

Study: Most kidney dialysis patients not prepared for emergency evacuation

June 3 2010

Immediately after Hurricane Katrina in August 2005, the survival of more than 5,800 Gulf Coast kidney dialysis patients was threatened as the storm forced closure of 94 dialysis units. Within a month 148 of these patients had died.

Now nearly five years later, a survey of North Carolina kidney dialysis patients by University of North Carolina at Chapel Hill School of Medicine researchers finds that most have not taken the emergency preparedness measures that would enable them to survive a hurricane or any other disaster that disrupts power and water services. North Carolina ranks fourth among the states in hurricane landfalls, behind Florida, Texas and Louisiana.

"End stage [kidney disease](#) patients are dependent on medical treatment at regular intervals for their ongoing health, and, as such, are particularly vulnerable to the effects of a disaster. We found that patients on dialysis are largely unprepared for such an event, whether they are forced to stay in their homes or evacuate," said Mark Foster, lead author of the study.

Foster, a UNC medical student, presented the results June 3 at the annual meeting of the Society for Academic Emergency Medicine in Phoenix. His mentor in the project was Jane Brice, MD, MPH, associate professor of emergency medicine and medical director of Orange County EMS.

Dialysis is a treatment for [kidney failure](#). Dialysis filters the blood of harmful wastes, extra salt and water. Patients who need dialysis typically

must go around 3 times a week to a dialysis facility that is equipped with dialysis machines and staffed by medical professionals. [Dialysis machines](#) require both electricity and sterile water, both of which may be unavailable for several days or even weeks in disaster-impacted areas. If dialysis cannot be provided for an end stage kidney disease patient, then toxic molecules and electrolytes will accumulate that can lead to a number of serious health problems, including death.

In the survey, 311 dialysis patients receiving treatment at six regional dialysis centers in central North Carolina answered questions about their demographics, general [disaster preparedness](#), dialysis-specific preparations for "sheltering in place" at home, and preparations for a forced evacuation.

Both the general disaster preparedness and dialysis-specific preparedness of most respondents was poor, regardless of their sex, race, age, income or level of education.

With regard to general disaster preparedness, 58 percent said they had enough bottled water at home to last for three days while 54 percent said they had enough food and water for three days. Forty-eight percent said they had 75 percent of the items on a disaster preparedness checklist recommended by the Department of Homeland Security while 38 percent said they had both food and water for three days and 75 percent of the checklist items. Only 31 percent said they had collected all of these items into a disaster preparation bag or kit, as this checklist recommends.

In terms of dialysis-specific preparations, despite annual disaster preparedness education provided by the dialysis facilities, only 57 percent of patients understood what they needed to do for a renal emergency diet and only 6 percent had kayexalate, a drug used to treat increased amounts of potassium in the body, at home. Forty-three

percent knew of other dialysis centers where they could get treatment if their current center was out of service and 42 percent said they had sufficient medical records at home with treatment information that they could provide to a new center.

The study concludes that most survey respondents were unprepared for a potential disaster and therefore more efforts to address preparedness education techniques are warranted. The study authors note that the unpreparedness found in their study is in all likelihood not unique to North Carolina and is thought to be similar to the level of preparedness found among dialysis patients across the country.

In addition to Foster and Brice, authors of the study were Maria Ferris, MD, MPH, PhD, director of UNC Health Care's pediatric renal [dialysis](#) program; Stephanie Principe, an undergraduate student at Davidson University; Frances Shofer, PhD, director of research in the Department of Emergency Medicine; and Ronald J. Falk, MD, division chief of nephrology and hypertension and director of the UNC Kidney Center.

Provided by University of North Carolina School of Medicine

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