

Should neurosurgery for mental disorder be allowed to die out?

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INTRODUCTION

The persistence of psychosurgery within the therapeutic armamentarium of psychiatry is something of an anachronism in the current era of evidence-based medicine. Robust evidence for efficacy does not exist and, indeed, can never realistically be gathered because of the extreme ethical difficulties of carrying out randomised controlled trials in this area. Yet there are undoubtedly patients who remain resistant to all conventional forms of treatment. Should they be denied what is possibly their last hope of recovery? Although the evidence is not watertight, modern neurosurgery is safer than ever before and appears to offer clinically meaningful symptom relief for ‘untreatable’ patients with chronic severe depression or obsessive–compulsive disorder (Matthews & Eljamel, 2003). The debate this month poses the question, ‘Should neurosurgery for mental disorder be allowed to die out?’ Dr Raj Persaud, consultant psychiatrist at the Maudsley hospital, argues in favour of the motion. The case in favour of retaining neurosurgery is made by two consultant psychotherapists, Dr David Crossley (Wrexham) and Dr Chris Freeman (Edinburgh).

FOR

‘Doctors are different by nature. One kind adheres to the old principle: first do no harm; the other one says: it is better to do something than nothing. I certainly belong to the second category’. So wrote Gottlieb Burckhardt, a relatively obscure Swiss psychiatrist who is, in fact, the largely unacknowledged founder of modern psychosurgery (Joanette *et al*, 1993).

In 1891 he reported the results of cortical ‘exstirpations’ on six patients at the Prefargier Asylum on the banks of Lake Neuchatel, Switzerland, all of whom evidently suffered from intractable psychiatric disease. Near the end of his paper he clearly anticipated that he might be criticised for his work, for there he inserts the comment with which my piece begins.

This work pre-dates by several decades the introduction of neurosurgery for psychiatric disorder normally credited to Walter Freeman and Egas Moniz in the 1930s, yet Burckhardt’s comment from over a century ago is eerily prescient of the modern debate over psychosurgery.

It is churlish to criticise psychiatric treatments, as so often happens in the lay media, without a proper appreciation of the suffering that they are intended to alleviate, or an understanding of the viability of alternatives. However, there are several reasons why our profession should place a moratorium on neurosurgery for psychological problems until further notice.

First, although many published trials have found improved outcomes following neurosurgery for a variety of psychiatric disorders, the reality remains there has never been a prospective, randomised, double-blind placebo-controlled trial of any psychosurgical procedure, and none is likely to be conducted (Matthews & Eljamel, 2003). Sham intracranial surgery, with all its associated hazards, would never make it past a contemporary ethics committee. It is also unlikely that a representative sample

of prospective neurosurgery candidates would volunteer for a randomisation study, as they invariably view the procedure as their last resort. (Incidentally, there is a real issue concerning the validity of informed consent for psychosurgery in a population seeking a last resort for intractable and severe psychiatric disorder.)

We know that of all medical procedures, surgical interventions have the greatest potential for eliciting placebo responses – indeed, early signs of improvement that are not sustained in the long run are potential placebo responses which are not uncommon in this particular field. In other words, psychiatrists are being asked to support a treatment, the efficacy of which it will probably be impossible ever to determine to the same standard that we demand for any other treatment we use.

This is particularly problematic given the continuing development of alternative approaches for which it is possible to conduct the kind of rigorous clinical trial that neurosurgery resists. These approaches include vagus nerve stimulation and transcranial magnetic stimulation alongside forms of deep-brain electrical stimulation. These techniques are notable in already replacing neurosurgery for the management of some epilepsies, pain and some symptoms of refractory Parkinson’s disease.

A historical perspective is particularly apposite here – note that it was the arrival of chlorpromazine that virtually eliminated the indications for psychosurgery in schizophrenia and other psychiatric illnesses except in rare and unusual cases. So it would seem that now is a good moment to reconsider whether any psychosurgery should be performed at all, given the spate of recent advances in new medications.

The fact that the alternatives are not irreversible and can be scientifically tested should give a stigmatised profession like psychiatry particular pause for thought.

Perhaps most importantly, psychosurgery is based on a flawed and impoverished vision of the relationship between brain tissue and psychological disorder. It is unlikely that any psychiatric problem can be located in one so-called ‘abnormal’ brain region. The notion of abnormality remains deeply problematic given the huge overlap between psychiatric and normal populations in all contemporary measurements of brain structure and function. Instead, dysfunction is much more likely to result from a change in the relationships between several areas. Psychosurgery is

based on a flawed attempt to carry over to the mind the physicalist thinking that has been so powerful in bodily medicine.

In general, psychiatric treatments, much more than therapeutic approaches in the rest of medicine, are the subject of patients' complaints. This has enormous negative public relations implications for our profession and our ability to persuade patients to attend appointments and to comply with treatment. We, of all doctors, should therefore be seen to be backing treatments for which science removes any ambiguity about efficacy and that reflect the kind of sophisticated understanding of our subject matter that the public expects.

As a profession that has come to be viewed with particular suspicion and antagonism, it may be particularly appropriate for psychiatry to focus primarily on doing no harm rather than just doing something.

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AGAINST

Three years ago the Council of the Royal College of Psychiatrists adopted a report about neurosurgery and mental disorder (Royal College of Psychiatrists, 2000). This report highlights the possibility that neurosurgery for mental disorder (NMD) may die out. If so, what would have been lost? This is not clear. Although the demise of NMD is one possibility, another would be for it to be given wider ownership within the National Health Service, for the clinical resources to be conserved and set within a UK-wide clinical governance framework.

The report concludes that NMD's disappearance would not occur because of unequivocal evidence of lack of efficacy or safety. It is well known that the quality of the outcome data is poor. There are no published randomised, prospective, controlled trials of modern (stereotactic) operations, although there are a few retrospectively controlled ones. Outcome research in this area is problematic – the treatment approach is a last resort and, therefore, control conditions are difficult to define. There is some limited evidence that sham procedures are ineffective and that lesion site may be related to outcome. Mean global outcome scores suggest improvement at follow-up in all studies in all clinical groups about 50–60% (Mindus *et al*, 1994). Symptom-based outcome measures suggest more modest improvement – around 30–40% (Hay *et*

al, 1993; Baer *et al*, 1995; Dougherty *et al*, 2002). There has been a trend for more-recent outcomes to be less good, especially with affective disorders and subcaudate tractotomy. The quality of the outcome data does not categorically support the view that any one operation is specific for any one diagnosis. It is unclear why the UK has tended to consider affective disorders as an indication much more than other international centres.

On reviewing the best evidence, the report concludes that obsessive–compulsive disorder, depression, non-obsessive–compulsive disorder anxiety disorders and bipolar affective disorder are indications for NMD. It also suggests moving away from restrictive diagnostic categories towards looking at targeting specific symptom profiles informed by research – for example, what acquired neuropsychological deficit caused by stereotactic lesion is most likely to mediate the therapeutic effects sought in terms of a given symptom?

There are few papers looking at adverse effects of NMD, although modern NMD does not carry the grave risks of earlier operations. It is difficult for tertiary referral centres to keep in contact with patients in the long term, despite their best efforts, and this may mean that data are lost. There are specific gaps about possible adverse effects in the reported UK data. It has to be borne in mind that patients are already subjected to arduous neuropsychological testing to the point where this may deter them from being actively followed up.

The demise of NMD could mean the loss of a potentially useful and relatively safe approach for an extremely distressed patient group. If it were not to disappear entirely, the development of a more piecemeal approach may occur – the setting up of NMD 'services' where interested psychiatrists and neurosurgeons pair up. Such centres would be extremely vulnerable to changes in personnel and NMD clinicians who may feel ambivalently supported by the wider clinical community are more likely than ever to feel they work in a defensive culture. That would be in no one's interest, least of all service users.

The *Neurosurgery for Mental Disorder* report proposes the establishment of a national advisory committee to oversee a prospective audit of all activity in the UK and to promote collaboration between national and international centres. This would help move NMD away from a position where clinicians feel the burden of undue

suspicion and the fear of unhelpful external scrutiny, and towards enhanced public and clinical confidence. Part of the committee's remit would be to bring together research interests and clinical services, to foster a culture of enquiry that is not defensively framed, and to move towards the deployment of standardised process and outcome measures. It could develop a database for referrers and help to evaluate adverse effects on long-term outcome, and produce reports on national activity. It should be independent, centrally funded and report to the Department of Health. It might also oversee the clinical governance issues for other innovative physical treatments that are cause for concern.

If NMD were to die out, the death certificate would not have 'proven to be unsafe and ineffective' written upon it, or even 'superseded by more effective treatment options'. Psychosurgery might be in terminal decline, but a future obituary writer might say that a contributory factor was a lethal dose of ambivalence.

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