

## NEUROMODULATION IN CHRONIC PELVIC PAIN: A SYSTEMATIC REVIEW.

### Hypothesis / aims of study

Chronic Pelvic Pain Syndrome (CPPS) is a debilitating disease which often has a considerable impact on quality of life. This clinical condition presumably has a multifactorial aetiology and patients with CPPS often undergo multiple treatments for their complaints. Conventional treatments are not always successful and often patients even undergo radical surgery in order to alleviate pain symptoms.

Over the past years several studies have reported positive results of neuromodulation in the treatment of CPPS. The aim of our study is to systematically review the literature on various types of neuromodulation techniques in pelvic pain syndromes.

### Study design, materials and methods

A systematic literature search for full length original articles meeting the following inclusion criteria was conducted: a) patients with pelvic pain syndromes, such as Interstitial Cystitis (IC), Bladder Pain Syndrome (BPS), as well as patients with non-specific pelvic pain syndromes such as genital pain or urethral pain, not initiated by surgery, oncology or other underlying pathology; b) treatment with one of the following neuromodulation techniques: Percutaneous nerve stimulation (PTNS), Sacral neuromodulation (SNM) and Pudendal neuromodulation; c) reporting pain-specific outcomes; d) published in English in a peer-reviewed journal. Reviews, case reports, expert opinions, abstracts and comments were excluded. Two authors independently examined titles, abstracts and full text articles. There was no age restriction on the articles and the last search was dated March 1<sup>st</sup> 2017. PRISMA guidelines were used and risk of bias assessment was performed according to the Cochrane Collaboration guidelines. Two authors performed data extraction and quality assessment independently, using a standard data extraction form.

### Results

In the PubMed search 258 records were identified and the abstracts screened for eligibility. Eventually 114 full text articles were assessed for eligibility, 78 articles were excluded resulting in a final set of 36 articles out of 35 studies. There were several reasons for exclusion, malignancy, trauma, no pelvic pain, bowel disorders, no pain scores or a technique focus trial without clinical result mentioned.

PTNS was used in 8 trials, treating 204 patients with CPPS. The clinical results strongly varied between the trials. In one study, which compared PTNS with a sham procedure, 40 % of the patients had objective success on the VAS scores with a follow up of 12 weeks. The other studies showed improvement of 25-50% on the VAS scores with a short follow up. In addition, 3 trials showed no significant results on the VAS pain scores.

SNM was described in 23 trials: 11 retrospective and 12 prospective studies. In total, 523 patients, mostly females, were treated with SNM. PNE test was used in 14 trials. The follow-up ranged from 6 till 61 months. Nearly all studies reported a positive result, with success rates ranging between 25 to 73%, only one study reported no significant improvement. In general the level of evidence was low and the risk of bias high.

Pudendal stimulation for BPS was evaluated in one trial, which randomised between SNM and pudendal stimulation. No difference was found between the outcomes of the two treatments

### Interpretation of results

The currently available studies suggest that neuromodulation may be a valuable treatment option in patients with refractory chronic pelvic pain. However, the reported studies are mostly retrospective and with relatively small groups of patients. Most trials have high risks of bias and the results are variable.

### Concluding message

The role of SNM in the treatment of CPP seems promising but larger prospective trials with long-term evaluation are required.

### Disclosures

**Funding:** None **Clinical Trial:** No **Subjects:** NONE