Transient atrial fibrillation complicating acute myocardial infarction: A nuisance or a nemesis?

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Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia encountered in clinical practice. Irrespective of its pattern (paroxysmal, persistent, and permanent), it is associated with an increased risk of ischaemic stroke (1, 2). Stroke risk stratification and subsequent prescription of long-term oral anticoagulation therapy to reduce this risk has thus become the cornerstone of AF management.

The CHADS2 stroke risk stratification scheme takes account of factors such as heart failure, hypertension, age, diabetes, and previous stroke, and whilst it has been widely accepted as a simple yet useful means to assess ischaemic stroke risk in patients with non-valvular AF (1, 3), more recent papers have highlighted its various limitations (4, 5). It has been increasingly recognised though that the presence of vascular disease, including myocardial infarction, in patients with pre-existing AF may confer additional risk for ischaemic stroke (6). The European guidelines for AF management (3) have recently adopted a modified risk stratification scheme, the CHA2DS2-VASC score, that incorporates vascular disease (previously considered a “less validated” risk factor) to refine the ischaemic stroke risk in patients with non-valvular AF.

Transient AF can occur as a secondary event complicating acute medical conditions such as acute myocardial infarction (AMI) (7), hyperthyroidism (8, 9), and a post-operative state (10). For example, de novo AF that occurs in up to 20% of patients in the course of AMI (11, 12), and is commonly attributed to acute haemodynamic changes, ischaemia, and/or inflammation. Although previous studies have consistently shown that AF complicating AMI is associated with early adverse events and in-hospital mortality, AF in the presence of AMI is commonly perceived by clinicians as a nuisance; indeed, its importance is often overshadowed by the urgency of timely revascularisation procedures, and more severe complications such as ventricular tachycardia or heart failure. In such circumstances, AF is often considered merely a marker that reflects the severity of the underlying ischaemic event and prompt management of the AMI usually terminates the arrhythmia without recurrence (3). Nonetheless, since the “natural” course of such secondary AF is unknown, and it remains unclear whether patients with new-onset transient AF complicating AMI will have the same prognosis as those with primary AF.

In the November 2011 issue of Thrombosis and Haemostasis, Bishara and co-workers reported the prognostic impact of new-onset transient AF complicating AMI on subsequent development of AF; ischaemic stroke and transient ischaemic attack in a cohort of 2,402 patients with AMI (13). Novel transient AF during AMI occurred in 174 patients (7.2%). Of note, all patients demonstrated sinus rhythm at the time of discharge. Nonetheless at one-year follow-up, those who had exhibited novel transient AF during AMI were more likely to develop AF than those who did not (22.8% vs. 2.0%). More importantly, these patients also had a significantly higher risk of ischaemic stroke and/or transient ischaemic attacks (9.2% vs. 2.5%), and most cerebrovascular events occurred within 60 days of the index AMI. This finding is consistent with our previous observation that transient AF occurring during the course of inferior wall AMI increases the future risk of AF and ischaemic stroke despite the use of anti-platelet therapy (7). While both studies are limited by their retrospective nature, the relatively small number of patients with new-onset transient AF, and lack of accurate quantification of AF burden, the annual risk of future AF and risk of cerebral ischaemic events at one year are remarkably consistent. Indeed, this provides further evidence of the undeniable stroke risk associated with this transient AF.

These results may have important clinical implications. It raises the question whether post-AMI patients with transient AF should be prescribed anticoagulation similar to patients with primary AF and for how long? The findings of these two studies suggest that the annual stroke risk for patients with transient AF complicating AMI is approximately 10% in the first year, which is well above the conventional threshold (4% per year) for commencement of long-term oral anticoagulation therapy in primary AF. Nonetheless unlike primary AF, the anticipated bleeding risk is higher in post-AMI patients due to the concomitant use of anti-platelet agents. The potential benefit of long-term anticoagulation therapy must therefore be balanced with the associated bleeding risk.

Current guidelines recommend the use of aspirin and clopidogrel for at least one month and ideally up to one year in patients with acute coronary syndrome (14, 15). Unfortunately, this combination is inferior to warfarin for the prevention of AF-related ischaemic stroke (16). The addition of warfarin to this regimen, the so-called “triple therapy”, has been proposed in AF patients with concomitant coronary artery
disease to reduce stroke risk. While triple therapy appears to be safe and effective in the short term (30 days), prolonged triple therapy (one year) is associated with an excessive major bleeding risk (17–19). Therefore, it is common practice among cardiologists to use aspirin in combination with moderate-intensity anticoagulation therapy (international normalised ratio 2 to 3). The situation is further complicated in patients who require coronary stenting: the choice of stents (bare-metal stents vs. drug-eluting stents) needs to be carefully considered with reference to long-term anticoagulation therapy.

Current European guidelines on the management of AF recommend that for AF patients who undergo percutaneous coronary intervention, drug-eluting stents should be avoided in order to minimise the duration of triple therapy and consequent bleeding risk (3, 17). Nonetheless this strategy is largely based on expert consensus, not clinical evaluation, although a recent North American consensus document broadly concurs with this approach (18, 19). Bleeding will always remain a concern amongst anticoagulated patients with AF, and a recent position document highlights the optimal assessment and management of such patients (20).

Further studies are needed to meticulously stratify the stroke risk as well as bleeding risk in post-AMI patients with AF, and to determine the optimal oral anticoagulation therapy. The availability of novel oral anticoagulation agents with an improved safety profile may simplify the management of this complicated condition (21).

Conflict of interest
None declared.

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References