

Study shows heart failure, not stroke is the most common complication of atrial fibrillation

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The lifetime risk of atrial fibrillation (a heart condition that causes an irregular and often abnormally fast heart rate) has increased from one in

four to one in three over the past two decades, finds a study from Denmark in *The BMJ* today.

And among those with the condition, two in five are likely to develop heart failure over their remaining lifetime and one in five encounter a stroke, with little or no improvement in risk evident over the 20 year study period.

As such, the researchers say stroke and heart failure prevention strategies are needed for people with [atrial fibrillation](#).

Atrial fibrillation is estimated to affect 18 million people in Europe by 2060 and 16 million people in the US by 2050. In the English NHS alone, more new cases of atrial fibrillation are diagnosed each year than the four most common causes of cancer combined, and direct expenditure on atrial fibrillation has reached £2.5 billion.

Once atrial fibrillation develops, [patient care](#) has primarily focused on the risk of stroke, but other complications such as heart failure and heart attack have yet to be fully explored.

To address this knowledge gap, researchers analyzed national data for 3.5 million Danish adults with no history of atrial fibrillation at age 45 or older to see whether they developed atrial fibrillation over a 23 year period (2000–22).

All 362,721 individuals with a new diagnosis of atrial fibrillation during this time (46% women and 54% men) but with no complications, were subsequently followed until a diagnosis of heart failure, stroke or heart attack.

Potentially influential factors such as history of high blood pressure, diabetes, high cholesterol, heart failure, chronic lung and [kidney disease](#),

family income and educational attainment, were also taken into account.

The results show that the [lifetime risk](#) of atrial fibrillation increased from 24% in 2000–10 to 31% in 2011–22. The increase was larger among men and individuals with a history of heart failure, heart attack, stroke, diabetes, and chronic kidney disease.

Among those with atrial fibrillation, the most common complication was heart failure (lifetime risk 41%). This was twice as large as the lifetime risk of any stroke (21%) and four times greater than the lifetime risk of heart attack (12%).

Men showed a higher lifetime risk of complications after atrial fibrillation compared with women for heart failure (44% vs. 33%) and heart attack (12% vs. 10%), while the lifetime risk of stroke after atrial fibrillation was slightly lower in men than women (21% vs. 23%).

Over the 23-year study period, there was virtually no improvement in the lifetime risk of heart failure after atrial fibrillation (43% in 2000–10 vs. 42% in 2011–22) and only slight (4–5%) decreases in the lifetime risks of any stroke, ischemic stroke, and [heart attack](#) after atrial fibrillation, which were similar among men and women.

This is an [observational study](#), so no firm conclusions can be drawn about cause and effect, and the authors acknowledge that they may have missed patients with undiagnosed atrial fibrillation. Nor did they have information on ethnicity or lifestyle factors, and say results may not apply to other countries or settings.

But despite these caveats, they conclude, "Our novel quantification of the long term downstream consequences of atrial fibrillation highlights the critical need for treatments to further decrease stroke risk as well as for heart failure prevention strategies among patients with atrial

fibrillation."

Interventions to prevent [stroke](#) have dominated atrial fibrillation research and guidelines during this study period, but no evidence suggests that these interventions can prevent incident [heart failure](#), say UK researchers in a linked editorial.

They call for alignment of both randomized clinical trials and guidelines "to better reflect the needs of the real-world population with atrial fibrillation" and say this robust observational research "provides novel information that challenges research priorities and guideline design, and raises critical questions for the research and clinical communities about how the growing burden of atrial fibrillation can be stopped."

More information: Nicklas Vinter et al, Temporal trends in lifetime risks of atrial fibrillation and its complications between 2000 and 2022: Danish, nationwide, population based cohort study, *BMJ* (2024). [DOI: 10.1136/bmj-2023-077209](https://doi.org/10.1136/bmj-2023-077209)

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