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LETTER TO THE EDITOR

Cost effectiveness studies of tremor treatment should not focus on ultrasound while neglecting radiofrequency lesioning

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(The Editors do not hold themselves responsible for opinions expressed by correspondents)

To the Editor,

We read with great interest the paper by Jameel and colleagues entitled “The cost-effectiveness of unilateral magnetic resonance-guided focused ultrasound in comparison to unilateral deep brain stimulation for the treatment of medically refractory essential tremor in England.” published recently in *BJR*.¹

The authors employed an elegant statistical model and suggested an estimated cost per case of magnetic resonance-guided focused ultrasound (MRgFUS) lower than deep brain stimulation. This was based on a longer usage time period of half a decade and expert opinion alone of high volume usage shown in supplementary tables. No explicit mention is made in the main paper of the capital procurement cost of an MRgFUS machine which to our knowledge is approximately £2,000,000. Two elephants also remain in the room. Firstly, no mention is made of the cheap alternative procedure of radiofrequency ablation (RFA) or of gamma knife radiosurgery. Secondly, unilateral DBS is used as the comparator, whereas the vast majority of patients with tremor have bilateral symptoms best treated by bilateral DBS.

The cost of an RFA machine is £20,000 (1% of an MRgFUS machine) and most hospitals already own one for spinal pain procedures. Operative time of RFA is shorter at 1 h

vs 4–6 for MRgFUS, the patient also remains awake, there is no need for hair shave and no costly MRI scanner time is required during the procedure. Risks and efficacy are similar.

That MRgFUS incisionless is heavily marketed, but its good efficacy and low risks are similar to RFA and unilateral DBS.² Importantly, bilateral DBS can be modulated to optimise bilateral tremor control and minimise side-effects upon speech and balance, whereas lesioning is irreversible and least risky if unilateral. Furthermore, much is made by the authors of patients unsuitable for neurosurgery. There are hardly any absolute contraindications to DBS for essential tremor. Age, anticoagulation, implant infection risk, suitability for general anaesthesia and mildness of tremor are all relative contraindications with most of this tiny subgroup remaining as eligible for RFA as MRgFUS.

In conclusion, despite the growing popularity of MRgFUS in treating people with tremor syndromes, we advocate DBS as most efficacious for bilateral essential tremor and RFA as most cost effective in those with unilateral tremor who might prefer not to have an implant and those who have a genuine contraindication to neuroprosthesis implantation. The movement disorders neurology and functional neurosurgery communities should raise awareness of and compare all lesioning modalities, in particular the established safe, efficacious and cheap treatment of RFA.

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