

SPINAL CORD STIMULATION (SCS) OF THE DORSAL ROOT GANGLION (DRG): SINGLE CENTER EXPERIENCES IN THE UNITED KINGDOM

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Conflicts of Interest: Dr G Baranidharan has consultant agreement with Spinal Modulation for teaching

INTRODUCTION

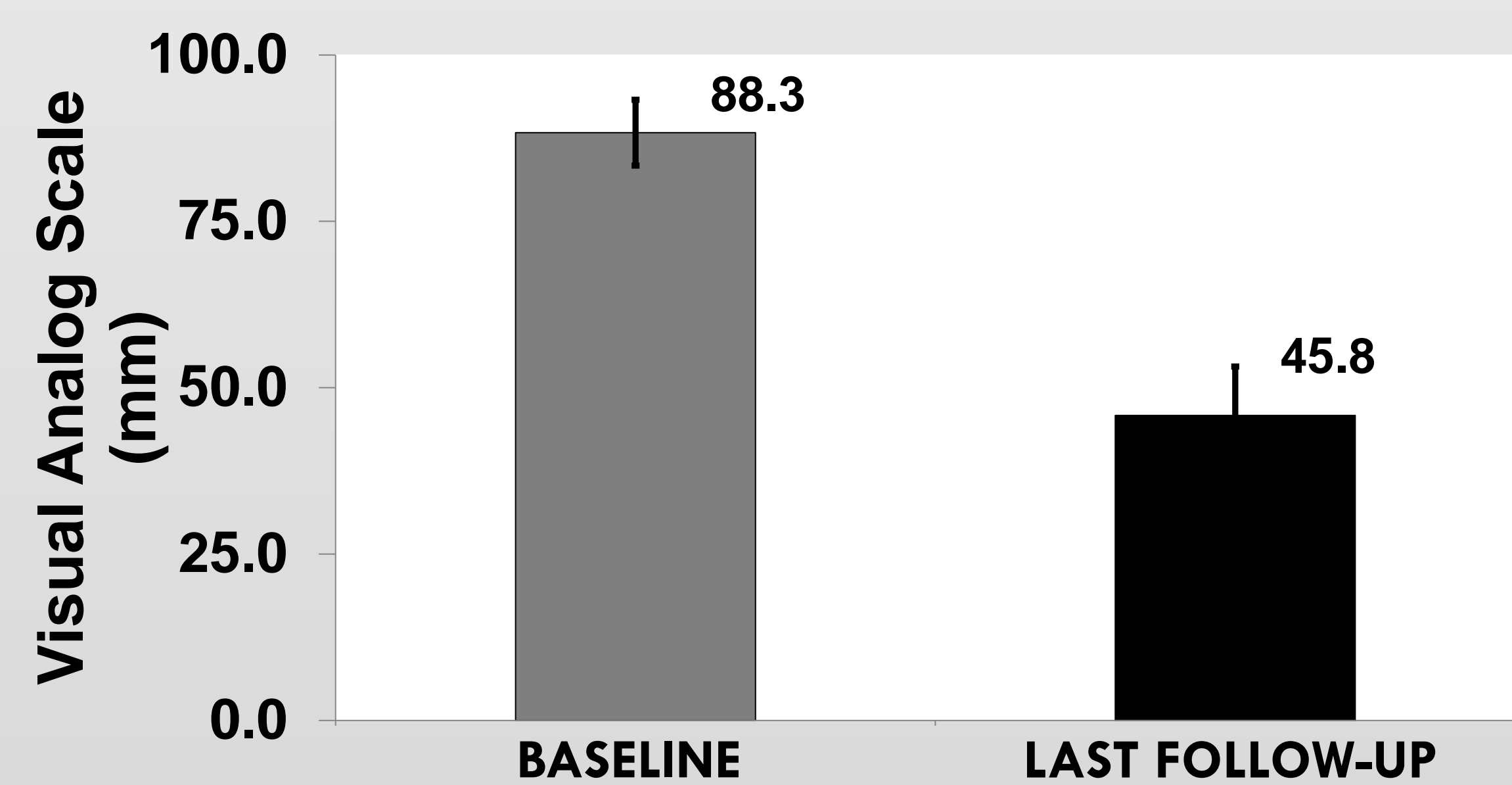
- Spinal cord stimulation (SCS) of the dorsal root ganglion (DRG) is a promising new neuromodulation technique to treat chronic neuropathic pain. Several prospective trials have demonstrated the safety and efficacy of this technique. We present experiences from seven consecutively enrolled patients treated with DRG neurostimulator system.

METHODS

- Seven patients: Complex regional pain syndrome (CRPS) – 3, post-surgical pain (heel, Pfannenstiel and knee) – 3 and visceral pain in the abdomen and flank – 1.
- Following a successful test trial (>50% improvement), patients received a fully implantable neuromodulation system with leads placed at the target DRGs (C7-L5).
- Pain scores were documented on a visual analog scale (VAS). Subjective improvement was also captured using Global Impression of Change (GIC) on a 7-point Likert scale.

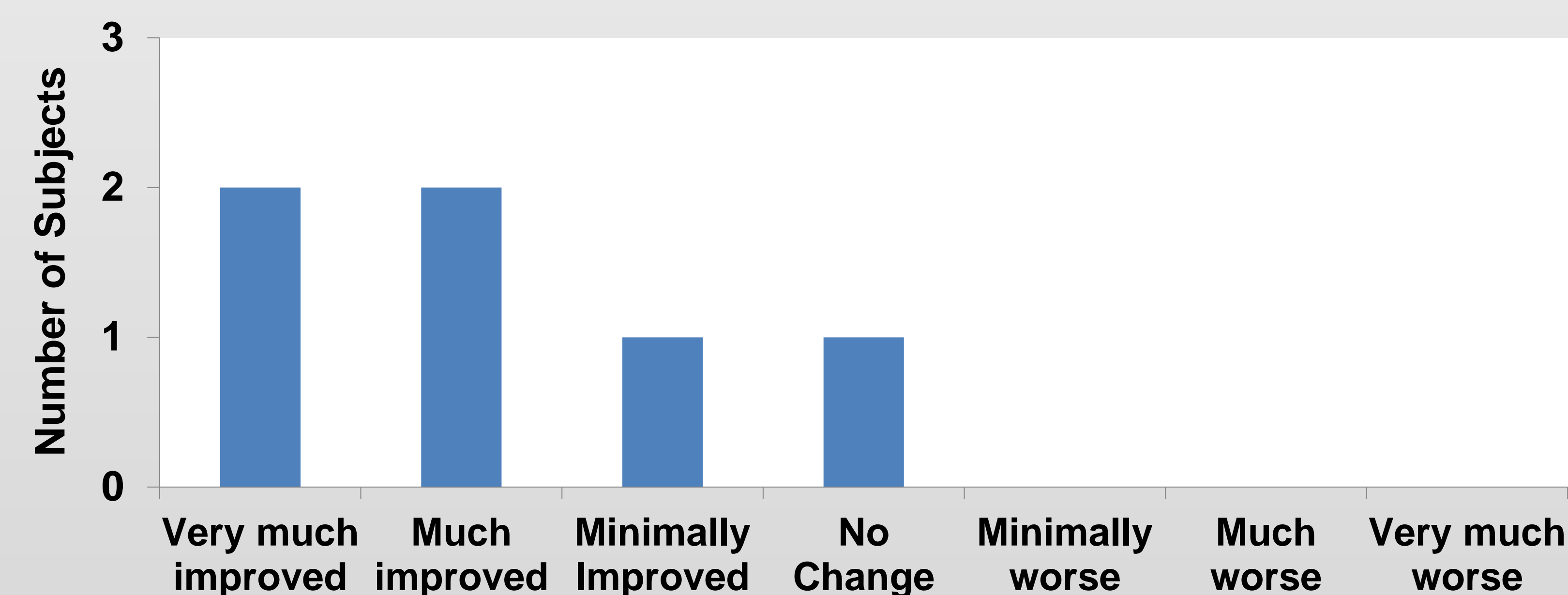
RESULTS

VISUAL ANALOG SCALE (VAS)



48.2% improvement in VAS at latest follow-up

GLOBAL IMPRESSION OF CHANGE (GIC)



4/6 or 66.7% of patients report "very much improved" or "much improved"

SALIENT OBSERVATIONS

- Five patients had previously failed either spinal cord stimulation (SCS) or peripheral nerve stimulation (PNS) therapies
- 2 trial failures:
 - Patient did not trial to proceed despite a 56% improvement
 - Device removed due to hematoma around INS
- Patient testimonials:**
 - Patient 6: *Arm feels much warmer than conventional stimulation; better than percutaneous lead from previous SCS therapy.*
 - Patient 7: *But for small doses of Fentanyl, patient off most of her opioids (Fentanyl 200, Oxycotin 30 bd and PRN Oromorph up to 50 mg)*

CASE HIGHLIGHTS:

PATIENT 1

- Diagnosis:** Post-surgical heel pain
- Prior treatments:** Spinal cord stimulation (SCS) gave too much thigh stimulation
- SCS of the DRG:** TNS and INS performed together on table.
- Lead location:** Bilateral L5 DRGs
- VAS:** 100 mm at baseline and 70 mm at 30 weeks (30% improvement)
- GIC:** Much improved
- Comments:** Patient able to relax better and not think about "nerve destruction"

PATIENT 6

- Diagnosis:** Complex regional pain syndrome (CRPS)
- Prior treatments:** Stimulation not satisfactory due to positional changes
- Pain location:** Pain in arm and hand
- Lead location:** Unilateral C7 and C8 DRGs
- VAS:** 70 mm at baseline and 50 mm at 12 months (29% improvement)
- GIC:** Much improved
- Comments:** 100% stimulation coverage and a much pleasant stimulation

DISCUSSION

- One patient with post-surgical pain (Pfannenstiel) had 58% pain improvement in the groin area at 25 weeks. But the lead had dislodged and patient is awaiting revision.

CONCLUSION

- Targeted option to treat neuropathic pain in a dermatomal distribution neuropathic pain
- Very promising in visceral pain with much better outcome
- Further clinical trials and case series, will help us understand further advantages of this novel therapy