

## **Internet and antiepileptic drug trials: What are the ethical issues**

Peter Bergin *MD FRACP*

*Auckland City Hospital, Auckland, New Zealand*

### **Abstract**

The Internet allows doctors to share patient-data in a way that has not previously been possible. This offers the opportunity to undertake collaborative research, by bringing together large numbers of doctors and therefore large numbers of patients. The field of epilepsy in particular could benefit greatly from this approach, as there is little high-quality evidence to guide treatment for most patients with seizures. Ethical issues include those relating to security of data, informed consent and the likelihood that trials will actually give meaningful results. The EpiNet project has been set up to attempt Internet-based research in epilepsy, and will address these issues ([www.epinet.co.nz](http://www.epinet.co.nz))

### **INTRODUCTION**

Although we now have many different anti-epileptic drugs (AEDs) available to treat patients with epilepsy, there is little data to tell us which drug or combination of drugs is most suitable for individual patients.<sup>1</sup> Most research is drug-company driven and funded, and there have been relatively few studies that have compared different AEDs. Studies that enroll large numbers of patients with specific syndromes and particular seizure types are required. The Internet could potentially enable such research to be undertaken.<sup>2</sup> The Internet can bring together large numbers of investigators, and consequently, large numbers of patients. Using the Internet to coordinate trials can substantially reduce their costs. Studies can be advertised on-line, and information rapidly disseminated to both investigators and patients. Doctors can submit patient details via the Internet into large, multicentre prospective registers. Data entry involves fewer steps than in conventional paper-based studies, and there can be real-time data validation, so that researchers can be immediately notified of an invalid entry. Patients can be enrolled into randomized controlled trials, with patients being recruited and randomized on-line. Patients can fill in questionnaires on-line and submit them directly to investigating authorities.

### **ETHICAL ISSUES**

Most of the ethical issues that apply to medical research in general also apply to research via the

Internet. In research, the dignity, rights, safety and well-being of actual or potential participants is the primary consideration.<sup>3</sup> As a rule, patients should be given the best available treatment, but if the best treatment is unknown (equipoise), then it is appropriate to enroll the patient for research. Indeed, the author would argue that doctors and patients should be encouraged to participate in research in these circumstances.<sup>3</sup> For a study to be ethical, there needs to be a high likelihood that the study will give a scientifically valid result; i.e. the study needs to be able to address the question being asked, and be adequately powered. Internet-based research does raise major issues regarding security of any data being transmitted. Patients need to know that only those with a legitimate interest will have access to this data. Patients need to give informed consent, initially to the transmission of their data, but also to participation in any trials linked with the project. There may be issues regarding participation of children and others who cannot give informed consent. Randomizing patients via the Internet is easy, but conducting double-blind studies is more problematic. However, the ethical issues involved are no different from those involved in undertaking conventional randomized controlled trials. Using placebos raises similar issues to their use in conventional research, but again, there are no issues specifically relating to the Internet. The Internet transcends national boundaries and patients may potentially be recruited from countries whose own Ethics committees have not considered the particular study.

## PROPOSAL

The author has suggested that the epilepsy community establish an Internet-based research project.<sup>2</sup> The project could combine point-of-care advice, when there is evidence regarding the optimal treatment, and a platform to enroll patients into research studies when the optimal management is not known. The project would be open to any neurologist or paediatric neurologist who has demonstrated sufficient expertise and interest in epilepsy, and access to the Internet. Doctors would be encouraged to log-on when unsure of the optimal treatment. If there is published evidence indicating the best treatment for the patient, this could be fed back to the doctor. Otherwise, the doctor could invite the patient to participate in a trial. Trials would involve randomisation but could be open or double blind. Clearly, the latter trials would be more complex and more expensive to run, but would give superior information. Multiple prospective, pragmatic, randomised controlled trials could run in parallel, with recruitment, randomisation and data collection undertaken via the Internet.

Time would obviously be required to discuss the issues with patients and then to enter the data. Nothing useful could come out of such studies unless the data was entered accurately and reliably. Great care would therefore need to be taken to ensure that data entry was reliable and follow-up complete. Minimising the data requested could facilitate this, with only essential data being collected.

In addition to the ethical issues outlined above, there may be a potential ethical issue in combining in one platform point-of-care advice and a mechanism for enrolling patients for research studies. However, the author has concluded that there are no substantial ethical blocks to conducting research in this manner.

## PILOT STUDY AND INVITATION

The author and colleagues have undertaken a pilot study in New Zealand to see whether the approach outlined above could work. The pilot study received approval from the New Zealand multi-regional ethics committee. A secure website and database have been created, and neurologists and paediatric neurologists were encouraged to register patients who would be suitable for randomised controlled trials, if such trials existed. Access to the website is password protected, and data is encrypted before being transmitted via the Internet to the database. A single algorithm

was written to select patients who have failed to respond to the first AED, and appropriate patients have been randomised to a different AED. The trial is designed to test the processes involved in recruiting and randomising patients via the Internet, and is not powered to answer clinical questions. The New Zealand pilot study will continue until the end of 2008. However, we would now like to proceed to a larger multinational study using a similar approach. We would therefore like to invite other neurologists and paediatric neurologists from throughout Asia and Oceania (and elsewhere) who are interested in participating in similar studies to contact the author.

## REFERENCES

1. Karceski S, Morrell MJ, Carpenter D. Treatment of epilepsy in adults: expert opinion. *Epilepsy Behav* 2005; 7(Suppl 1):S1-64.
2. Bergin P, Frith R, Walker E, Timmings P. How to get the answer to nearly everything: using the Internet for epilepsy research. *Epilepsia* 2007; 48:1415-7.
3. Royal College of Physicians. Guidelines on the practice of ethics committees in medical research with human participants, 4<sup>th</sup> edition. London: RCP, 2007.