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Nephrologists rather than intensivists should manage kidney replacement therapy in the ICU: COMMENTARY

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Key Points:

Abstract:

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Nephrologists rather than intensivists should manage kidney replacement therapy in the ICU:

COMMENTARY

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This debate about *Who* should manage kidney replacement therapy (KRT) in the intensive care unit (ICU), the nephrologist or the intensivist, maybe more of a philosophical dilemma of objective idealism vs. pragmatism. We also have to consider the situation when the provider is trained both as an intensivist and a nephrologist[1; 2]. Within this context as well as an environment of changing patient stressors (i.e. COVID-19 pandemic), advancements in technologies, and the insurgence of multi-trained specialists, this debate outlines advantages, and the contemporary hindrances of performing KRT in the ICU under a nephrologist-first vs. intensivist-first approach.

**Premise with a philosophical tone**

While pragmatism evaluates ideas or actions in terms of the success of their practical application, idealism focuses on elements (i.e. consequences) more usually dismissed from that pragmatic reality[3]. As such, the pragmatic intensivist precisely times the initiation of KRT and clearly and timely outlines goals of solute and fluid management; while the “idealistic” nephrologist evaluates what KRT modality and intensity could better assist the patient to achieve those goals, keeping in mind the longitudinal process of KRT management and its potential consequences. These potential adverse effects include non-selective clearance of “good stuff”, rapid correction of electrolytes like sodium[4; 5], underdosing of drugs, and exposure to an extracorporeal circuit that can accentuate inflammatory responses. In addition, the nephrologist considers the etiology of AKI, baseline kidney function, and chance of kidney recovery; all under the context of the *primum non nocere* whisper of Hippocrates. That being said, both angles of expertise are essential for optimal patient care and can be learned and dynamically applied by properly trained clinicians.

**A potential solution**

A solution is to take the best of both worlds: a well-trained nephrologist or intensivist who is observant, vigilant, proactive, and who not only nurtures dynamic knowledge and interdisciplinary communications but also learns from all angles of expertise regarding the critically ill patient. In this debate, we can read impressions from exceptional role models in the field who have devoted their careers to excelling in these two worlds. Dr. Paul Palevsky and Dr. Ron Wald emphatically advocate for nephrologists to lead the management of KRT in the ICU, while Dr. Sean Bagshaw pragmatically describes the importance of intensivists in the management of KRT in the ICU with an appeal for the development of “unicorns” with multifaceted expertise. The latter being particularly important since the role of KRT in the ICU has expanded to incorporating adjunctive therapies such as plasma exchange, hemoperfusion, extracorporeal CO₂ removal, among others[6].

**Palevsky and Wald’s impressions**

Palevsky and Wald break the ice by stating that it is not debatable that the most skilled specialist in KRT -the nephrologist- is the one who must lead the delivery of this extracorporeal support to the critically ill patient. They also highlight the additional value of nephrology involvement in the care of critically ill patients in need of KRT in the ICU, such as the ability to diagnose uncommon causes of ICU-associated acute kidney injury (AKI) and the insights into drug dosing and advanced and early management of electrolyte and acid-base disorders. They do acknowledge that nephrology recommendations can be perceived by intensivists as tangential to the urgent needs of the patient; and therefore commend nephrologists to be proactive, present, up to date in advances in ICU care, and pragmatic in their recommendations. Palevsky and Wald also emphasize the value of the nephrologist in establishing early
contact with the critically ill survivors so then they can be followed in specialized post-AKI clinics and outpatient dialysis clinics if they remain KRT-dependent. They also comment on the additional expertise of the nephrologists in the management of the critically ill ESKD patient, other types of KRT beyond CKRT, and vascular access. Finally, they recognize that two key areas of frequent dispute in the management of KRT are the timing of initiation and fluid removal/regulation. They advocate for evidence-based approaches concerning initiation of KRT and flexibility for intensivists to adjust net ultrafiltration rates according to the trajectory of hemodynamics and critical illness in the patient, all under the umbrella of effective communication and coordinated care between all ICU stakeholders. Palevsky and Wald exquisitely frame their commentary around longitudinal and heterogeneous delivery of KRT (ICU, ward, outpatient in-center, home) being part of the nephrologist’s DNA with expertise through years of training and practice, while the intensivists should be careful not to confuse CKRT familiarity with expertise.

Bagshaw’s impressions

Bagshaw notes that Who should manage KRT in the ICU is less important than How it should be performed in a high-quality, safe, and effective manner. He also highlights that the question of Who should manage seems to be a circular argument and in most instances is context-specific and institution dependent. Bagshaw reasonably questions the capacity of nephrology services to provide “timely, around-the-clock, high-quality, expert consultation” to manage a high volume of critically ill patients needing acute KRT. He elegantly describes the key elements that a clinician (nephrologist or intensivist) should have to provide quality care to the debilitated critically ill population in need of acute KRT. Salient points are the integrated understanding of the acuity and trajectory of critical illness and its dynamic prognosis as well as a comprehensive knowledge of KRT physiology, prescription and monitoring. Bagshaw also highlights the crucial role of nephrologists during transitions of care from the ICU to the ward, particularly in patients in need of additional KRT. Importantly, Bagshaw strongly calls for a collaborative approach between nephrologists and intensivists independently of which team leads the KRT program[7]. He also advocates for dedicated ICU nephrology teams that communicate effectively with the primary ICU teams for the continuous support of critically ill patients in the ICU, particularly those requiring KRT.

Our takeaway

Intensivists and nephrologists encompass groups of well trained and highly needed subspecialists in the ICU, both with biases and susceptibility to errors, but both with a common passion in best serving the critically ill patient. While both groups agree to disagree at times, we all agree that we can better serve our patients if we talk to each other to create multifocal treatment plans when discussing KRT management in the ICU. Perhaps the nephrologists need to become more pragmatic with stepwise and timely recommendations while the intensivists continue to appreciate that KRT extends beyond the end of their shift. Therefore, there is no better way to finish this Editorial than paraphrasing a well cited proverb: If the intensivist wants to provide KRT quickly, they can go alone; but if the intensivist wants to do it better, they may consider waiting a few extra minutes (not hours) and listen what the nephrologist has to say.
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References:
[1] S.F. Sanghavi, and K.N. Campbell, Careers in Critical Care Nephrology: Opportunities and Challenges. Clin J Am Soc Nephrol 15 (2020) 1198-1200.
[2] A.D. Zeidman, M. Heung, M. Connor, Jr., A. Tolwani, and L. Yessayan, The Workforce in Critical Care Nephrology: Challenges and Opportunities. Adv Chronic Kidney Dis 27 (2020) 328-335 e1.
[3] G.I. Dunham J, Watson S, Idealism The History of a Philosophy, Acumen, 2011.
[4] L.T. Yessayan, B. Szamosfalvi, and M.H. Rosner, Management of dysnatremias with continuous renal replacement therapy. Semin Dial 34 (2021) 472-479.
[5] J.A. Neyra, V.M. Ortiz-Soriano, D. Ali, P.E. Morris, and C.M. Johnston, A Multidisciplinary Approach for the Management of Severe Hyponatremia in Patients Requiring Continuous Renal Replacement Therapy. Kidney Int Rep 4 (2019) 59-66.
[6] C. Ronco, and T. Reis, Continuous renal replacement therapy and extended indications. Semin Dial 34 (2021) 550-560.
[7] J.A. Neyra, and S.L. Goldstein, Optimizing renal replacement therapy deliverables through multidisciplinary work in the intensive care unit. Clin Nephrol 90 (2018) 1-5.