

New Evidence Against Use of Fluoroquinolones in Aortic Disease

Fran Lowry

April 15, 2021

Patients with aortic dissection (AD) or aortic aneurysm (AA) should not be given fluoroquinolones unless no other treatment options are available, the authors of a new report conclude.

In a retrospective cohort study which used data from the Taiwan National Health Insurance Database, adults with AD and AA who were exposed to fluoroquinolones had a higher risk for all-cause death, aortic death, and later aortic surgery.

The research is [published online](#) April 12 in the *Journal of the American College of Cardiology*.



Shao-Wei Chen

"Previous reports have highlighted the importance of identifying groups at high risk of aortic disease in order to discourage the use of this drug among them," first author Shao-Wei Chen, MD, PhD, Chang Gung University, Taoyuan City, Taiwan, told *theheart.org* | *Medscape Cardiology*.

Fluoroquinolones are among the most commonly used antibiotics, accounting for about 25% of all antibiotics used in the United States, the researchers write. The drug is widely used because it has few major complications and is well tolerated, they note, but can damage connective tissue collagen, causing atraumatic [rupture of the Achilles tendon](#). Previous studies have shown that fluoroquinolones can increase the risk for AD and AA by two to three times.

"The US Food and Drug Administration recently warned against the use of fluoroquinolones for high-risk patients, such as those with Marfan syndrome or a known aortic disease, but this warning is based on inferences from studies designed for the general population, instead of specific, high-risk groups," Chen said. "Our chief goal was to demonstrate the connection with solid and specific evidence."

From the Taiwan database, the researchers identified 31,570 adults who survived after being admitted to the hospital for AD or AA from 2001 and 2013. Exposure to fluoroquinolones was assessed every 2 months throughout that time period.

The researchers used another common antibiotic, [amoxicillin](#), as a negative control exposure.

Their analysis showed that the incidence of AD increased from 4.4% in 2001 to 6.9% in 2013, and that of AA increased from 6.5% to 9.9% ($P < .0010$ for both).

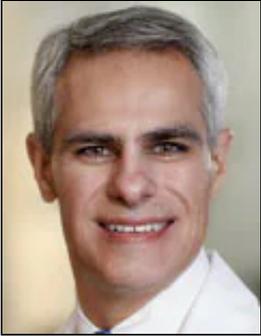
Fluoroquinolone use in patients with AD or AA was associated with a higher risk for all-cause mortality (adjusted hazard ratio (aHR), 1.61; 95% CI, 1.50 - 1.73), aortic death (aHR, 1.80; 95% CI, 1.50 - 2.15), and later aortic surgery.

The increased risk for adverse outcomes was similar in both the AD and AA groups.

Amoxicillin, in contrast, was not linked to any risk for adverse outcomes.

"Clinicians should carefully weigh benefits against the potential harm of fluoroquinolones for treating patients with AD or AA," Chen said. "Additional studies elucidating the pathophysiological mechanism of fluoroquinolones in specific genetic disorders can support the development of future prevention strategies."

An Important Contribution



Scott LeMaire

This report "represents an important contribution to the growing body of evidence supporting concerns that fluoroquinolones have a detrimental effect on the aortic wall," writes Scott A. LeMaire, MD, PhD, Jimmy and Roberta Howell Professor of Cardiovascular Surgery & Vice Chair for Research in the Michael E. DeBakey Department of Surgery at Baylor College of Medicine, Houston, in an [accompanying editorial](#).

Commenting further to *theheart.org* | *Medscape Cardiology*, LeMaire said: "The question is in which patients — because there are plenty of patients who benefit from fluoroquinolone treatment — might the harm outweigh the benefits, and the unanswered question, until the paper by Chen and colleagues, has been: Do these drugs increase the risk of a life-threatening problem in patients who have aortic disease?"

"We've been concerned about that for some time now because of other studies, including basic science studies that suggest that this indeed might be the case. This study by the group from Taiwan is the first to look specifically at that question in patients, and, although it's a retrospective study using administrative data, it does suggest that these drugs might be associated with a higher risk of rupture in patients with AD and AA, so it gives us some important information on who to be more cautious with," LeMaire said.

This work was supported by Ghang Gung Memorial Hospital, and the Ministry of Science and Technology. Chen and LeMaire report no relevant financial relationships.

J Am Coll Cardiol. 2021;77:1875-1887, 1888-1890. [Abstract](#), [Editorial](#)

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Cite this: New Evidence Against Use of Fluoroquinolones in Aortic Disease - *Medscape* - Apr 15, 2021.