Clinical opinions in general medicine

In this issue of Clinical Opinions our contributors look at two quite different areas – medical education and genetics – and find that, at the end of the day, medicine is about common sense and experience rather than theory.

MacLeod looks at a recent commentary in *Medical Education* that challenges much of the accepted wisdom of current educational theory. Self-directed, lifelong learning is the basis of most undergraduate medical curricula, is central to the General Medical Council's document *Tomorrow's Doctors*[1] and is a requirement, as part of continuing professional development, for all registered medical practitioners in the UK. This provocative article suggests that most learning is not really self-directed and that we probably know all we need to know by the time we leave medical school. We pick the rest up as we go along – or, as Einstein famously said, 'the only source of knowledge is experience'.

Porteous, reviewing a paper from *The Journal of Medical Genetics*, highlights the importance of balancing risk against benefit and obtaining fully informed consent when prescribing drug therapy. In the case of anti-epileptic drugs in pregnancy, this balance involves seizure control for the mother, particularly with reference to driving and teratogenic effects on the fetus.

As always, please send any comments by e-mail to cme_editor@rcpe.ac.uk.

Clinical opinion: self-directed learning may be superfluous to good, basic medical training

TITLE: Assumptions underlying self-directed learning may be false.

KEYWORDS: Self-drected learning, evidence.

AUTHORS: Schmidt HG.

JOURNAL: *Med Ed* 2000; **34:**243–5.

SUMMARY:
This commentary identifies and challenges four of the major assumptions underpinning self-directed learning (SDL): how self-directed is SDL?; does a problem-based curricula foster SDL?; do SDL skills acquired transfer to professional practice?; and how important is lifelong learning? Looking at each question in turn the author notes first that self-direction, as defined by adult education theory, is the exception rather than the rule in student-centred curricula – learning is still heavily dependent on extrinsic influences. With regards as to whether problem-based curricula foster SDL, there is some evidence that problem-based learners borrow more books from the library, particularly during the clerkship period, but it is unclear what this means, if anything. Looking at the transfer of student SDL skills to professional practice the evidence is inconclusive. As regards the importance of lifelong learning, the author provides no evidence either for or against, but suggests its importance is over-emphasised. The author, despite concluding that there is very little evidence to support the current emphasis on self-directed lifelong learning, feels that for the time being at any rate we should continue to practise and endorse it.

OPINION:
This commentary is thought-provoking at several levels, not least because the author hails from Maastricht University – the birthplace of the self-directed, problem-based undergraduate medical curriculum (in Europe at least). Self-directed, problem-based learning is the basis for most 'revised' undergraduate medical curricula in the UK, and elsewhere, and will shape our doctors of the future for many years to come. Yet the evidence to support it does not seem to be there.

The General Medical Council of the UK has not only embraced SDL, but also self-directed *lifelong* learning. Schmidt questions the importance of lifelong learning with a persuasive argument drawn from the field of human genetics. He argues that the theoretical principles underlying our biological makeup have been known since the 1950s (presumably he means the double helix) and that more recent discoveries (presumably he means mapping the human genome) will take many years to turn in to something that can usefully be applied in professional practice. Therefore, he argues, a doctor trained in the 1950s could 'comfortably' survive on 1950s knowledge in this area of practice. He doesn't actually say continuing self-education is superfluous but does suggest that a good basic undergraduate medical education may be an adequate basis for practice over an extended period of time, citing a Dutch study which showed that family physicians' diagnostic accuracy doubled as a function of years in practice. But perhaps we all knew this anyway.

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Clinical opinion: the prescribing of anti-epileptic drugs in pregnancy: risks, benefits and fully informed consent

TITLE: Long-term health and neurodevelopment in children exposed to anti-epileptic drugs before birth.

KEYWORDS: Anti-epileptic drugs, teratogenesis.

AUTHORS: Dean JCS, Hailey H, Moore SJ *et al*.

JOURNAL: *J Med Genet* 2002; **39:**251–9.

SUMMARY:

This retrospective population-based study was designed to investigate the frequency of neonatal and later childhood morbidity in children exposed *in utero* to anti-epileptic drugs (AED). Two hundred and ninety-three children born to 149 women who took AED during pregnancy were assessed for congenital malformations, developmental delay, behavioural disorders, neonatal withdrawal symptoms, childhood medical problems and facial features. Thirty-eight infants born to the same mothers whilst not taking AED served as controls. The effects of valproate, carbamazepine, phenytoin and phenobarbitone, along with less commonly used drugs and polytherapy, were considered individually as well as jointly under the umbrella of AED.

This paper shows that developmental delay, particularly speech delay, is a common consequence of *in utero* exposure to AED affecting 26% of children compared to ten per cent of controls. Women on AED therapy with a family history of developmental delay have a higher chance of having a child with developmental delay. In other words, having epilepsy increases the risk of a child with developmental delay by three times, and the risk associated with AED raises this by over two-fold. In addition, neonatal withdrawal symptoms were documented in 20% of cases. Congenital malformations occurred in 14% of exposed pregnancies compared with five per cent of unexposed siblings.

OPINION:

The association between sodium valproate exposure *in utero* and neural tube defects is widely known, andneurologists responsible for the care of epileptic women of childbearing age will recommend periconceptual folic acid to minimise risk. However, the frequency of other malformations, developmental delay and behavioural problems in children exposed *in utero* to AED is less clear. Clinical geneticists have described characteristic syndromes associated with sodium valproate, carbamazepine and phenytoin exposure, but the subtlety of the facial dysmorphisms has resulted in a degree of scepticism amongst neurologists and obstetricians. It is interesting to see that 25% of non-exposed siblings in this study had facial features consistent with an anti-convulsant syndrome, suggesting that such scepticism may not be entirely inappropriate.

The most striking finding in this study is the prevalence of developmental delay in the children exposed *in utero* to AED, with a statistically significant increase seen with valproatel carbamazepine and phenytoin monotherapy as well as polytherapy. The numbers of pregnancies exposed to primidone, gabapentin and ethosuximide were too small to assess.

Polytherapy resulted in the highest rate of morbidity. In addition, the authors found a positive correlation between developmental delay and the dose of carbamazepine. This study therefore confirms the importance of optimal AED prescribing prior to conception. In the past, women with epilepsy have sometimes been reluctant to attempt to discontinue medication because of the risk that a fit would cause them to lose their driving licence. The teratogenic effects of AED as shown in this study should be discussed to allow women to make a fully informed decision about their treatment.

Dr Mary Porteous, Consultant Clinical Geneticist, Edinburgh

REFERENCES

1 General Medical Council. *Tomorrow's doctors. Recommendations on undergraduate medical education.* London: GMC; 1993.