The frequency, characteristics and prognosis of epileptic seizures at the onset of stroke

Sir: The occurrence of epileptic seizures prior to or at the onset of stroke has recently been reassessed in two reports by Shinton et al.12 Both investigations (which are based on the same group of patients) seem to support the case that cerebrovascular disease can be implicated not only in seizures occurring in the acute stage of the stroke but also prior to it. While the first point is well established, the problem of epilepsy preceding stroke deserves some further comments.

Firstly, in both reports the diagnosis of ischaemic and haemorrhagic strokes was mainly based on a scoring system, CT findings being available only in a minority of cases. This could be relevant to the actual incidence of seizures prior to haemorrhagic stroke since, apart from case no 2 of Shinton et al, only three cases of heralding epilepsy related to a primary intracerebral haemorrhage (PIH) have so far been recorded.3

Secondly, the existence of a "vascular precursor epilepsy",2 as reported over the last decades,4 is not universally accepted,5 particularly when epilepsy and stroke are obviously unrelated (for instance case nos 4 and 7 of Shinton et al). Thirdly, even a retrospective case-control investigation can be affected by several potential sources of bias, as pointed out by Starkey and Warlow.7

In an unpublished series of 82 consecutive cases of PIH confirmed by CT, we have never found seizures preceding the stroke, while in 6.7% of patients with angiographically proved carotid occlusive disease, epileptic seizures were the presenting symptom.89

The pathophysiology of the rare (if any) epileptic seizures heralding PIH is hard to explain. On the contrary, an aetiological relationship between cerebral ischaemia and epilepsy could be accounted for by at least two pathophysiological mechanisms. In fact seizures may arise from small clinically silent infarctions,10 thus being not basically different from seizures occurring as a sequel of ischaemic stroke11 or as a direct consequence of "low-grade" cerebral ischaemia, as suggested by some neurophysiological evidence.11 The latter hypothesis has been challenged by Yanagihara et al12 who demonstrated that epileptic movements of extremities resulting from transient haemodynamic ischaemic episodes are associated with slow waves over the contralateral hemisphere, thus suggesting a release phenomenon of subcortical structures.13 Actually, transient cerebral ischaemia should be responsible either for release or epileptic phenomena, at least in principle.4

The availability of high resolution neuroimaging techniques can provide guidelines for a more factual approach to the whole matter. A protocol for a prospective study should be worked out, to investigate patients who had their first epileptic seizure after the age of 40 yrs,10 with no detectable lesions at CT and MRI at the time, separately considered partial and generalised epilepsy. The risk factors for a cerebrovascular accident should be investigated as well, although their relevance to late onset epilepsy has recently been challenged (Neufeld et al, Abstracts of 17th International Epilepsy Congress, 1987:85). If follow-up indicates that ischaemic strokes occur more frequently in either group than in a matched population, this could be regarded as proof that seizures may sometimes reveal an otherwise clinically silent cerebral ischaemic disease and therefore herald a major cerebrovascular event. By the same token, epileptic seizures could be included among the possible manifestations of TIAs, as already suggested.4

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