

To hold or not to hold?

The dilemma with ACE inhibitors and angiotensin receptor blockers.

ACCESS THE ARTICLE

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STUDY IN A NUTSHELL

PURPOSE	The researchers sought to determine how outcomes are affected by withholding ACEI/ARB therapy in patients undergoing noncardiac surgery.
POPULATION	This study prospectively examined 14,000 international patients undergoing noncardiac surgery. All patients were at least 45 years old, and 4,802 were on chronic ACEI or ARB therapy.
METHODS	Using sophisticated statistical analysis, the investigators examined the relationship between withholding ACEI/ARB therapy and a primary composite outcome of all-cause death, stroke, or myocardial injury at 30-days after surgery. They also investigated the incidence of serious intra- and postoperative hypotension.
RESULTS	In those patients for whom the drugs were withheld in the 24-hours prior to surgery, the likelihood of suffering from any of the primary outcomes was decreased by 18%. There was a similar finding regarding intraoperative hypotension.
CONCLUSIONS	Withholding ACEI/ARB therapy before major noncardiac surgery was associated with a lower risk of death, postoperative vascular events, and intraoperative hypotension. A large, randomized trial is needed to confirm these findings.

ANALYSIS & COMMENTS

ACE inhibitors and angiotensin receptor blockers are common therapies in the treatment of hypertension, where they reduce the risk of cardiovascular events. The widespread use of these agents was highlighted in a recent study which observed that 43% of patients in the VA Medical System presenting for major surgery were taking a drug from one of these classes (London M. JAMA.2013;309:1704).

It's well recognized that ACEI/ARB therapy can predispose patients to intraoperative hypotension that may be resistant to conventional therapy. Although the ACC/AHA guidelines recommend continuing ACEI/ARB therapy perioperatively, this recommendation is based on questionable data. Indeed, a good deal of literature about the risk of refractory hypotension began to emerge in the 1990s. The findings were inconsistent, and the published work was held hostage to often methodologically suspect studies, but enough concern was present to keep it on our radar. Though concerns mounted, many providers were reluctant to withhold the medications due to reasonable concerns about the stressful nature of the surgical experience and what might happen if the drugs were discontinued.

The study in this clinical update utilized valid and reliable methods to assess the relationship between holding or continuing ACEI/ARB therapy in the 24-hours leading up to major, noncardiac surgery. The results were compelling, finding a powerful association with hazardous outcome in those who continued ACEI or ARB therapy up to the day of surgery.

The current study used data from the VISION study (JAMA. 2012;307:2295) that examined markers of cardiac stress. The current analysis focused on a subset of the VISION study population and offers justification for a requisite randomized controlled trial that, if large enough and performed with methodological sophistication, would prove some cause-and-effect relationships rather than just strength of association, which is the best we can determine with the current study's design. A definitive answer to this debate could potentially save hundreds of thousands of patients from significant cardiovascular or neurologic injury or even death.

CLINICAL TAKE AWAY MESSAGE

Discontinuing ACEI or ARB therapy 24-hours prior to noncardiac surgery may be associated with a significant reduction in major adverse cardiovascular and neurologic outcomes. It must be understood that definitive recommendations cannot be made until large, randomized trials are accomplished.

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CITATION

ROSHANOV P ET AL. WITHHOLDING VERSUS CONTINUING ANGIOTENSIN CONVERTING ENZYME INHIBITORS OR ANGIOTENSIN II RECEPTOR BLOCKERS BEFORE NONCARDIAC SURGERY. ANESTHESIOLOGY. 2017;126:16-27.