

## NSAID Use Associated With Atrial Fibrillation

The use of nonsteroidal anti-inflammatory drugs (NSAIDs) is associated with an increased risk of chronic atrial fibrillation (AF), a new study suggests [1]. However, the researchers do not believe the drugs are causing AF; rather, they suggest that the underlying inflammation necessitating the NSAID therapy might be the culprit.

The authors found a statistically significant 44% increase in the risk of chronic AF, but no association with paroxysmal AF, in users of NSAIDs. They also confirmed previous findings regarding the association of steroids with AF, with those taking steroids two and a half times more likely to develop chronic AF than those not taking them, they report in their paper in the September 13, 2010 issue of the *Archives of Internal Medicine*.

A likely explanation for their findings is the existence of an underlying inflammatory condition, increasing the risk of AF on the one hand and prompting the use of NSAIDs on the other. Future research should ideally include a description of left ventricular function, atrial size and/or function, and inflammatory markers, which would help make the association "more biologically plausible".

### A Hypothesis That Deserves Further Investigation

Authors identified patients aged 40 to 89 years with a first-ever diagnosis of AF in 1996 in the UK **General Practice Research Database** and classified them as having paroxysmal or chronic AF. After validation with their primary-care physicians, 1035 patients were confirmed as having incident chronic AF and 525 as having paroxysmal AF. Two separate nested case-control analyses estimated the risk of first-time chronic and paroxysmal AF among users of steroids and NSAIDs. Increased risk of chronic AF with NSAID use was present irrespective of treatment duration, although the researchers did find an even greater risk associated with long-term use (relative risk [RR] 1.80 in those who used NSAIDs for more than one year). But there was no apparent dose-response relationship when they divided daily use into low, medium, and high.

The findings cannot be explained by the occurrence of heart failure, because further stratification found the increased risk of AF associated with NSAIDs was absent in those with prior heart failure (HF) (but present in those without HF). They go on to explain that the most frequent pathoanatomical changes in AF are atrial fibrosis and loss of atrial muscle mass, and although it is difficult to distinguish between changes due to AF and those due to associated heart disease, fibrosis may precede the onset of AF and may be caused by inflammation.

It is possible, that conditions presenting systemic inflammation, such as autoimmune and rheumatic disorders, represent an independent risk factor for atrial fibrosis and subsequently for an increased risk of onset or persistence of AF. We believe this hypothesis deserves further investigation.

### References

1. De Caterina R, Ruigómez A, and Rodriguez LAG. Long-term use of anti-inflammatory drugs and risk of atrial fibrillation. *Arch Intern Med* 2010; 170:1450-1455. [Abstract](#)