

Cutaneous silent period

Urasaki et al. sought to evaluate whether the cutaneous silent period (CSP) could be an electrophysiological indicator reflective of the effects of therapy for [Parkinson's disease](#) (PD), including anti-PD [medications](#) or [deep brain stimulation](#) (DBS).

They recorded the CSP in 43 patients with PD prior to and following the administration of medication during a pre-DBS evaluation (30 cases) and the “on” and “off” states of [subthalamic nucleus](#) DBS (13 cases). The CSP was elicited from the abductor pollicis brevis muscle by Electrostimulation of the index finger that was 2, 4, and 15 times stronger than the sensory threshold (ST). They measured changes in latencies, including the onset, duration, and end of CSP, and waveform scores from 0 to 3. The correlation between the CSP score and unified PD rating score part III (UPDRS-III) also was assessed.

The onset latency and duration of CSP were significantly different between high (15ST) and low-strength stimulations (2ST and 4ST). However, there were no significant latency changes (onset, duration, end of CSP) before and after receiving medication, or during the on and off state of the DBS. Anti-PD medications substantially increased the CSP waveform score only in the 4ST state. However, the waveform score significantly increased in all stimuli states during the DBS-on state. Both medication and the DBS-on state decreased the UPDRS-III. Nevertheless, there was no statistically significant correlation between the UPDRS-III and CSP waveform scores.

Different onset latencies and the duration of CSP between low- and high-strength stimuli support the hypotheses proposing two different [reflex pathways](#). Despite being independent of the UPDRS-III, the CSP may be an electrophysiological indicator reflective of the changes in inhibitory activity to the spinal α -motoneuron in response to anti-PD medications and DBS ¹⁾.

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Urasaki E, Miyagi Y, Kishimoto J. Effects of Medications and [Subthalamic Nucleus-Deep Brain Stimulation](#) on the [Cutaneous Silent Period](#) in Patients With [Parkinson's Disease](#). Neuromodulation.

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