup>2</sup>, and in these cases there is no convincing evidence

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that start of dialysis is beneficial. In fact, in Taiwan, starting at an eGFR of 3 ml/min per 1.73 m<sup>2</sup> appeared to be more advantageous than starting at an eGFR in the 6-ml/min per 1.73 m<sup>2</sup> range (16). The 2012 Kidney Disease Improving Global Outcomes opinion that renal failure symptoms that justify dialysis probably do not occur before eGFR is <10 ml/min per 1.73 m<sup>2</sup> may further decrease the early start trend (15).

Looking out 5 or 10 years, several issues may fuel the move toward a later dialysis start, while at the same time there may be situations where early start may continue or increase. An emphasis on conservative and palliative care in elderly and high-comorbidity patients with ESRD may decrease too-early dialysis starts (17). This trend, together with the move to capitated payment through accountable care organizations and ESRD seamless care organizations, may lead to profit-driven decisions to start dialysis late or not start it at all. These organizations are more likely to be found in urban areas. Thus, in the future one could imagine that rural indigent patients with ESRD may continue to start dialysis early and be out of step with the national trend toward a later dialysis start. Ericksen *et al.*, pointed out that rural dialysis patients have less nephrologist follow-up (18). Harley *et al.* reported that a higher dialysis patient case-load in urban areas was associated with higher mortality, a relationship that may well hold for rural areas (19). Lichter and Parsi reported that “rural blacks are even more ‘ghettoized’ than blacks living in metro areas” (20). Kimmel *et al.* found that black dialysis patients in highly segregated areas have a higher mortality than those in less segregated areas (21). Thus, both early and late start of dialysis and patient survival rates by rural versus urban and by practice type (capitated, large group versus small group, or solo nephrologist) need to be tracked to identify possible withholding of dialysis when indicated, as well as continued early dialysis start, especially in the rural United States, with possible higher mortality than other areas of the country.

Another possible future scenario is the public perception that dialysis is being withheld as a result of profit-driven capitated payment or an emphasis on palliative care. This may lead to a patient-promoted backlash, with a reversion to earlier dialysis start and or use of dialysis in futile situations. One way to help avert this possibility is to survey a sample of nephrologists, using a validated research tool, regarding theoretical personal choices concerning end-of-life dialysis decisions. Nephrologists, like other physicians, may well opt for nondialytic end-of-life care, especially in futile medical situations. If this were the case, proliferation of the results of this study could help other nephrologists validate their suggestion to withhold dialysis and use palliative care.

Many patients start dialysis after an AKI episode (7,22). The relationship between an early start in the hospital after AKI versus an elective early start in an outpatient setting has not been studied. Some of the morbidity and mortality disadvantage of an early start could relate to the fact that some post-AKI are sicker.

Finally, it has become clear that many patients have started long-term dialysis without a clear understanding of what to expect and little personal contribution to the decision process (23). This may well have contributed to the rising percentage of the incident dialysis cohort, especially the early-start subgroup, which discontinued dialysis. Ellwood

*et al.* found that the trend of withdrawal from dialysis increased between 2001 and 2009, especially in patients  $\geq 75$  years old who initiated dialysis early (24).

In conclusion, the trend toward a progressively earlier start of dialysis is not supported by clinical evidence (4,8). The early-start trend is related not just to patient comorbidity issues and renal function levels but also to provider biases and practice patterns. Much more information is needed regarding dialysis initiation scenarios, including how often initiation follows an AKI episode (especially in patients with very short life expectancy), which renal failure-related symptoms triggered the start of dialysis, and the relationship between these symptoms and outcomes. Random samples of incident dialysis patients should be surveyed to document their predialysis understanding of and input into the decision to start long-term dialysis. In addition, tracking rates of discontinuation of dialysis may indicate unprepared and uninformed patients. The patterns of early, late, or no start of dialysis by urban versus rural areas and patient demographic characteristics, as well as by the size and type of dialysis practices and nephrologist characteristics, should be examined to uncover potential adverse consequences related to the dialysis start issue. Such consequences include the possible continuation of early start in less populated areas, with adverse effects on survival, and the failure to offer dialysis or wait too long to start dialysis in capitated practices that benefit from late or no dialysis start. It is hoped that future emphasis on a good death and end-of-life experience will end the trend of the past decade to early, and often unnecessary, dialysis.

#### Disclosure

None.

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See related article, “Provider and Care Characteristics Associated with Timing of Dialysis Initiation,” on pages 310–317.