

PHARMACOTHERAPY

Medication errors in dialysis patients undergoing PCI

A new analysis of the National Cardiovascular Data Registry in the US has revealed that dialysis patients undergoing percutaneous coronary intervention (PCI) who receive contraindicated antithrombotic medications are at an increased risk of in-hospital major bleeding.

In the US alone, more than 100,000 patients die every year because of medication errors. The FDA guides clinicians on the appropriate use of drugs in specific patient groups through drug labeling. Little is known about how frequently contraindicated medications are used or their outcome in clinical practice. Medications are often eliminated through the kidney, which suggests that patients on dialysis are at an increased risk of medication-related complications. There are increasing numbers of dialysis patients undergoing PCI and several antithrombotics, including eptifibade and enoxaparin, are contraindicated in this patient group.

Thomas Tsai, from Denver VA Medical Center, CO, USA and his coinvestigators analysed the use of eptifibade and enoxaparin in 22,778 dialysis patients who underwent PCI between 2004 and 2008 at 829 hospitals across the US. Patients were classified into two groups—those who were treated with enoxarin, eptifibade, or both and those who received medications that are not contraindicated such as bivaldurin and abciximab—and their clinical outcomes were reviewed. The researchers



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found that 22% of patients received a contraindicated antithrombotic drug and that these patients had a significantly higher risk of in-hospital bleeding and death. In addition, patients who received contraindicated medication were more likely to have heart failure or lung disease, present with acute coronary syndrome, or be cared for at centers with lower procedural volume at baseline. Gastrointestinal bleeding was the most common cause of bleeding in patients receiving a contraindicated antithrombotic drug and most deaths were due to cardiac causes.

This study shows that contraindicated medications are still in use in clinical

practice for dialysis patients undergoing PCI, despite the availability of nonrenally cleared antithrombotics and FDA drug-labeling of medications not recommended for use in certain patient groups.

“Educational efforts targeting clinicians who prescribe these medications and quality improvement interventions, such as amending clinical pathway order sets to include consideration of renal functions, are urgently needed” write Tsai and colleagues.

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Original article Tsai, T.T. et al. Contraindicated medication use in dialysis patients undergoing percutaneous coronary intervention. *JAMA* 302, 2458–2464 (2009)