Neurology postgraduate training

Neurology postgraduate training: what is to be done?

M Giroud

Improving neurology postgraduate training

In the paper by A J Wills (page 1513, this issue), an evaluation of the results of the Calman reforms on medical postgraduate training in the UK is reported. The Calman reforms were introduced in the UK in 1997 and the current evaluation is useful from both a UK and a European perspective.

The objectives of the reforms were to improve the structure, and to supervise the quality of medical learning, competency, and training programmes. The reforms were developed in response to changes in Public Health policy, to public criticism, and to a perceived erosion of trust in the medical profession. The first consequence of this project was to improve the training of junior doctors, which led to structured teaching and supervised learning. Each specialty now has a more clearly defined core curriculum, trainees can receive regular advice and support from an educational supervisor, and accreditation is given after evaluation of competency. The reforms improved, standardised, and coordinated teaching, and supervised learning to encourage autonomy in self learning—leading to better theoretical learning and practice. Neurology training was structured according to these reforms with a 5 year higher medical education. A curriculum is defined in a document that is regularly updated, includes the subspecialties of the neurological field, and relies on rotations between several teaching hospitals.

These reforms could be generalised within the European Union leading to several recommendations. The first advantage of these reforms would be to standardise European medical training, allowing mobility of medical trainees and doctors within Europe. The medical training could be adapted to the new European Master Programme. New learning methods[2–4] would be developed as well as problem based learning, e-learning, video taping, and simulated consultations.

The main point would be the need to improve the training and the evaluation of the trainers themselves, who must be full time qualified medical professionals and medical teachers. The formal qualification of medical teachers—with an evaluation—would be generalised and standardised within European Union.

In addition, two other criteria are very important: (i) the development of self training could be an excellent way to improve autonomy and to continue medical training; (ii) research programmes would be developed during medical training because research is critical for medical progress and quality of care. Such reforms would carry a financial cost but would and also require a cultural change.

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REFERENCES

1 **Wills AJ**. Neurology postgraduate training: what is to be done? *J Neurol Neurosurg Psychiatry* 2004;**75**:1513–15.
2 **Cruess SR**, Johnston S, Cruess RL. Professionalism: a working definition for medical educators. *Teach Learn Med* 2004;**16**:90–2.
3 **Miflin BM**, Campbell CG, Price DA. A conceptual framework to guide the development of self-directed, lifelong learning in problem-based medical curricula. *Med Educ* 2000;**34**:299–306.
4 **Stromso**, *et al*. Changes in Student approaches to learning with the introduction of computer-supported problem-based learning. *Med Educ* 2004;**38**(4):340–8.

Enlarged Virchow-Robin spaces

Enlarged Virchow-Robin spaces: do they matter?

F Barkhof

The clinical significance of widened Virchow-Robin spaces

With the introduction of magnetic resonance imaging (MRI), we have become increasingly aware of the process of brain maturation and ageing. While there is MRI evidence that the former may continue into the third decade, the latter starts as early as the fourth decade. Early ageing phenomena include the development of subtle loss of brain tissue with widening of the sulci and ventricular system, development of periventricular caps and bands, and dilatation of the perivascular Virchow-Robin spaces (VRS).

The VRS are extensions of the subarachnoid space that accompany vessels entering the brain parenchyma. Widening of VRS often first occurs around penetrating arteries in the substantia perforata and can be seen on transverse MRI slices around the anterior commisure, even in young subjects. Another typical location of widened VRS is near the vertex of the brain, but with advancing age they can be seen anywhere in the white matter, basal ganglia, and hippocampus, especially when high resolution (using a 512 matrix) images are obtained. Their typical MRI appearance includes sharp demarcation and cerebral spinal fluid (CSF)-like signal on all sequences—depending on location and slice orientation, they can appear as dots or linear structures (fig 1).

In this issue, MacLullich *et al*[1] (see page 1519) examine the clinical significance of widened VRS in a community-based sample of 79 healthy men. A standard MRI protocol was used with a 1 mm in-plane resolution and a categorical scoring system was devised to try to account for the multiplicity of widened VRS. The lowest score (less than 10 widened VRS) was found in the majority of subjects. Higher VRS scores were associated with decreased performance in terms of non-verbal reasoning and general visuospatial ability. However, when controlling for the coexistence of T2-hyperintense

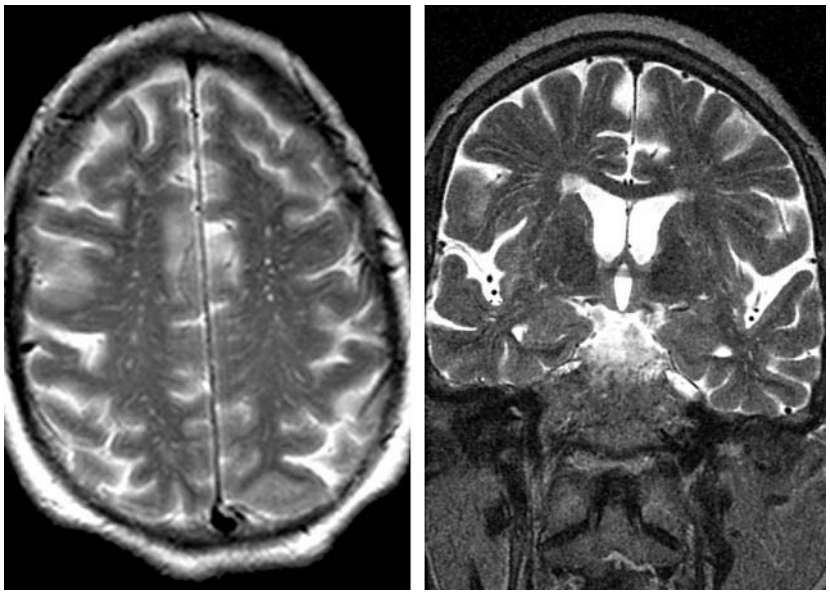

Figure 1 Heavily T2-weighted MRI obtained with high resolution, showing multiple enlarged VRS, visible as well-demarcated CSF like structures, which, dependent on their orientation and plane of imaging, appear as dots (transverse image on the left) or stripes (coronal image on the right).

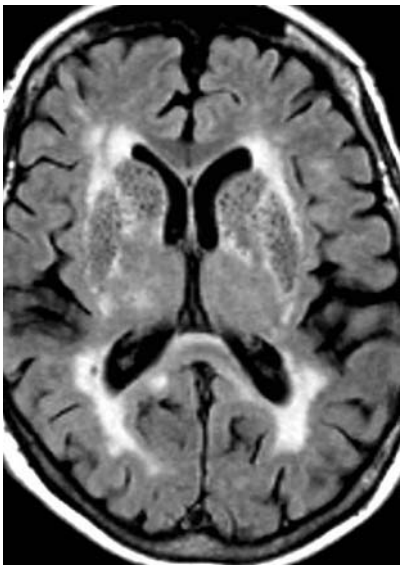

Figure 2 Coexistence of hyperintense white matter lesions (WML), and diffusely widened enlarged hypointense VRS (so-called état criblé) on a CSF-supressed transverse MR image.

white matter lesions (WML), VRS did not seem to have an independent contribution to (decreased) cognitive performance. VRS were also rated separately in the hippocampal region, and although these were significantly correlated with WML, they were not associated with poorer cognitive performance (including episodic memory).

It is tempting to speculate on the pathogenesis of widened VRS and their significance in determining white matter integrity. Clearly, these CSF spaces do not represent viable tissue, and thus present (a mild form of) local atrophy, which may occur independent of cortical atrophy and ventricular widening. In my clinical experience, widened VRS in elderly subjects often coincide with WML on MRI, and this corroborates with the current findings of MacLullich *et al*. Apparently, white matter damage may manifest itself as general atrophy (with ventricular widening), incomplete white matter infarction (with WML on MRI), and by virtue of widened VRS. What is particularly interesting is why some patients may develop extensive WML in the basal ganglia and diffusely widened VRS (so-called état criblé) without significant atrophy (fig 2), while others develop only volume reduction (global atrophy). Perhaps this reflects a different mode of communication of the VRS with the subarachnoid space. This remains a subject of debate.

In summary, the findings by MacLullich *et al* indicate that widened VRS are a common ageing phenomenon that is associated with WML and cognitive function. More work is needed to develop an integrated methods to probe white matter integrity, which should not only address WML, but also the quality of the remaining tissue (e.g. using diffusion tensor MRI), and residual white matter volume by accounting for the degree of widening of the VRS—a measure of focal atrophy.

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REFERENCE

1 **MacLullich AMJ**, Wardlaw JM, Ferguson KJ, *et al*. Enlarged perivascular spaces are associated with cognitive function in healthy elderly men. *J Neurol Neurosurg Psychiatry* 2004;**75**:1519–23.

Epilepsy

Longer term outcome of children born to mothers with epilepsy

S D Shorvon

New issues concerning valproate treatment during pregnancy

The teratogenic risk of antiepileptic drugs has been a clinical concern for at least three decades. In an ideal world this risk would be balanced against the benefits of reduced foetal exposure to seizures due to the drug. In the real world, however, statistical data on both sides of this equation are limited. Although it has long been held that maternal seizures during pregnancy can damage the developing foetus, there is actually little hard data to support this view. Convulsive attacks certainly carry some risk—especially in later pregnancy—not least because of the mechanical dangers of convulsions, but the extent of the overall risk is unclear. It also seems inherently unlikely that the short lived anoxia occurring in seizures will have a profound effect on the foetus, although this has often been postulated. The risks of non-convulsive seizures or myoclonus are totally unknown but intuitively are likely to be slight. There is also considerable uncertainty about the extent of the