Cardiopulmonary Resuscitation in US Dialysis Clinics: Room for Improvement

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In this study, Pun et al. retrospectively investigated the initiation of cardiopulmonary resuscitation (CPR) and automated electrical defibrillator (AED) application among in-center hemodialysis patients by dialysis staff. The authors utilized data from the Cardiac Arrest Registry to Enhance Survival and Centers for Medicare and Medicaid Services (CMS) (1). In an earlier body of work, the same group showed that CPR was not provided by dialysis staff in nearly 20% of all in-clinic cardiac arrest events, and AEDs were not applied by dialysis staff in almost 50% of events (2). In this present study involving 1554 patients, the investigators reported that 15% of Black cardiac arrest patients did not receive CPR from dialysis staff compared with 9% of White patients, and 40% of Black cardiac arrest patients did not have an AED applied by dialysis staff compared with 34% of White patients. This disparity continued to be significant after accounting for all relevant patient characteristics, facility resources, quality measures, and facility comorbidities. Tellingly, more Black patients are dialyzed in larger facilities that have higher patient load with fewer nurses and technicians, lower rate of full compliance with CMS conditions of coverage, and a higher number of citations. The proportion of patients >65 years old was substantially lower among Black cardiac arrest facilities (40%) compared with White cardiac arrest facilities (48%). HIV/AIDS and hepatitis B prevalence rates were higher in the former. CPR among patients with ESRD is potentially lifesaving. Hence, the above findings merit circumspection. The equitable delivery of health care resource remains a considerable challenge to the provision of standard of care, and remedial action is needed urgently at the highest decision-making level.

Socioeconomic factors notwithstanding, this study also highlighted the prickly issue of implicit bias—a phenomenon that has been definitively demonstrated in various clinical scenarios (3) and has a profound effect on clinical outcomes albeit confounded by other factors. Its effect was undeniably palpable in the United States during the peak of the coronavirus disease 2019 pandemic (4). The full treatment of implicit bias requires a multi-pronged approach that permeates all corners of the ESRD realm, but a more equitable delivery of care for our dialysis patients can be considerably improved with efficient implementation of sound and practical policies. In this study, the authors found that facilities with a higher burden of comorbidity had an increased likelihood of staff CPR. Additionally, they also found a higher likelihood of AED deployment within facilities with a higher prevalence of congestive heart failure (1). Indeed, the racial disparities in hemodialysis adequacy, anemia, and bone mineral disease has been narrowed considerably over the years with far-reaching policies that tie in reimbursement (5). Should CMS consider tying in percent of patients with cardiac arrest receiving CPR and AED as one of the factors in its five-star rating system? Although human behavior is a result of implicit bias, it has been shown that human behavior, to some degree, can be altered with training, education, and conditioning.

The dialysis paradox describes the persistently observed phenomenon of higher rates of CKD among Black patients but improved survival when they reached ESRD, although the reverse was observed among younger patients (6). Many contributing factors have been proposed, such as socioeconomic factors, inequitable access to health care insurance, and nutritional and biologic differences. The findings by Pun et al. have added a layer of complexity to the paradox. As with other database analyses of this nature, the lack of granularity provokes more questions. What is the nature of citations that these centers received, and are they related to emergency preparedness? If so, they may mitigate the effect of implicit bias, which is itself difficult to quantify. In addition, are these in-center cardiac arrest rates influenced by the hemodialysis itself? Is there implicit bias in the dialysis prescription? Black patients on dialysis have been shown to have the strongest association between mortality and fluid retention (7), and how this interacts with individual or protocolized prescriptions will be illuminating.

Disclosures

S. Greenberg reports consultancy for DaVita (medical director of one of their dialysis units in Brooklyn, NY). E. Yap reports current employment by Aurinia Pharmaceuticals.

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Author Contributions
E. Yap was responsible for conceptualization, and both authors wrote the original draft of the manuscript and reviewed and edited the manuscript.

References

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