Interleaving stimulation (ILS) is a newer programming technique that can individually optimize the stimulation area, thereby improving control of Parkinson Disease (PD) symptoms while alleviating stimulation-induced side effects after conventional programming fails to achieve the desired results.

retrospectively reviewed PD patients who received DBS programming during the previous 4 years in our hospital. We collected clinical and demographic data from 12 patients who received ILS because of incomplete alleviation of PD symptoms or stimulation-induced adverse effects after conventional programming had proven ineffective or intolerable. Appropriate lead location was confirmed with postoperative reconstruction images. The rationale and clinical efficacy of ILS was analyzed. RESULTS: We divided our patients into 4 groups based on the following symptoms: stimulation-induced dysarthria and choreoathetoid dyskinesias, gait disturbance, and incomplete control of parkinsonism. After treatment with ILS, patients showed satisfactory improvement in PD symptoms and alleviation of stimulation-induced side effects, with a mean improvement in Unified PD Rating Scale motor scores of 26.9%.

ILS is a newer choice and effective programming strategy to maximize symptom control in PD while decreasing stimulation-induced adverse effects when conventional programming fails to achieve satisfactory outcome. However, we should keep in mind that most DBS patients are routinely treated with conventional stimulation and that not all patients benefit from ILS. ILS is not recommended as the first choice of programming, and it is recommended only when patients have unsatisfactory control of PD symptoms or stimulation-induced side effects after multiple treatments with conventional stimulation. A return to conventional stimulation may be required if ILS induces new side effects or the needs of the patient change [1].

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Zhang S, Zhou P, Jiang S, Wang W, Li P. Interleaving subthalamic nucleus deep brain stimulation to avoid side effects while achieving satisfactory motor benefits in Parkinson disease: A report of 12 cases. Medicine (Baltimore). 2016 Dec;95(49):e5575. PubMed PMID: 27930569.