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Investigate the safety of continuous Apomorphine (Sc) infusion during recovery in Vegetative State and Minimally Conscious State patients after severe closed TBI.

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Introduction: The prognosis of long-term severe disorders of consciousness due to traumatic brain injury is discouraging. There is little definitive evidence of the underlying mechanisms, but a deficiency of the dopaminergic system may be involved.

Goal: Investigate the safety of continuous Apomorphine (Sc) infusion during recovery and assess openly functional improvements in VS and MCS patients after severe closed TBI.

Methods: In a prospective open-labelled clinical study, we tested the feasibility, relative efficacy and safety of continuous subcutaneous (s.c.) administration of apomorphine HCl via an infusion pump in patients with clinical diagnosis of Vegetative State (VS) or Minimally Conscious State (MCS) due to severe traumatic brain injury (TBI). Apomorphine was administered to eight patients for 12 hours a day to simulate the diurnal cycle. Patients participated or were included in the Sensory-Motor Stimulation Program or Multisensorial Stimulation Program. Outcome measures, assessed by the OT, were the Coma Near-Coma Scale (CNCS) and Disability Rating Scale (DRS).

Results: Drug preparation and management of the infusion pump were implemented without any problems. There was improvement in the primary outcomes for all patients. Awakening was seen as rapidly as within the first 24 hours of drug administration and as late as four weeks. By 6 months, seven of the patients had completely recovered consciousness. All improvements were sustained for at least one year, even after apomorphine was discontinued. One patient died from causes unrelated to apomorphine. Otherwise, patients presented with adverse events anticipated from the apomorphine clinical literature, all of which resolved, in some cases after the dose was reduced.

Conclusion: Based on this open-label pilot study, continuous s.c. apomorphine infusion appears to be feasible, safe and potentially effective in regaining consciousness in patients in VS and MCS due to severe TBI.

Contribution to the practice: this study shows that apomorphine improves arousal in these patients which leads to environmental awareness and need of Occupational Therapy intervention in early stages.