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Comment on the Paper by Doshi et al. Entitled 'Bilateral Pedunculopontine Nucleus Stimulation for Progressive Supranuclear Palsy'

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Doshi et al. [1] report on 4 patients who underwent bilateral deep brain stimulation electrode placement, targeted to the pedunculopontine nucleus (PPN) for progressive supranuclear palsy (PSP). They did these surgeries between 2010 and 2012, spurred on by reports of PPN deep brain stimulation in Parkinson's disease and by case reports on PSP from 2009 (1 patient where the observed response was reported to be 'unimpressive') and 2012 (2 patients who 'died shortly of other complications') [2, 3].

In this report, all 4 patients completed 18-month follow-up assessments, and all 4 continued to have disease progression. Two patients had modest benefits and 1 patient was described to have a less accelerated decline in disease and gait scores. The authors acknowledge that this is a simple observational study and too limited in scope to draw meaningful conclusions.

However, from these reports a reader could certainly reach the conclusion that PPN deep brain stimulation has little role to play in PSP and is not worth the cost and commitment. So should the field forge ahead? I asked the authors this in the review process.

Although not mentioned in paper, they stated that 'we feel that there is a possibility of improving the quality of life of PSP patients and that is precisely the point that we are trying to make by this paper'. From that, I would imagine that additional patients may have undergone surgery. If so, I would hope that quality of life measures would have been included in the outcome assessments, both from the perspective of the patient and from that of the caregivers. Future work should also include a control group after implantation in the off setting and not just the presurgical state of the patient. Of course, it is not completely clear whether what was being stimulated was the PPN or some other regional structure and whether the stimulation parameters were optimal. Other than trying to avoid stimulation-related side effects, decision making in the programming process remains crude (as it commonly is for novel applications).

Clearly, PSP is a terrible neurodegenerative disease for which new thinking would be welcome. Unfortunately, without a concerted and well-planned multicenter effort, gains in our understanding will come slowly, unless some unexpected and serendipitous finding is made. It has happened before.

References

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