

Non-steroidal anti-inflammatory drugs and incident atrial fibrillation

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This editorial refers to ‘NSAIDs are associated with increased risk of atrial fibrillation in patients with prior myocardial infarction – a nationwide study’, by A.-M. S. Olsen et al., on pages 107–114

Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly used drugs, but much attention has been focused on the relationship of these drugs to cardiovascular conditions.¹ In this issue of *European Heart Journal – Cardiovascular Pharmacotherapy*, Olsen et al.² reported on an association, which has had perhaps less attention: the higher risk of developing atrial fibrillation (AF) in patients with prior myocardial infarction (MI) taking NSAIDs. The authors reported a crude event incidence of 2.2 [95% confidence interval (CI) 2.0–2.4] per 100 person-years in post-MI patients prescribed with NSAIDs, compared with patients never prescribed. The adjusted multivariable risk analysis showed that NSAIDs were associated with a hazard ratio (HR) equal to 1.27 (95% CI 1.14–1.40). The risk of developing AF remains high regardless of NSAID type and length of treatment. Olsen et al. provide a detailed analysis of confounding factors, demonstrating that co-morbidities like rheumatic disease, possibly influencing the NSAID prescription, did not affect AF onset and risk.

Nonetheless, AF is frequently reported in the post-MI clinical scenario,³ complicating the rehabilitation process and heavily influencing patients' clinical and pharmacological management, with an increased risk of heart failure, as well as stroke and thromboembolism.⁴ Based on the CHA₂DS₂-VASc score,⁵ AF patients with previous vascular disease (i.e. previous MI, aortic disease, and peripheral arterial disease) gain at least one added point in their thromboembolic risk assessment.

Clearly, if a MI patient develops AF, such patients would be at high stroke risk, and anticoagulant therapy is recommended for stroke prevention.^{6,7} Effective stroke prevention means oral anticoagulant (OAC) therapy, whether with a vitamin K antagonist [VKA, but with good quality anticoagulation control, with a high time in a therapeutic range (>70%) to maximize efficacy and safety^{8,9}] and more recently, with the non-VKA OACs (NOACs, previously referred to as new or novel OACs¹⁰). However, if NSAIDs are also used, the risk of serious bleeding is substantially increased.^{11,12}

Is the association between AF and NSAIDs relevant? These data from Olsen et al. are of particular interest, and are consistent with previous reports,^{13,14} indicating a higher risk of developing AF in patients undertaking treatment with NSAIDs, in the particular setting of patients with previous MI. AF is more prevalent in the elderly, and osteoarthritis and other joint conditions are common in the elderly, leading to more common NSAID use, even out with their indications and regardless of possible side effects.¹⁵

What can explain the higher risk of developing AF in post-MI patients treated with NSAIDs? The latter drugs are related to co-morbidities such as hypertension, heart failure, or even kidney disease. These clinical conditions are also common in AF patients and strongly influence the complications related to AF, such as stroke. However, the precise mechanistic pathways linking AF and NSAIDs are only speculative. For now, greater awareness of the inherent cardiovascular risks of NSAIDs is needed, including the risk of developing AF and its complications, as well as the potential serious harms from concomitant use of drug treatments, such as OAC in AF.

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