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Contacts: Tracy Hampton • (312) 339-9067 • thampton@nasw.org
Christine Feheley • (202) 640-4638 • cfeheley@asn-online.org

FRAIL KIDNEY TRANSPLANT RECIPIENTS FACE HIGHER RISK OF COGNITIVE IMPAIRMENT

Cognitive function improved after transplantation but subsequently declined.

Highlight

- Among kidney transplant recipients, cognitive performance improved significantly for both frail and nonfrail recipients by 3 months post-transplant.
- Between 1 and 4 years post-transplant, improvements plateaued among nonfrail recipients, whereas cognitive function declined among frail recipients.

Washington, DC (January 24, 2019) — Among adults undergoing kidney transplantation, frailty was associated with cognitive decline over several years. The findings, which appear in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN) suggest that efforts are needed to preserve cognitive function in frail kidney transplant recipients.

Lower kidney function is associated with worse cognitive function, but cognitive impairment is still present in many kidney transplant recipients after their kidney function is restored. Also, frailty—a decline in reserve and function across multiple physiologic systems that can cause physical and cognitive impairments—is a predictor of adverse outcomes in kidney transplant populations. It is unclear whether frail recipients experience post-transplant cognitive improvements.

To investigate, Nadia Chu, PhD, MPH (Johns Hopkins School of Medicine) and her colleagues under the guidance of senior author, Mara McAdams-DeMarco, PhD (Johns Hopkins Bloomberg School of Public Health), assessed pre-transplant frailty and cognitive function in 665 adult kidney transplant recipients, and they measured cognitive function up to 4 years post-transplant.

The team found that 15% of the patients were frail. After adjustments, pre-transplant cognitive scores were significantly lower among frail patients compared with nonfrail patients (89.0 vs. 90.8 on a scale of 0 to 100 with higher scores indicating better cognitive function). By 3 months post-transplant, cognitive performance improved significantly for both frail and nonfrail recipients. Between 1 and 4 years post-transplant, improvements plateaued among nonfrail recipients, whereas cognitive function declined among frail

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recipients. At 4 years post-transplant, cognitive scores were 5.5 points lower for frail recipients compared with nonfrail recipients.

"The great news is that, on average, everyone improved in cognitive function, regardless of age, sex, race, and frailty status in the short-term, likely as a result of the restoration of kidney function. But while non-frail recipients sustained their higher levels of cognitive function over the 4-year follow-up period, frail recipients actually began to deteriorate between 1-4 years post-kidney transplantation to levels that were on-average lower than their pre-kidney transplantation cognitive function," said Dr. Chu. Dr. McAdams-DeMarco added that clinicians may consider regularly monitoring cognitive function after kidney transplantation. "Efforts to mitigate cognitive decline among frail kidney transplant candidates to prevent cognitive impairment and dementia—which has been found to be more common among kidney transplant recipients aged 55+ years than older adults generally—should begin within 1 year post-transplantation," she said.

Study co-authors include Alden L. Gross, PhD, MHS, Ashton A. Shaffer, BA, Christine E. Haugen MD, Silas P. Norman, MD, Qian-Li Xue, PhD, A. Richey Sharrett, M.D., DrPH, Michelle Carlson, PhD, Karen Bandeen-Roche, PhD, Dorry L. Segev, M.D., PhD, and Mara A. McAdams-DeMarco, PhD.

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The article, entitled "Frailty and Changes in Cognitive Function After Kidney Transplantation—Failure to Recover to Baseline Levels," will appear online at <http://jasn.asnjournals.org/> on January 24, 2019, doi: 10.1681/ASN.2018070726.

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@nadiaMchu
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Media: Audrey Huang <audrey@jhmi.edu> at the Johns Hopkins School of Medicine, and Barbara Benham <bbenham1@jhu.edu> at the Johns Hopkins Bloomberg School of Public Health.