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# Defining the principles of palliative care in amyotrophic lateral sclerosis

Brian Dickie

Amyotrophic lateral sclerosis (ALS) is a disease of low prevalence but high multidisciplinary need. The syndromic nature of ALS, the speed of disease progression and the changing requirements of patients and caregivers represent considerable challenges in ensuring the successful coordination of care. The review paper by Bede *et al*<sup>1</sup> identifies common themes in timing and effective integration of specialist palliative care interventions, reviewing the development of guidelines and variations in service provision across different healthcare systems, as well as considering current tools for measuring impact (*see page 413*).

In support of their call for an international framework, the authors refer to striking differences in the timing, availability and impact of palliative interventions. Whether these differences are down to economic, educational, legal and/or

cultural factors, marked differences in provision do offer rough comparators to assist with refining palliative care provision. However, greater emphasis needs to be placed on developing complementary systems for longitudinal clinical audit and data collection, with particular emphasis on quality of life measurement, if we are to more effectively establish what works and what doesn't.

The authors rightly conclude that a "dynamic, evidence-based framework for integrating palliative care into the management of ALS is urgently required". However, the evidence base to support the impact of specialist interventions remains thin—and is even more scarce when addressing multidisciplinary care. Many of these black holes in our knowledge have been identified<sup>2,3</sup> but the principal barrier to performing high quality palliative care research is a lack of resource. We need more research to convert clinical experience into clinical evidence and we need more funding to support it. The Patient Associations may play an important role in this context: in funding outcomes

focused research, in influencing governmental agencies to support healthcare research in ALS and ensuring that research activity incorporates the views and priorities of people affected by the disease.

High quality healthcare provision requires considerable investment—both in terms of financial and human resource—but the development of an international framework, based on current national models of best practice and supported by research and educational programmes, has the potential to deliver tangible benefits for people with ALS and their caregivers across the world.

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# Subthalamic stimulation for Parkinson's disease: a new benchmark

Paul Krack

Foltynie *et al* recently reported on the outcome of bilateral subthalamic stimulation (STN DBS) in Parkinson's disease

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(PD) using MRI-based targeting without microrecording and using one single trajectory per target, followed by immediate stereotactic MRI to verify targeting accuracy. The outcome in this series of 79 consecutive patients managed in the Unit of Functional Neurosurgery at the Queen Square in London is remarkable in terms of both safety and efficacy (*see page 358*).<sup>1</sup>

The leitmotif of this surgical school<sup>2</sup> is that the first aim of elective functional surgery is not to harm, and so ventriculography was replaced by stereotactic CT early on,<sup>3</sup> before moving to direct MRI-based targeting.<sup>4</sup> Stereotactic imaging has become an integral part of the functional stereotactic procedure, performed under surgeons' direct supervision.<sup>1</sup> Furthermore, the authors do not use microelectrode recording with multiple brain trajectories, in order to minimise the risk of brain haemorrhage.<sup>5,6</sup> This is different from the practice in the vast majority of surgical centres that consider microrecording as a gold standard in order to optimise the precision of targeting.<sup>7–9</sup>

In the study by Foltynie *et al*, off-medication motor signs, as measured by the Unified Parkinson's Disease Rating scale (UPDRS), improved by 52%; L-dopa-induced

dyskinesia improved by 52%; L-dopa equivalent dosage was reduced by 39%; and quality of life (measured with a disease-specific scale) improved by 18%.<sup>1</sup> The outcome, based on these data, is in the upper range of published outcomes.<sup>10</sup> What differs from the rest of the literature is that the surgical side effects were extremely low. The most relevant side effect was a decrease in speech intelligibility in a subpopulation of patients. There was no symptomatic or asymptomatic haemorrhage detected on systematic postoperative MRI, possibly related to the use of one single trajectory with a blunt macroelectrode. Intracerebral haematoma is the most dangerous complication occurring in 3–4% of the procedures across centres.<sup>10–11</sup> Moreover, Foltynie *et al* report no infection compared with an average infection rate of 2–3% across centres.<sup>10–11</sup> Thus, the overall risk/benefit ratio seems to be extremely beneficial in the hands of the London team. The motor outcome of PD surgery depends not only on the skills of the surgeons, but also on the skills of the neurologists involved in the selection of patients and in the postoperative management of medication and stimulation parameters.<sup>7–12–13</sup> The study shows that direct MRI-based targeting of the STN doing without microelectrode recording is possible with a good outcome and very low morbidity.

The paper by Foltynie *et al* is also very timely because its outcome is in sharp contrast with the recently published report of the US Veterans Administration study. This multicentre study was run at seven Veteran Affairs and six affiliated university hospitals. It reported only 25% improvement of the UPDRS motor score in 147 PD patients with bilateral STN DBS, while 2% of cerebral haemorrhages (including one fatal) and 7% of infections were part of the surgical complications.<sup>9</sup> This study illustrates that the mere use of microelectrodes is not sufficient to actually reach a target. A recent UK multicentre study in 174 PD patients with STN

DBS reported an improvement in motor UPDRS of 36%. Complications included 2% of haemorrhages (including one fatal) and 9% of infections. The London group participated in this study highlighting the variability of outcome among centres.<sup>14</sup> One may argue that these studies reflect the true outcome of STN DBS, as they are closer to a field study, including less experienced centres. More importantly, these studies were randomised controlled studies, as opposed to the retrospective study by Foltynie *et al*. However, other randomised controlled studies confirm the rule that the benefit of STN DBS in PD is predicted by the response of L-dopa,<sup>8–15</sup> which is not the case with the above-mentioned recent studies.

Applying the highly complex technique of DBS is not like simply prescribing a drug which is given in the same way across patients. When starting a new surgical technique, learning curves seem ineluctable.<sup>11</sup> However, suboptimal outcome from surgery in PD cannot be accepted as a death. The reasons for every single failure must be carefully analysed in order to be minimised subsequently. The outcome of surgical treatment depends on the training of both the surgeons and the neurologists, and the study by Foltynie *et al* convincingly illustrates the importance of a trained dedicated team. Foltynie *et al*'s paper indeed shows an unprecedented risk/benefit ratio, thus providing a new benchmark for all centres involved in PD surgery.

**Competing interests** PK received research grant and reimbursement of travel costs to scientific meetings from Medtronic, a manufacturer of DBS devices, and from the following manufacturers of antiparkinsonian drugs: Euthérapie, Novartis, GSK, Boehringer Ingelheim, Lundbeck. He has served on the Advisory Board of Novartis.

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