Think Twice before Postponing Chronic Dialysis in Children

The article by Winnicki et al. and the related editorial by Larkins and Craig raises important questions about indiscriminately postponing dialysis in children in every clinical setting.

Multiple studies have shown that the global variation in eGFR at dialysis initiation in children is large due to multiple reasons: lack of evidence base, complexity of ESKD in the pediatric population, and temporal trends following clinical guidelines recommendations. However, the current median eGFR at dialysis initiation is 7.8, 8.1, and 8.2 ml/min per 1.73 m² in the United States, Canada, and Europe, respectively (all below the cutoff limit of 10 ml/min per 1.73 m²).

The only published randomized controlled trial (RCT) studying the effect of initiating dialysis early (10–15 ml/min per 1.73 m²) versus late (5–7 ml/min per 1.73 m²) in adults revealed no differences in all-cause mortality, economics, or quality of life. Although the results of this RCT could not be entirely generalizable to children, we could conclude that, among patients with asymptomatic ESKD, initiation of dialysis can be safely postponed.

Recently, the European Society of Paediatric Nephrology/European Renal Association and European Dialysis and Transplant Association (ESPN/ERA-EDTA) Registry examined the same question in 2963 patients from 21 European countries using a eGFR cutoff value of 8 ml/min per 1.73 m² (representing more accurately the current practice worldwide and following clinical practice guidelines as per Kidney Disease Outcomes Quality Initiative 2015, National Institute for Health and Care Excellence 2018, and Kidney Disease Improving Global Outcomes 2019). There was no difference in terms of morbidity, mortality, growth, and access to transplantation, except a higher risk of developing hypertension among late starters (64% versus 51% among early starters). However, it is important to mention that the International Pediatric Peritoneal Dialysis Network found in 1001 children and adolescents on peritoneal dialysis that late dialysis start was associated with underweight (11% and 5% in children starting peritoneal dialysis at an eGFR of <6 ml/min per 1.73 m² and an eGFR of 9–12 ml/min per 1.73 m², respectively), which may favor early start in that setting.

Last but not least, lack of clinical information (renal residual function, clinical indications for starting dialysis, uremic symptoms), and statistical inborn errors of registry and observational studies (lead time, indication and survivor biases) might lead to over- or underestimation of the outcomes.

Until a RCT is conducted in children with the current data, and knowing the complexity of ESKD in children, we should only advise that eGFR is a poor indicator of deciding whether to start dialysis if this is used as the sole/main criterion. Even if recent data have demonstrated an association between early dialysis start (eGFR >10 ml/min per 1.73 m²) and mortality, clinicians might need to “think twice” about delaying dialysis if quality of life, growth, or uremic/hypertensive symptoms indicate the opposite.

DISCLOSURES

None.

REFERENCES


See related Letter to the Editor, “Authors’ Reply,” on page 2474.

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Authors’ Reply

We thank Preka et al. for their comments regarding our analysis using the US Renal Data System to investigate the association between higher versus lower eGFR at dialysis initiation in children and survival. We concur that postponing chronic dialysis in children in every clinical setting would be inappropriate and not supported by the current literature, and we do not suggest adoption of such practice based on our study results. We acknowledge there are limitations to the conclusions that can be drawn from our study given its observational nature and the lack of more granular data surrounding the reasons for dialysis initiation. Certainly, a causal relationship between higher eGFR at dialysis initiation in children and increased risk of mortality are not established with such a study design. We also thank the authors for highlighting their recent findings. As noted in their letter, in this European cohort of pediatric patients with CKD, no clinical benefit was found to be associated with earlier initiation of dialysis. The fact that no benefit to earlier initiation of dialysis in children has been identified in multiple observational studies, coupled with the trend toward initiation of dialysis at higher levels of kidney function in children with CKD over time, raises concerns regarding the recent changes in national practice patterns in the United States. A clinical trial would indeed be informative in this regard. However, we do note that timing of dialysis initiation is one of the areas where the observational evidence has agreed with clinical trial results, at least in adults. In the meantime, we agree that many clinical criteria, and certainly not eGFR alone, should be taken into account when deciding whether chronic dialysis therapy should be initiated. Regardless, efforts to increase living kidney donation and pre-emptive kidney transplantation rates should continue to provide children with CKD the best long-term health outcomes.

DISCLOSURES

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REFERENCES


See related Letter to the Editor, “Think Twice before Postponing Chronic Dialysis in Children,” on pages 2473–2474.

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