Streamlining primary and secondary care management pathways for stroke prevention in atrial fibrillation

Improving anticoagulation rates and stroke outcomes by collaborative working and application of the simple ‘Birmingham 3-step’ approach

Background

Primary Care services in England are organized into Clinical Commissioning Groups (CCGs), and Sandwell and West Birmingham (SWB) CCG covers areas which are some of the most economically deprived and associated with the worst premature morbidity and mortality rates from cardiovascular disease. Life expectancy in SWB CCG is significantly lower than the average for England and worse when compared to peer CCGs.

Given the high cardiovascular disease burden, atrial fibrillation (AF) and its complications are highly prevalent. In 2014, there was a general lack of confidence among GPs in prescribing oral anticoagulants (OACs), particularly non-vitamin K antagonist OACs (NOACs). In contrast, a well-established specialist AF clinical service in secondary care has been run at City Hospital, Birmingham. The anticoagulation monitoring service at City Hospital, Birmingham, also has good quality anticoagulation with vitamin K antagonists (VKA) with an average time in therapeutic range (TTR) of 70% across all patients, but primary care was not privy to the individual TTR when patients attended for INR tests. The need for TTR data was identified as an important key performance indicator for GPs when switching from VKA to NOACs.

It was on this premise that efforts were developed to simplify and streamline the patient pathway to integrate and align primary and secondary care management of AF, focused on stroke prevention.

Drivers for change

The National Institute for Health and Care Excellence (NICE) guidelines on AF management, published June 2014, suggest that 93% of patients will have non-valvular AF, with 87% of those being eligible to receive an OAC. The NICE NOAC Implementation Collaborative, also published in 2014, advises against aspirin for stroke prevention and that all NOACs should be available as a treatment option.

Work undertaken by National Health Service (NHS) Improvement indicated that an exception rate (i.e. justifiable reason not to prescribe OAC) of <15% would be acceptable. These were the national drivers of change that the SWB CCGs have tried to achieve as a benchmark for the local CCG footprint.

In addition, SWB CCGs were concerned about their 2014 data from QMAS (Quality Management and Analysis System) which reported AF prevalence was 0.98% compared with the national average of 1.46%, suggesting under-detection of AF. Of this cohort, only 65.9% were anticoagulated, 15.6% were on no anticoagulation, with the remainder receiving antiplatelet therapy (e.g. aspirin). There had been initiatives by the CCGs to provide pulse checks as part of the flu vaccination programme, which increased the prevalence to 1.1%, but this still did not provide additional support for those historically on aspirin or not anticoagulated.

Implementing change in clinical practice and streamlining the patient pathway

The CCG introduced additional investment into primary care with incentives to highlight unmet needs, with stroke prevention in AF being a priority. The CCG endorsed the national standards at local practice level, and strengthened collaborative working between the AF specialist clinic and the CCG clinical cardiology lead, with implementation of a CCG-wide programme ‘The Unmet Need in Stroke Prevention in AF’ and to streamline primary and secondary care pathways to increase awareness and decision-making.

Such collaborative working led to the development of a simple and practical decision-making pathway for stroke prevention in AF, that was straightforward for GPs to implement, yet aligned with specialist clinical care. This was promoted and implemented at regular upskilling workshops for GPs, as well as educational events that included primary and secondary care providers.

The ‘Birmingham 3-step approach’

Simple clinical risk scores to assess stroke & bleeding risk in AF (i.e. CHA2DS2-VASc & HAS-BLED) are used in national and international management guidelines, e.g. National Institute for Health & Care Excellence (NICE, 2006 & 2014) and European guidelines (Figure 1).

The CHA2DS2-VASc score helps clinicians formally assess stroke risk and initially identify ‘truly low-risk’ AF patients who do not need antithrombotic therapy (Step 1), and subsequently captures those AF patients with ≥1 stroke risk factors who should be considered for stroke prevention (Step 2). This reflects the increasing evidence that even one stroke risk factor confers a significant risk for stroke, systemic embolism and death, and that the net clinical benefit balancing thromboembolism against serious bleeding was positive for oral anticoagulation (whether using warfarin or NOACs) compared to
aspirin, or to no antithrombotic therapy.\textsuperscript{5–8} In contrast, the net clinical benefit for aspirin was neutral or negative (i.e. potential harm) in those AF patients with one stroke risk factor.

The simple, user-friendly HAS-BLED score, comprising risk factors either readily available from the clinical medical history or routinely tested in (new) patients, allows clinicians to formally assess bleeding risk. While modifiable bleeding risk factors should be addressed in all anticoagulated AF patients, the appropriate use of the bleeding risk scores was emphasized to GPs\textsuperscript{9}—that is, to initially identify the high risk patients for bleeding, who require more regular review on GP computerised systems, and since bleeding risk is highly dynamic, to give additional focus on the common modifiable bleeding risk factors that are mostly contained within the HAS-BLED score.\textsuperscript{9,10}

The final step (Step 3) was to make an informed decision on the suitability for warfarin or NOACs, notwithstanding the clinical advantages of NOACs and ‘patient choice’. The simple clinical SAMe-TT\textsubscript{2}R\textsubscript{2} score is predictive of poor anticoagulation control on warfarin (as reflected by time in therapeutic range, TTR), mortality and major bleeding.\textsuperscript{11,12} Thus, OAC-naïve AF patients with a SAMe-TT\textsubscript{2}R\textsubscript{2} score 0–2 could potentially be assigned VKA as an option, while patients with a SAMe-TT\textsubscript{2}R\textsubscript{2} score >2 could be ‘flagged up’ for education and counselling (that has been shown to improve TTR\textsuperscript{13}), as well as more regular INR checks/clinic reviews to improve TTR. Alternatively, patients with a SAMe-TT\textsubscript{2}R\textsubscript{2} score >2 could be offered a NOAC, without the need for a ‘trial of warfarin’. The latter would expose patients to an excess risk of stroke in the early period following the initiation of warfarin since they are less likely to be able to achieve a good TTR.\textsuperscript{14} Thus, the SAMe-TT\textsubscript{2}R\textsubscript{2} score aids practical decision-making by helping identify those patients less likely to achieve good quality anticoagulation control on warfarin, and strengthens the decision-making process for using the NOACs.

This ‘Birmingham 3-step approach’\textsuperscript{15} to stroke prevention was cascaded to the GP practices at the training/upskilling events to increase awareness, improve AF detection efforts and to facilitate pragmatic prescribing of OACs for stroke prevention. These workshops had a primary care perspective highlighting the unmet need, with input from specialists on the decision-making aspect.

In order to further promote the working of the hospital anticoagulation clinic team, their input and support provided to patients was cascaded to all GPs and health care professionals at the upskilling events, who also disseminated this to the practice level. The provision of advice and guidance through dedicated email address and telephone numbers strengthened the gap between primary and secondary care.

The CCG also developed a bespoke template for the standard of Stroke Prevention in AF as part of the PCCF. This template captures the relevant parameters to identify those patients who are deemed at risk, but also highlights dynamic reviews of the HAS-BLED score. Furthermore, the TTR has been included for patients taking warfarin and uses renal function as part of NOAC reviews. Patients who are truly exceptions need a justifiable reason recorded in the template, as opposed to an unhelpful ‘tick box’ approach.

The specialist AF clinical service uses patient aids to support decision making between warfarin and NOACs and these were replicated in primary care, to facilitate discussion between patients and doctors. As part of the programme, patient engagement was ensured by including education and counselling, to emphasise adherence and persistence to OAC therapy, which was well received by patients.\textsuperscript{16}
Since the introduction of this collaborative work between the AF specialist clinic and the CCG, there has been an impact on improved stroke prevention for patients with AF.

Data from July 2017 indicate that as a result of the collaborative working and the streamlined process, AF detection has improved, with reported prevalence increasing from 0.98% to 1.26%, and appropriate oral anticoagulation therapy use increasing from 65.9% to 88.34%. The proportion of antplatelet drugs has decreased from 15.2% to 6.8%, and the exception rate has reduced from 18.9% to 4.9%. This is estimated to have reduced the financial burden of anticipated stroke cases in SWB CCG alone by about £1.1 million annually (Figure 2).

Infographic showing changes in stroke prevention amongst patients with a CHA2DS2-VASc score ≥1 pre-review, and following implementation of the streamline primary and secondary care pathways to increase awareness and decision-making.

This collaborative working has allowed bridging of the gap between primary and secondary care, allowing a streamlined pathway between the GP and the specialist AF service, with patients at the centre. For those patients with consistently low TTRs, the availability of NOACs as an option is discussed with ‘patient choice’ being paramount, in a pragmatic formative way. This is supported by decision-making tools and patient information leaflets shared by primary and secondary care to allow consensus for all. Support for patients has also been provided with dedicated contact via the telephone and for the primary health care team via an ‘advice and guidance slot’ on the hospital ‘choose and book’ system.

In summary, the intuitive approach with the ‘Birmingham 3-step’ approach to stroke prevention in AF has had a cumulative, dynamic positive effect on primary care in our region. This has facilitated collaborative working with the specialist AF service and reinforced at grass roots level the importance of dealing with health inequalities in this cohort of patients. Plans are in place to expand this programme to the rest of the region.

Conflict of interest: none declared.

References

References are available as supplementary material at European Heart Journal online.