

Long-Term Care Survey Alert

Risk Management: Sidestep This Care Shortfall in Nursing Facilities

Don't be fooled by these 2 lab tests.

Researchers continue to home in on a deficiency that you want to head off at the pass.

A study on UTI diagnosis and antibiotic treatment in nursing facilities found that "44 case patients (46%) received inappropriate drug dosing based on creatinine clearance," according to an abstract of the study article in Archives of Internal Medicine (2011; 171(5): 438-443).

David Dosa, MD, MPH, lead researcher for the study, notes that "a lot of doctors use creatinine ... to determine renal function. But that can tend to underestimate renal failure in elderly people who have less muscle mass as they age," adds Dosa, a geriatrician at Brown University. "Oftentimes, you need to do the GFR [glomerular filtration rate] calculation," he tells Eli. "Some labs provide that and some don't." But "in an 85-year-old woman who weighs 70 pounds, a creatinine of 1.2 can be fairly significant in terms of renal failure. Also, drug-drug interactions become worse as renal failure gets worse."

"The BUN [blood urea nitrogen] may look normal but an older person with little muscle can have a very low GFR," says **Naushira Pandya, MD, CMD**, chair of the Department of Geriatrics at Nova Southeastern University College of Osteopathic Medicine in Ft. Lauderdale, Fla.

Another research study: "...[M]ore than 1 in 10 older long-stay patients in VA nursing homes had potentially inappropriate prescribing of primarily renally cleared medications when evidence-based, consensus-derived criteria were used," states an article on the research in the Journal of the American Medical Directors Association (2011; 12: 377-383).

"Participants were 1304 patients, aged 65 years or older, admitted between January 1, 2004, and June 30, 2005, for 90 days or more to 1 of 133 VA NHs," states the article abstract.

Steve Handler, MD, PhD, CMD, one of the study authors, and a long-term care medical director at the Veterans Affairs Pittsburgh Healthcare System, tells Eli that "the findings hold true today because of the well-characterized age-related decrease in renal function -- and the continued availability and prescribing of many medications that are primarily renally cleared."

As for calculating GFR: "Some think we should be using the [Modification of Diet in Renal Disease or MDRD] equation, which has not really been validated for many medications," says **Judy Beizer, PharmD, CPG**, a clinical professor at St. John's University in Jamaica, N.Y. "It's a more complicated equation than the Cockcroft-Gault, but a better indicator, if you're using GFR to stage kidney disease," she says.

In the JAMDA study article, the researchers conclude: "Using the MDRD may ... result in an overestimation of renal function and could lead to potentially inappropriate dosing and associated adverse drug events. Therefore, at the present time, we would recommend that clinicians use the Cockcroft-Gault equation to estimate kidney function and consult pharmacotherapy references for dosing guidelines for primarily renally cleared medications."

Resource: See the Cockcroft-Gault Calculator and the MDRD GFR Calculator at <http://nephron.com/cgi-bin/CGSI.cgi>.

Albert Barber, PharmD, CPG, always assumes "that the GFR is reporting renal function [in elderly people] as being better than it is." And "assuming someone doesn't have renal disease or diabetes which would affect GFR, renal function declines linearly as people age. So if people live long enough, their kidneys will fail in most cases by the time they are over age 100, although most people don't live that long. But if someone is 75 to 80, they will have half the renal function of someone 35 or 40. I prefer to dose conservatively based on that assumption," adds Barber, consulting pharmacist with

Clinical Rx Consulting in Stow, Ohio.

Watch Out for These Meds

In the VA study, "the most common potentially inappropriately prescribed medications to patients were ranitidine, glyburide, gabapentin, and nitrofurantoin," states the JAMDA article. Overall, the study included 21 medications. (To review all of the medications, go to www.ncbi.nlm.nih.gov/pmc/articles/PMC3102140/table/T5/.)

"The instructions for nitrofurantoin say to avoid use if the GFR is less than 60 [ml/min.], which would include most people in long-term care," says Barber. "I have seen some pretty serious delirium in people with impaired renal function taking Zantac [ranitidine], which is a pretty widely used drug. Cymbalta, which is used for neuropathic pain and depression, has a fairly significant warning, which is basically to avoid use in people with" impaired renal function, adds Barber.

Beizer says that if she sees someone admitted to the nursing facility with an order for IV vancomycin, she wants to know the person's renal function before dispensing the medication. "Otherwise, you are going to do the person harm," she warns. "Oral vancomycin doesn't make a difference as it's not absorbed -- it's used to treat C. difficile in the gut."

Also: "Some penicillins and cephalosporins, gentamicin, Bactrim -- even things like Lovenox, which is an LWM [low-molecular weight] heparin -- should have the dose adjusted for someone with low creatinine clearance," Beizer advises. "If you give digoxin at too high of a dose to someone [with low creatinine clearance], the person will become toxic," she adds.

"You can see confusion with higher doses of Cipro in someone who has [impaired renal function]," adds Beizer. "You can also check drug levels for gentamicin and vanco to identify toxic levels."

"A lot of times people have creatinine clearance of around 30 ml/min., which is the cutoff for reducing the dose" of a medication, says Beizer. "But you have to think about the person's condition and do you want to go with a higher dose because the person is more sick and then cut back -- or is the drug too toxic to do that? There's a lot of decision-making, particularly for people whose [renal function] is borderline."

Also keep in mind: "A lot of drugs aren't metabolized and excreted renally but rather by the liver CYP 450 system into inactive metabolites," Barber says. For more information on that topic, see an upcoming Long-term Care Survey Alert.