Assessment of risk of thromboembolism in atrial fibrillation: which patient should we anticoagulate?

See page 979 for the article to which this Editorial refers

Assessment of the risk of a thromboembolic complication in a patient with atrial fibrillation is no easy task and the decision to initiate anticoagulation, albeit a common every day problem, often remains a dilemma for the clinician.

Guidelines have been published by different organizations to help the physician make the optimal decision in each individual case. Some of these guidelines are precise and direct\(^1\); other recommendations sound, to say the least, much more prudent\(^2\). The statistics on the prescription of anticoagulants for patients with atrial fibrillation reflect some uncertainties among the medical community\(^3\). The general consensus, however, is that one should focus on the individual patient’s risk profile, taking into account age and coexisting conditions representing either a risk for stroke or a risk for major bleeding should anticoagulation be applied\(^3\).

It is generally agreed, for example, that it would not be reasonable to anticoagulate young patients with atrial fibrillation and no evidence of coexisting cardiac disease. But, even that statement which sounds so simple deserves a clearer definition of the terms ‘young’ and ‘with no evidence of cardiac disease’. The definition used in the often quoted paper by Kopecki et al\(^4\) seems acceptable. Their low risk group (1·3% cumulative incidence of stroke in 15 years) consisted of patients under the age of 60 without evidence of valvular or structural heart disease, hypertension, diabetes, coronary heart disease or thyrotoxicosis. These patients need no anticoagulation.

At the other end of the scale, the patient with a history of prior stroke or ischaemic transient attack is at very high risk of recurrent thromboembolic ischaemic events. The annual stroke rate in this subgroup approximates 12%\(^5\). Such patients should be anticoagulated unless there is some unquestionable contraindication to this kind of therapy.

Patients aged 75 years or more are also at very high risk (8·1%)\(^3\) and the American College of Chest Physicians recommend anticoagulation in this age group regardless of the presence or absence of other risk factors\(^1\). One should keep in mind, however, that those older than 75 are also those in whom the dangers of antivitamin K are most threatening. In this age group, the contraindications to anticoagulants should be scrupulously followed. They extend far beyond strictly medical reasons and encompass psychosocial factors, the likely compliance to therapy and the possible inability to monitor carefully the INR value (target : 2–3). Let us mention, by the way, that the dangers of anticoagulation were probably underestimated in the large clinical trials of anticoagulation in atrial fibrillation; other studies, reflecting more closely the real life situation than the best case scenario showed cumulative major bleeding rates that reached more than 5% at 1 year and more than 10% at 2 years\(^6\) quoted in \(^9\).

The major problem is with the patient aged more than 60 and less than 75. The cohorts of controls enrolled in the large atrial fibrillation trials identified clinical characteristics which designate high risk individuals for whom anticoagulation is warranted (mitral stenosis, mitral annular calcification, increasing age, arterial hypertension, chronic cardiac failure, apparent coronary artery disease, diabetes mellitus, hyperthyroidism).

It is agreed, however, that these clinical features have a weak sensitivity and specificity. Therefore, echocardiographic findings such as left ventricular dysfunction, left atrial enlargement, left atrial spontaneous echoes (and particularly thrombi) have been added; they represent independent predictors of thromboembolism and help stratification. Thus, in the SPAF (Stroke Prevention in Atrial Fibrillation) cohort (quoted in \(^3\)) the group at low risk by clinical criteria alone had an annual stroke rate of 2·5%. Those within that subgroup who had none of the echocardiographic findings cited above had, according to the prediction model, an annual risk of 1%. Among those who had left atrial enlargement or left ventricular dysfunction at transoesophageal echocardiography, the risk rose to 6%\(^3\).

The paper by Kamp and colleagues in this issue\(^7\) once again points to the superiority of transoesophageal echocardiography over transthoracic echocardiography in assessing the risk of thromboembolism in atrial fibrillation patients. This has been amply demonstrated in the past and reiterated in review articles\(^2,3\). The transoesophageal technique detects left atrial appendage thrombi and spontaneous echoes better than the transthoracic approach. It also allows left atrial appendage flow velocity to be measured accurately. The latter seems of particular importance:
it is quantitative, it requires little operator dependence and has low intra- and inter-observer variability. In the paper by the group from Amsterdam[7], a value ≤ 20 m/s was the strongest predictor of subsequent thromboembolic stroke. Other parameters, such as left atrial dimensions, offered no additional prognostic information. The authors[7] state that a combination of clinical risk factors with a low atrial appendage flow rate might detect the risk of thromboembolic events with a high sensitivity and high specificity. Their study is, admittedly, prospective but concerned with a limited number of patients of whom a large proportion had had a previous history of stroke. Their results therefore deserve confirmation.

It is amazing to think that all the criteria currently used to assess the high risk of thromboembolism have been derived from large trials on anticoagulation in atrial fibrillation and that none has been validated by a prospective study[3]. It would be unethical to set up yet another placebo-controlled study in atrial fibrillation. Any new study should, of course, be in total accord with the currently accepted guidelines. We should be mindful, however, of the effects of these guidelines. How practicable, how efficacious are they once they are applied in the field? How can one introduce new parameters to achieve better risk stratification and to render recommendations more explicit in situations where they still remain uncertain? The findings of Kamp et al.[7] offer a nice opportunity for some intellectual exercise. One might suggest a multicentre study based on the following strategy:

(1) Patients below the age of 60 without evidence of valvular or structural heart disease, hypertension, diabetes, coronary artery disease or thyreotoxosis would be considered low risk and receive no anticoagulation.

(2) Patients with a history of stroke or transient ischaemic attack considered of cardiac origin would be, whatever their age, readily submitted to anticoagulation unless unquestionable contraindications exist.

(3) Patients with atrial fibrillation, aged 75 years or more, would be submitted to anticoagulation if this therapy is deemed reasonable after careful consideration of a series of medical and non-medical factors.

For these three categories, I would suggest nothing more than a simple clinical follow-up, for example, as a registry. Transoesophageal echocardiography is not mandatory.

(4) For patients aged >60 and <75, I would suggest anticoagulation for those showing one or several clinical factor(s) justifying their classification as high risk individuals (subgroup I). Those with no risk factor but age would be treated with an antiplatelet agent (subgroup II). This is acceptable policy in reference to the published recommendations[1,2]. I would recommend that transoesophageal echocardiography be performed in all patients in that age group. This would enable data to be collected to allow a comparison between patients with abnormal findings (i.e. a low left atrial flow rate) and those without such abnormality.

Should notable differences in event rates appear within the subgroups as a function of the transoesophageal echocardiographic data, then this investigation should become routine in patients aged >60 and <75 with atrial fibrillation and no prior history of stroke or transient ischaemic attack. The therapeutic strategy might later be adapted accounting for the presence or absence of abnormality of left atrial appendage haemodynamics.

This is only a suggestion, to stimulate further discussion on what indeed remains a challenging problem.

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References