

MP48-09 EXPERIENCE WITH SARS (SACRAL ANTERIOR ROOT STIMULATOR) IN SUPRASACRAL SPINAL CORD INJURY



PATIENTS: LESSONS LEARNED

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INTRODUCTION AND OBJECTIVE

SARS (Sacral Anterior Root Stimulator) is an implantable electronic device to provide voluntary control of micturition, defecation and erectile function in suprasacral spinal cord injury (SSCI) patients. It includes a bilateral dorsal rhizotomy and implantation of electrodes at S2 to S4 ventral roots. We review our results focusing to improve our patient selection criteria.

MATERIAL AND METHODS

From January 2013 to October 2019, 16 SSCI patients (13 male and 3 female) were implanted with SARS. There were 8 quadriplegics and 8 paraplegics, average age 43 years (range 31-59). Mean follow-up was 60 months (range 6-87). We evaluated bladder, defecation and erectile function, and also early and long-term complications.

RESULTS

BLADDER FUNCTION. 16 patients

Pre-SARS

- Overactive bladder + CIC + oxybutinine (16pt)
- Botulinum toxin (2pt)
- Urethral trauma by catheterization (3pt)
- Urinary tract infections (UTIs) (10 pt)
- Poor compliance/low capacity bladder (1pt)

Post-SARS

- 87.5% (13/16) use SARS 4-5 times/day, void 250-700cc, ≤50cc PVR, continent
- 6,3% (1/16) *de novo* stress incontinence requiring a male sling
- 19% (3/16) occasional bladder catheterization (all caregiver-dependent quadriplegics)
- 12.5% (2/16) failure (both diverted): - 1 small low compliance incontinent bladder - 1 painful stimulation
- 37.5% (6/16) (all quadriplegics) symptomatic UTIs, related to poor caregiver technique

POSTOPERATIVE AND LONG-TERM COMPLICATIONS

- 2 pt (12.5%): neurapraxia, resolved spontaneously after 12 months (Clavien I)
- 2 pt (12.5%): extrusion of the receiver block (Clavien IIIb)
- 10 pt (62.5%): malfunction/damage of the external hardware, mostly related to operator misuse

DEFECATION FUNCTION. 16 patients

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| Pre-SARS | 16 patients: Constipation in all |
| Post-SARS | 94% (14/16) successful daily evacuation with SARS |

ERECTILE FUNCTION. 13 male patients

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| Pre-SARS | <ul style="list-style-type: none"> - Reflex erection +/- sildenafil (12pt) - No erection (1pt) - 46% (6/13) sexually active |
| Post-SARS | <ul style="list-style-type: none"> - 85% (11/13) Good erections with SARS - 33% (2/6) intercourse with SARS (unreliable erection in 4) - 31% (4 pt) require prosthesis implantation |

SUMMARY / CONCLUSION

Success of SARS was 87.5 % for micturition, 94% for defecation and 33% for intercourse. The main limitations were observed in caregiver-dependent quadriplegics due to operator misuse, resulting in damage of the external hardware or symptomatic UTIs. Loss of reflex erections was an undesired side effect in sexually active patients. Although SARS can elicit erections by stimulation, the system may not be reliable enough for intercourse. According to this, we believe the best candidate for SARS is an adult-able independent paraplegic female and also male paraplegics not concerned with loss of reflex erections.

CONTACT INFORMATION

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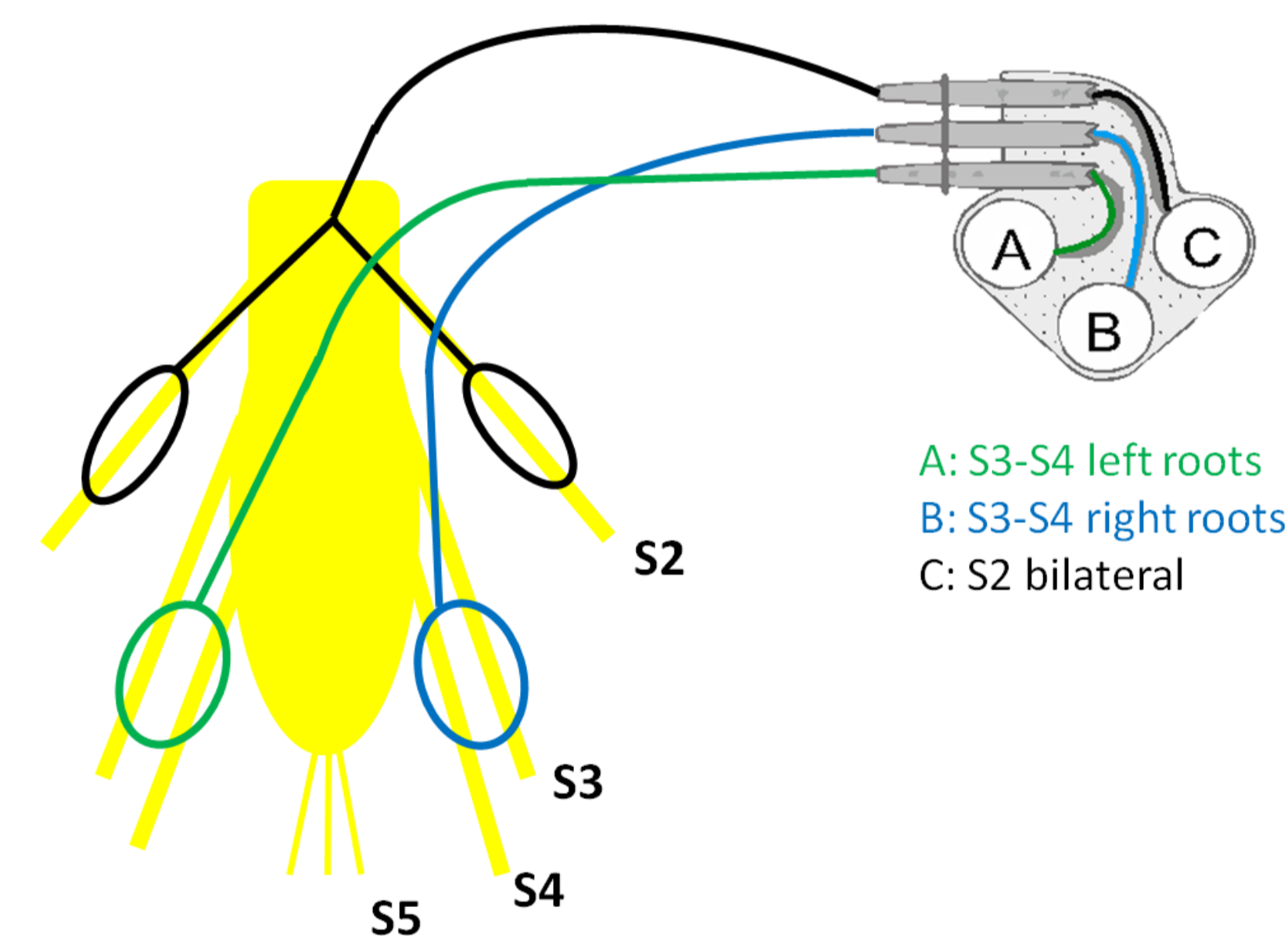


Fig 1. Disposition of electrodos

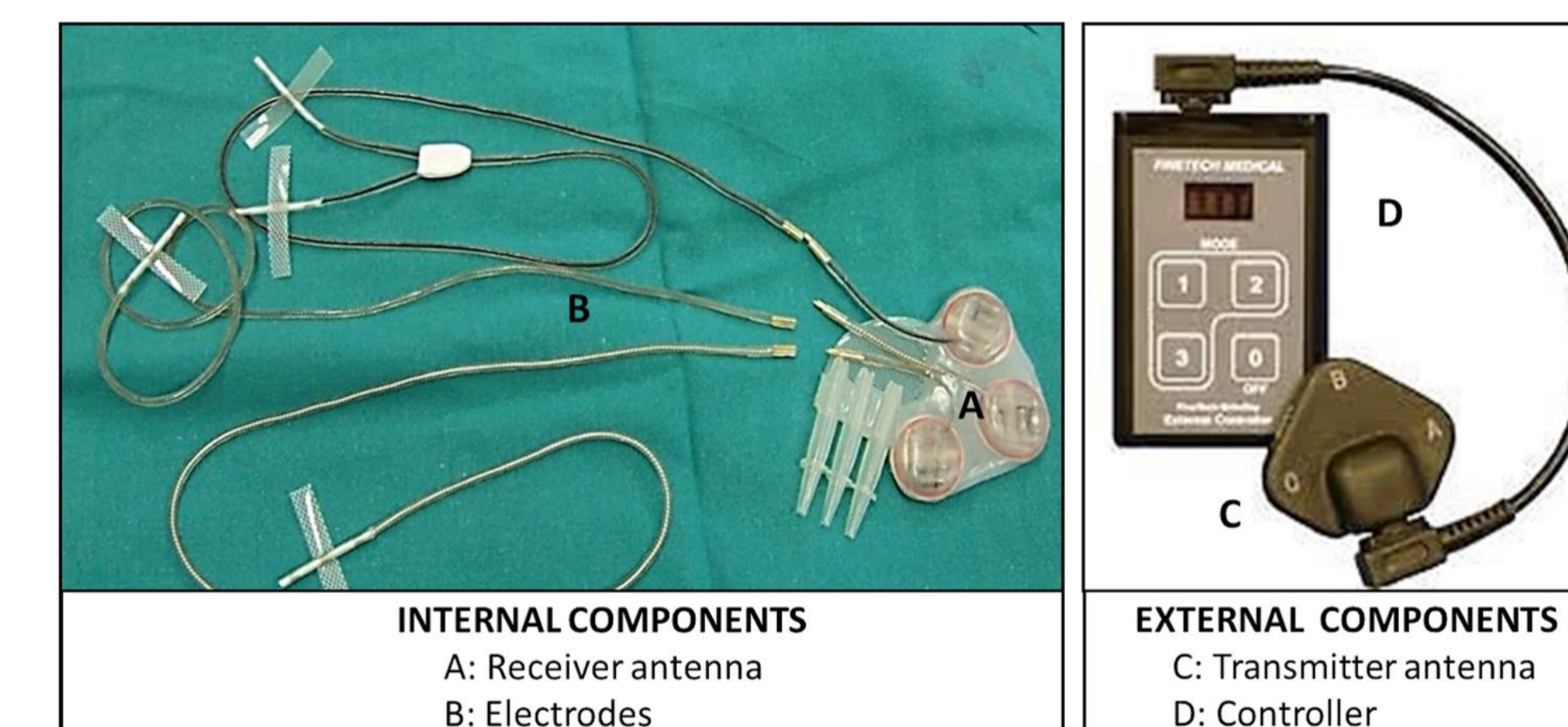


Fig 2. Internal and external components