

Women more likely to have poorer outcomes following aortic surgery

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Dr. Jennifer Chung, lead author, was part of a team of researchers who examined three different outcomes of aortic surgery: early death, stroke and a composite of complications. In every case, women were more likely to wind up sicker. Credit: UHN

New research says women fare worse than men following aortic heart surgery.

Researchers examined three different outcomes: early death, stroke and a composite of complications. In every case, [women](#) were more likely to wind up sicker.

The study, published in February 2019's sex-themed issue of *Circulation*, found if you're a woman, you're twice as likely to experience a stroke or death following [surgery](#). More specifically, women are 80 per cent more likely to die, 90 per cent more likely to experience a stroke, and 40 per cent more likely to experience a complication.

"We controlled for patients' age, weight, pre-operative health, co-morbidities, and when we took all of that into consideration, going into aortic arch surgery, you're slightly less than twice as likely to die if you're a woman," explains Dr. Jennifer Chung, [cardiac surgeon](#) and scientist at Peter Munk Cardiac Centre. She is the lead author on the paper.

Dr. Michael Chu, clinician scientist at Lawson Health Research Institute and cardiac surgeon at London Health Sciences Centre, says these findings are consistent with other recent findings in cardiovascular medicine that also suggest women experience worse outcomes. Dr. Chu served as the paper's senior investigator.

"Historically, this issue has not been well addressed," Dr. Chu says. "Sex-specific considerations are paramount in cardiovascular medicine, and we investigated this in the largest study to-date, looking at outcomes after thoracic aortic surgery.

"Similar to other areas in [cardiovascular medicine](#), our study suggests women present later in the disease process perhaps with atypical symptoms, like nausea. This may explain the difference in outcome between women and men in [emergency situations](#), when patients experience something like an aortic dissection, or a ruptured aorta.

"But even still—we analyzed both situations—when people came for elective versus emergency surgery—and women still did worse either way."

An aortic dissection is an emergency, and can initially present like a heart attack or a stroke. Symptoms include sudden chest pain, dizziness, nausea and challenges walking and speaking.

Dr. Chung stresses this study should prompt further research that will help clinicians figure out why women are suffering from poorer outcomes than men.

"We have discovered an unfortunate phenomenon that will hopefully lead us down a path of more personalized medicine," she says. "This helps us understand that surgery shouldn't be the same for men and women, and that we must educate ourselves about picking up symptoms in women sooner.

"Our take home is that we need to do more research."

This paper is an initiative by the Canadian Thoracic Aortic Collaborative (CTAC) and uses nationwide data from almost 1,700 patients who have undergone aortic arch surgery. Data comes from cities across Canada including Victoria, Laval, Toronto—including the Peter Munk Cardiac Centre—Ottawa, Sudbury, Kingston and Winnipeg.

A total of 10 institutions were involved in compiling this data. The CTAC, led by Dr. Chu, is a group of Canadian cardiac surgeons with interests in aortic surgery and work to promote it through a focus on clinical excellence, collaboration and research.

"There shouldn't be an outcome gap between men and women," says Dr. Chung. "We shouldn't accept that women are more 'fragile.' We should

work to minimize that gap as much as possible."

More information: Jennifer Chung et al, Sex-Related Differences in Patients Undergoing Thoracic Aortic Surgery: Evidence from the Canadian Thoracic Aortic Collaborative, *Circulation* (2019). [DOI: 10.1161/CIRCULATIONAHA.118.035805](https://doi.org/10.1161/CIRCULATIONAHA.118.035805)

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