

# Fluoroquinolones linked to increased risk of aortic disease

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New research from a Swedish and Danish team of researchers led from Karolinska Institutet lend additional support to a link between treatment with fluoroquinolone antibiotics and an increased risk of acute aortic disease. The study is published in the esteemed journal the *BMJ*.

Fluoroquinolone [antibiotics](#) are used globally to treat a variety of infections. Recent observational studies have raised concerns that they may be associated with a more than twofold increase in the risk of acute and life-threatening aortic disease ([aortic aneurysm](#) or dissection). However, due to limitations in study design, it has not been possible to draw firm conclusions.

To assess whether there actually is a link, researchers from Karolinska Institutet and Lund University in Sweden and Statens Serum Institut in Denmark analysed data from Swedish national health registers. The researchers were then able to compare the risk of aortic aneurysm or dissection among more than 360,000 treatment episodes of fluoroquinolones with the risk among the same number of treatment episodes of amoxicillin, another type of antibiotic.

## **66 per cent increased risk**

The results show a 66 per cent increase in the risk of [aortic aneurysm](#) or dissection in patients treated with fluoroquinolone [antibiotics](#). This corresponded to an absolute difference of 82 cases per 1 million treatment courses with fluoroquinolone [antibiotics](#).

"Our results confirm the findings in the previous studies but suggest that the [increased risk](#) is not as pronounced as indicated by those studies", says Björn Pasternak, associate professor at Karolinska Institutet's Department of Medicine, Solna, who led the study.

Like the previous ones, the current study is an observational study that is unable to prove a causal relationship. However, according to Björn Pasternak, because of its size and methodological design, it provides the most reliable results so far.

"Although the absolute risk increase was relatively small, the study's

findings should be interpreted in the context of the widespread use of fluoroquinolones. Our overall objective is to help inform clinical practice through high-quality evidence".

## Induce the activity of certain enzymes

The researchers also highlight a possible mechanism that might explain the association.

"One of the factors involved in the development of aortic disease is increased activity in tissue-degrading enzymes known as matrix metalloproteinases. We know that fluoroquinolones induce the activity of these enzymes, which is also thought to underlie the more well-known adverse effect of tendon pain and rupture", says Björn Pasternak.

The results of the study are also discussed in an editorial in the *BMJ*.

**More information:** Björn Pasternak et al. Fluoroquinolone use and risk of aortic aneurysm and dissection: nationwide cohort study, *BMJ* (2018). [DOI: 10.1136/bmj.k678](https://doi.org/10.1136/bmj.k678)

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