

# Simple 'frailty' test predicts death, hospitalization for kidney dialysis patients

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Johns Hopkins scientists report that a 10-minute test for "frailty" first designed to predict whether the elderly can withstand surgery and other physical stress could be useful in assessing the increased risk of death and frequent hospitalization among kidney dialysis patients of any age.

In a study described in the *Journal of the American Geriatrics Society* and published online yesterday, the Johns Hopkins investigators said [dialysis patients](#) deemed frail by the simple assessment were more than twice as likely to die within three years, and much more likely to be hospitalized repeatedly.

Results of the frailty test, which measures physiological reserve, suggest that kidney failure patients who submit to the long and arduous process of mechanical blood cleansing several days a week are undergoing a premature aging process detrimental to their health, the researchers say.

"More than 600,000 people are on dialysis and they have a wide range of mortality and hospitalization risks," says study leader Dorry L. Segev, M.D., Ph.D., an associate professor of surgery at the Johns Hopkins University School of Medicine. "But we're not very good at predicting who is at more—or less—risk for hospitalization and death. This [assessment tool](#) gives us much better insights into which dialysis patients are at greater risk, so that their treatment can be tailored to minimize complications, hospitalizations or death."

[Dialysis machines](#) do much of the work of damaged kidneys, cleansing

the blood of waste and excess water. Dialysis cannot, however, fully compensate for the blood pressure and fluid control roles played by kidneys, and the body can weaken as it tries to make up for what is missing, Segev says. The only cure for kidney failure is a [kidney transplant](#).

In the study, frailty was measured using a five-point scale developed at Johns Hopkins. Patients are classified as frail if they meet three or more of the following criteria: shrinking (unintentional weight loss of 10 or more pounds in the previous year); weakness (decreased grip strength as measured by a hand-held dynamometer); exhaustion (measured by responses to questions about effort and motivation); reduced physical activity (determined by asking about leisure time and activities); and slowed walking speed (the time it takes to walk 15 feet).

Segev and his team enrolled 146 hemodialysis patients between January 2009 and March 2010, and followed them through August 2012. At enrollment, 50 percent of the participants who were 65 and older, and 35 percent of those under 65, were measured as frail. The three-year mortality rate for frail participants was 40 percent, compared to 16.2 percent for the non-frail. Of those hospitalized more than twice over the study period, 43 percent were frail, while only 28 percent were not frail.

"We're learning that lessons from gerontology can help us understand younger patients with chronic diseases," Segev says.

Segev, a transplant surgeon and director of clinical research for transplant surgery at Johns Hopkins, says doctors who are aware of their patients' frailty may choose to examine those patients more frequently, adjust dialysis to a more conservative protocol, or make sure the patients have the social support needed to ensure they are taking their medications and otherwise taking care of themselves.

Physicians also could recommend physical therapy to those with low muscle mass to help them rebuild their strength. "You can imagine if you spend several days a week sitting in a chair hooked up to a machine, and the rest of the day recovering, that it would be difficult to get in shape and stay in shape," says Mara A. McAdams-DeMarco, Ph.D., an instructor in the Department of Surgery and the Department of Epidemiology at Johns Hopkins and another co-author of the study.

Provided by Johns Hopkins University School of Medicine

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