

Limitations of the Karnofsky Performance Status Scale in kidney transplant recipients

Dear Editor,

We have read with great interest the manuscript written by Ali et al. regarding the impact of kidney transplantation on functional capacity (FC) [1]. The authors used the Karnofsky Performance Status Scale (KPS) to assess the FC of kidney transplant recipients (KTRs). Since the 1950s, the KPS has been used as one of the earliest assessment tools. Users assign individuals a score between 0 (dead) and 100 (active, no restrictions) based on their ability to carry out daily activities. KPS was developed to assess patients with cancer. Currently, it is widely used to assess functional abilities both pre- and post-transplantation. The Organ Procurement and Transplantation Network (OPTN) requires reporting of KPS results at the time of transplantation for all adult recipients as a surrogate for measuring frailty.

The KPS facilitates the evaluation of functional ability. However, this assessment is dependent on the individual's perception of his/her own abilities, which may not be reproducible. Furthermore, the process of categorizing symptoms as mild or more significant and making decisions about which symptoms to regard as concerning are not clearly described and are primarily left to the individual who assigns a score. Given the variability in user reporting, validity and reliability are questioned. A study of the mean KPS scores across transplant programs by researchers with the Scientific Registry of Transplant Recipients (SRTR) highlighted this drawback [2].

Frailty is prevalent among both dialysis and predialysis patients [3,4]. As reported by McAdams-DeMarco et al., frailty after transplantation is likely dynamic in kidney transplant (KT) recipients of all ages. In the first month post-KT, frailty deteriorates and then improves by three months post-KT [5]. Renal transplant recipients who were frail at the time of KT had significantly higher frailty scores in the long run. However, they had a greater likelihood of improvement in their Physical Frailty Phenotype score (PFP) and physiological reserve compared to non-frail renal transplant recipients, suggesting that KT may be beneficial even for frail candidates and that frailty is not an irreversible state of a poor physiological reserve for all KT recipients. The improvement in physiologic reserve may improve physical and kidney disease-specific quality of life among frail KT recipients. However, not all of these improvements are sustained over time [5].

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The author(s) reported there is no funding associated with the work featured in this article.

ORCID

Mohamed Khalaf  <http://orcid.org/0000-0003-4065-2129>


Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

References

- [1] Ali H, Soliman K, Mohamed MM, et al. Impact of kidney transplantation on functional status. *Ann Med.* 2021;53(1): 1328–1308.
- [2] Snyder J, Salkowski N, Lamb K, et al. Karnofsky Performance Score and its use in risk adjustment of transplant outcomes in the United States. *Am J Transpl.* 2012:180–181.
- [3] Ali H, Abdelaal F, Baharani J. Assessment of frailty in elderly predialysis population using simple tools. *Saudi J Kidney Dis Transpl.* 2017;28(4):716–724.
- [4] Ali H, Abdelaziz T, Abdelaal F, et al. Assessment of prevalence and clinical outcome of frailty in an elderly predialysis cohort using simple tools. *Saudi J Kidney Dis Transpl.* 2018; 29(1):63–70.
- [5] McAdams-DeMarco MA, Chu NM, Segev DL. Frailty and long-term post-kidney transplant outcomes. *Curr Transplant Rep.* 2019, 6:45–51.

Ahmed Mahmoud Osman Daoud
*Nephrology Division, Internal Medicine Department, Kasr
Alainy Faculty of Medicine, Cairo University, Cairo, Egypt*
 Ahmed.daoud84@yahoo.com

Mohamed Khalaf 
*Gastroenterology Division, Internal Medicine Department,
Medical University of South Carolina (MUSC), Charleston,
SC, USA*

Mahmoud Nassar
*Internal Medicine Department, Icahn School of Medicine at
Mount Sinai/ NYC H+H Queens, New York, NY, USA*

Received 13 December 2021; revised 17 March 2022; accepted 18
April 2022

© 2022 The Author(s). Published by Informa UK Limited, trading as
Taylor & Francis Group

This is an Open Access article distributed under the terms of the
Creative Commons Attribution License ([http://creativecommons.org/
licenses/by/4.0/](http://creativecommons.org/licenses/by/4.0/)), which permits unrestricted use, distribution, and
reproduction in any medium, provided the original work is properly
cited.