Neuromodulation with percutaneous electrical nerve field stimulation is associated with reduction in signs and symptoms of opioid withdrawal: a multisite, retrospective assessment

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Background: Finding an effective, non-pharmacological approach to treat opioid withdrawal could remove some of the barriers associated with pharmacotherapy. The BRIDGE® is a noninvasive, percutaneous electrical nerve field stimulator developed to target pain.

Objectives: This pilot study aimed to determine (1) the effects of the BRIDGE on withdrawal scores during the induction phase of opioid withdrawal therapy, (2) the percentage of subjects who successfully transitioned to medication assisted therapy (MAT).

Methods: Adult patients treated with the BRIDGE during medically supervised withdrawal were included in this open label, uncontrolled, and retrospective study. The clinical opioid withdrawal scale (COWS) scores were prospectively recorded at different intervals (20, 30, and 60 min) and analyzed retrospectively. A subset of patients had scores recorded 5-days post-BRIDGE. Those who returned to the clinic and received their first dose of maintenance medication were considered to be successfully transitioned.

Results: In this cohort (n=73), 65% were male. The mean COWS score prior to BRIDGE placement was 20.1 (±6.1). Twenty minutes after BRIDGE placement, the mean score was reduced to 7.5 (±5.9) (62.7% reduction, $p<0.001$). The scores further decreased after 30 minutes 4.0 (±4.4) and 60 minutes 3.1 (±3.4) (84.6% reduction, $p<0.001$). No rescue medications were administered during this period. The mean withdrawal score on day 5 was 0.6 (97.1% reduction, $p<0.001$) (n=33). Overall, 64/73 patients (88.8%) successfully transitioned to MAT.

Conclusions: Neurostimulation with the BRIDGE is associated with a reduction in opioid withdrawal scores. This effect persisted during the induction period and allowed for effective transition to MAT.