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Title (type in CAPITAL LETTERS)	THE PAIN CYCLE, IMPLICATIONS FOR THE DIAGNOSIS AND TREATMENT OF PELVIC PAIN SYNDROMES

Objectives: The aim of the study is to evaluate the treatment modalities of perineal pain in urology in order to improve patient selection and the success rate of treatment.

Patients: From 4/1992 to 8/1998, we treated 111 patients (40 men/71 women, age: 46+/-6 years) with chronic pelvic pain. Urodynamics were available in all patients. All patients with causal treatment were excluded from this study. Sacral neuromodulation (transcutaneous electrical nerve stimulation (TENS), intrarectal-intravaginal electrostimulation or sacral nerve stimulation) was used for treatment in all patients. Treatment success was evaluated with visual analogue scales. Multinomial logit regression analysis was used to explain the probability that a certain observation will belong to a given category.

Results: Urodynamics of the patients are summarized in Table 1:

Cystometry	n	VAS < 3, < 50% pain relief	VAS < 3, 50-90% pain relief	VAS < 3, > 90% pain relief
Sphincterinstabilities	76	17	17	42
Mean sphincterpressure, cmH2O	111	89 +/- 53	102 +/- 49	98 +/- 34
Compliance	111	56 +/- 22	67 +/- 34	60 +/- 17
Micturition analysis				
Normal flowpattern	50	42	2	6
Dysfunctional voiding	61	5	19	37
Q max, mL/sec	111	20 +/- 11	23 +/- 16	25 +/- 18

Monovariate multinomial regression analysis (residual Chi2: 87.5; 16 df; p<0.0001; 110 cases included) revealed that pain relief was significantly better in patients with symptoms of voiding dysfunction (p<0.0001), dyschezia (p<0.001) and not to dyspareunia. Pain relief was better with decreasing age (p<0.0001) and better in men compared to women (p<0.05). Pain localized to the urethra was significantly (p<0.001) related to treatment success whereas scrotal pain and neuropathic pain were related to treatment failure (p<0.01). Urodynamic evidence of dysfunctional micturition was the main criterion of success (Wald score 83.3, p<0.0001). After correction for all above mentioned variables, no treatment was significantly better than another (Table 4). Neurostimulation of the S3 nerves, intravaginal or intrarectal electrostimulation and TENS relieved 84% of these "pelvic-floor pain syndromes". In patients without pelvic-floor dysfunction, only 19% responded to the treatment. Test stimulation of the S3 root was efficient in the treatment of pain in 14/26 patients and success was related to pelvic floor dysfunction (p<0.01). 9 patients were implanted successfully with a follow-up of 24 +/- 8 months. So far, no late failures were seen in contrast to our results of sacral nerve stimulation in patients with urge incontinence or retention.

Conclusion: Patients with chronic pelvic pain are treated efficiently with neuromodulation if concomitant pelvic floor muscle spasms are present. Pain cycle theory explains why pelvic floor spasms and pelvic pain are linked physiopathologically. Uroflowmetry is necessary in the diagnosis of all patients with pelvic pain. Sacral nerve stimulation is a promising new treatment modality for pelvic pain.