Background: Bilateral VM DBS improves tremor in both patients with ET and PD. In each condition we have noted both subjective improvement and worsening in balance. Compensatory posturography (CP) is able to quantify some aspects of balance.

Methods: Fourteen patients (6 with PD and 8 with ET) who had undergone bilateral VM DBS were recruited to undergo identical CP testing while their devices were both activated and both deactivated. Three conditions were performed: standing and stabilometric conditions (1 and 2) and 20-second large medium perturbations. The mean of both legs was used for analysis. Patients were tested while wearing their normal medications. Statistical analysis included paired t-tests for the within-subject comparison of CP parameters between ON and OFF DBS status, with the second side placed at least 6 months prior to entry into this study. The order of testing was randomized.

Results: Eleven patients completed all testing. Two PD and one ET patient withdrew secondary to anxiety, tremor exacerbation, and fatigue after their devices were deactivated. Sensory organization testing and perturbation latency did not change, however, compensatory motor amplitudes, which are augmented in PD, were reduced with DBS activation.

Conclusions: Bilateral VM DBS activation improved some aspects of balance as measured by CP. No subject had any clear worsening of balance parameters.

Key References