Epilepsy surgery, visual fields, and driving

Inability to hold a driving licence is a major disadvantage for patients with active epilepsy. In well selected cases epilepsy surgery can render about two thirds of patients seizure free1,2 making driving a possibility perhaps for the first time in their lives. However, licensing authorities in the United Kingdom also require applicants to have vision that is adequate for safe driving both in terms of acuity and visual field. The field requirement demands a horizontal field (to Goldmann III4e stimulus spots) extending at least 120 degrees, with no significant defect in the binocular field encroaching to within 20 degrees of fixation above or below the horizontal meridian. Visual field defects are a recognised complication of epilepsy surgery, particularly in its commonest form: temporal lobe surgery for hippocampal sclerosis. In particular, homonymous upper quadrant deficits may be caused by damage to Meyer’s loop of the optic radiations as it sweeps around the temporal horn of the lateral ventricle. In preoperative counselling of patients it is desirable to estimate the likelihood of visual field defects sufficient to prevent driving. The paper by Manji and Plant, this issue, pp 80–82, provides data allowing this risk to be quantified.3

Manji and Plant examined 24 patients who had undergone epilepsy surgery between 1986 and 1995. Only one patient described symptoms suggesting a visual field defect although in five a defect could be detected by confrontation testing. Visual fields were also assessed by two different forms of perimetry. Goldmann kinetic perimetry needs no further introduction, but the Esterman field test may not be familiar to neurologists. This test is performed binocularly using a Humphrey computerised visual field analyser and is specifically designed to assess whether a patient’s vision is acceptable for driving. Although the Driver and Vehicle Licensing Authority (DVLA) of the United Kingdom lists various perimetry techniques that may be used in visual field assessment for driving they state that the Esterman test is “probably the least stringent test which will satisfy the standard”. Seven patients (29%) failed the driving criteria on the Esterman test whereas 10 (42%) failed on Goldmann testing, confirming its more demanding nature. Of course not all of these patients were seizure free, but three patients (12.5%) could apparently meet the driving requirement to be seizure free for 1 year while failing the Esterman field test.

These data have important implications for units performing epilepsy surgery. Patients should be warned about possible postoperative impairment of visual fields and the implications for their ability to drive. As only one of the subjects reported symptoms of visual field loss it is likely that most field defects will be asymptomatic in everyday life. Such defects may still be hazardous at the wheel and it may be that visual field assessment should be part of the routine postoperative care of such patients both for surgical audit and so that patients desirous of driving may be advised correctly as to their suitability. Preoperative visual field assessment should also be performed to distinguish the effects of surgery from those of pre-existing conditions and from the side effects of anticonvulsant drugs, at least one of which (vigabatrin) can cause visual field abnormalities.4

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