Poor Outcome After First-Ever Stroke

To the Editor:

The authors of this study have highlighted the significance of cardiac disease, particularly cardiac failure (CF) and atrial fibrillation (AF), to be an independent risk factor for stroke mortality at 1 year. AF has attracted attention for several years, but the variable of cardiac failure has only recently been reported as a significant factor. Many patients with CF would have AF as a coexistent pathology with CF and vice versa, quite often the underlying pathology being the ischemic heart disease. There is high positive correlation between AF and CF. We reported CF to be a significant variable as a risk factor for mortality for all strokes, first or recurrent and whether hemorrhagic or ischemic, the significance being higher than AF and independent of other confounding factors, ie, age, stroke syndromes, Glasgow Coma score, incontinence, pyrexia, and AF. More significantly, we also reported CF failure to be more significant than all other cardiac factors of hypertension (HT), AF, and ischemic heart disease (IHD). Patients with HT+AF+IHD without CF did have slightly higher mortality than patients without any cardiovascular disease (P=0.05). The coexistence of CF with other cardiovascular disease, however, remained a more significant variable associated with higher mortality (P<0.001). We did this analysis to investigate the significance of CF as opposed to other cardiac factors not associated with CF. More recently we have also reported that CF patients on prior aspirin therapy have a higher mortality following a stroke than CF patients not on aspirin therapy, proposing that aspirin use in this context is perhaps an index of underlying severe cardiac disease.

Given that a number of studies have now supported our study, the next step is to investigate whether different severity of CF has a similar impact on stroke mortality, the group of stroke patients with a history of CF being categorized according to severity of CF as determined by echocardiographic features of ejection fraction and/or end-diastolic volume. Moreover, future outcome interventional studies should randomize patients taking into consideration the presence of different cardiac factors and in particular CF. Stroke presents as a multisystem disease, and management of acute phase complications and preexisting disease should be the aim to improve outcome of acute stroke patients in well-resourced stroke units.

It may not be possible to investigate whether managing CF more aggressively in acute stroke patients is of any benefit; achieving normal physiology nevertheless makes clinical sense.

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Response

We thank Dr Sharma for his interest in our article, and regret that the articles by him and his colleagues were not mentioned in our reference list. We agree that cardiac failure (CF) has been relatively neglected as a risk factor for stroke, particularly for severe strokes.

In our study there is a positive correlation between CF and atrial fibrillation, but the Pearson correlation coefficient between the two was not higher than 0.16. This, we think, strengthens the properties of CF as an independent predictor of a severe stroke. Unfortunately, our study of 377 patients, of whom 51 had CF, does not allow for comparisons between different subgroups, so we cannot confirm any interaction between CF and other cardiac risk factors. Neither could we confirm that patients who were on aspirin before the stroke had a higher mortality than those who were not on aspirin, as the 1-year mortality in both groups were 52%. This suggests that the patients who were selected for aspirin therapy may differ in the 2 studies.

Nevertheless, the results of Sharma et al and our results point in the same direction, namely that preexisting CF is independently associated with a worse stroke outcome. We strongly agree with Dr Sharma that more research is warranted in how CF and stroke are interconnected. One possible mechanism is by cardiac embolism. If that is the case, some patients with CF may benefit from anticoagulation. A great challenge for future intervention studies would then be how to select patients for such therapy.

Patients with CF are a heterogeneous group. Diagnostics in future studies should preferably be based on transesophageal echocardiography. Underlying causes may then be revealed, the severity of CF established, and the response to therapeutics may be followed.
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