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## Following Protocols Can Reduce Medication Errors for Heart, Stroke Patients

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Whether caused by omission (failing to administer a drug, for example) or commission (giving a wrong drug), in-hospital errors contribute significantly to the estimated 44,000 to 98,000 deaths annually caused by medical errors.

"Cardiovascular medications are the most common drug class associated with medication errors, and cardiovascular patients remain at high risk in the acute hospital phase, even with the current safety strategies," said Andrew D. Michaels, M.D., chair of the statement's writing committee.

Hospitals have improved in some problem areas cited in the association's previous medications error statement, issued in 2002. These include electronic medical records and procedures to avoid confusing look- and sound-alike drugs at the prescription, pharmacy and administration levels.

"Still, there are areas that need improvement, and that is what we focused on in the statement," said Michaels, associate professor of medicine and director of the Cardiac Catheterization Laboratory and Interventional Cardiology at the University of Utah in Salt Lake City.

"The emergency department is one area where it is easy to make medication errors because of the speed at which patients receive care." Older patients are particularly at risk because of age-related changes in how the body metabolizes drugs and poor kidney function. They also may take several medications, many of which can interact with heart medications.

Chronic kidney disease slows the clearing of many drugs from the body, leaving patients more prone to medication errors. Such errors commonly involve delivering anti-clotting and clot-dissolving agents, and the interaction of cardiovascular drugs with other medications the patient is taking. "Stroke is a huge area where there continues to be a lot of errors with blood thinners and with agents used to dissolve a blood clot causing stroke," Michaels noted.

The statement recommends that hospitals and medical personnel:  
Obtain patients' accurate weight at admission.

Use the Cockcroft-Gault formula to calculate creatinine clearance (a measure of kidney function) at admission and as it changes. The formula uses a patient's blood creatinine measurement plus his/her gender, age and weight to measure the kidneys' capacity to clear drugs. It is the only formula recommended for use in determining drug dosages, but it is not commonly calculated at admission, Michaels said.

Adjust medication dosages and heighten surveillance for adverse medication events in older patients.

Standardise order forms and protocols for anticoagulation drugs.

Integrate pharmacists and nurses into cardiovascular care teams in the emergency rooms, intensive care unit, and in-patient wards to enhance communication and medication safety.

Use computerised order entry for providers (which allow all team members to read the physician's instructions for the patient's care), medication bar-coding technology (to ensure that the patient received the right drug and dose), and smart infusion pumps throughout all inpatient wards, including the emergency department.

Educate staff about "high alert" medications (particularly anticoagulants), safe administration techniques, medication-reconciliation procedures, look-alike/sound-alike medications, and automated-dispensing devices.

Create a culture of safety that promotes no-fault error reporting and interdisciplinary quality-improvement processes to reduce the frequency and impact of medication errors.

"Reducing medication errors is not a question of pointing a finger at one staff member and saying you messed up," Michaels said. "It's looking at hospital systems and how physicians, nurses, house officers, trainees and pharmacists can work together to minimize the effects of errors. It will require the whole hospital and the broader political and socioeconomic realm to promote a culture of safety."

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