

Physiological Impact of Spinal Cord Stimulation in Gastroparesis Patients with Chronic Abdominal Pain



Jared Rejeski, MD¹; Leonardo Kapural, MD, PhD²; Kenneth Koch, MD¹

¹ Wake Forest University School of Medicine, Winston-Salem, NC
² Carolinas Pain Institute, Winston-Salem, NC

Introduction

- Abdominal pain in patients with gastroparesis (GP) remains a major clinical problem.
- Spinal cord stimulation (SCS) has been shown to improve abdominal pain, nausea, vomiting, and satisfaction scores in patients with GP and refractory abdominal pain.

	Participant 1		Participant 2		Participant 3	
	Pre SCS	Post SCS	Pre-SCS	Post-SCS	Pre-SCS	Post-SCS
BMI	17	31	30	28	39	45
GCSI	n/a	3.78	n/a	0.89	n/a	3.22
PAGI-QOL	2.73	3.23	1.37	1.87	n/a	3.77
EGG WLT (cc)	150	200	275	700	250	600
EGG Rhythm	Mixed dysrhythmia	Normal	Bradycardia	Normal	Mixed dysrhythmia	Tachycardia
GET 1hr	65	68	63	43	65	n/a
GET 4hr	25	20	22	2	18	n/a

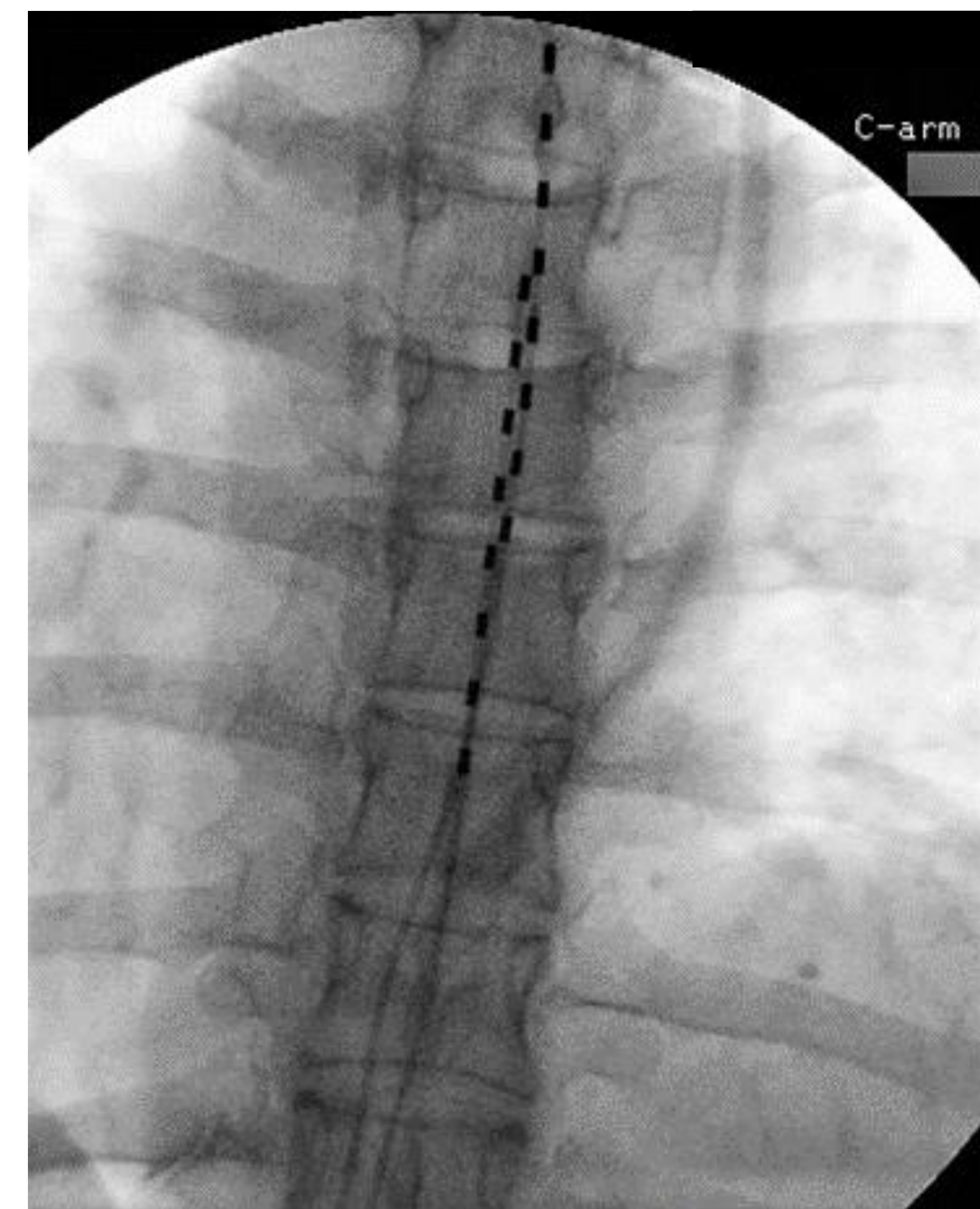
Participant data at baseline (Pre SCS) and after HF10-SCS placement (Post SCS)

Aim

- To determine the effects of long term SCS therapy on symptoms and measures of gastric physiology in patients with GP and chronic abdominal pain.

Methods

- Non-randomized, prospective cohort study
- Follow up data in GP patients who underwent high-frequency SCS (HF10-SCS).
- Data collected:
 - Surveys
 - Electrogastrogram with water load satiety tests (WLST)
 - Gastric emptying tests.



Two stacked electrode leads placed in fluoroscopically midline position with distal tip at top of T4 vertebral body (right lead) and T5 (left lead) used for high frequency 10 kHz stimulation.



Results

- Three women; ages 35, 57, and 60 with idiopathic GP who underwent SCS with HF10-SCS agreed to follow up evaluation.
- HF10-SCS treatment duration averaged 38.3 months.
- In two of the three patients, gastric dysrhythmias detected at baseline converted to normal 3 cpm rhythm at follow up.
- The volume of water ingested during the WLST increased in all patients compared with baseline volumes.
- Delayed gastric emptying was normal in one patient and improved in another at follow up.
- PAGI-QOL scores improved in patients compared with baseline measures.

Conclusion

- Gastric dysrhythmias, water load volumes, and gastric emptying improved after HF10-SCS, indicating beneficial physiologic effects of HF10-SCS on gastric neuromuscular function in patients with GP and chronic abdominal pain.