Neurostimulaatiohoito lantionpohjan ongelmien hoidossa

Martti Aho

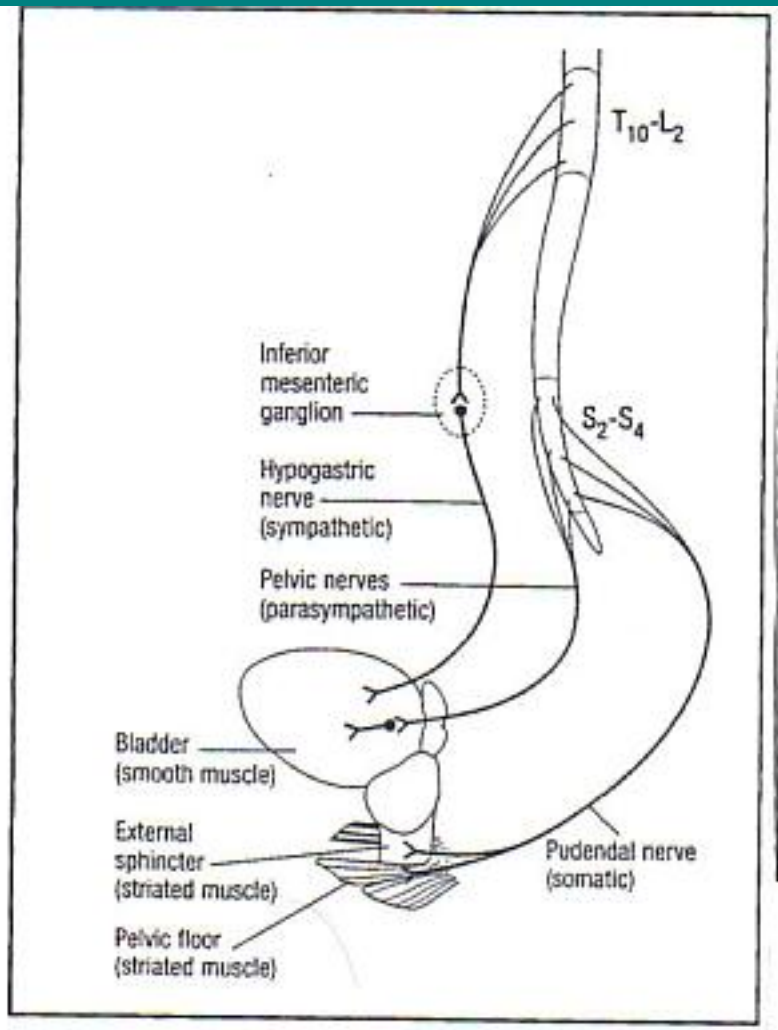
Urologian el, LT

TAYS

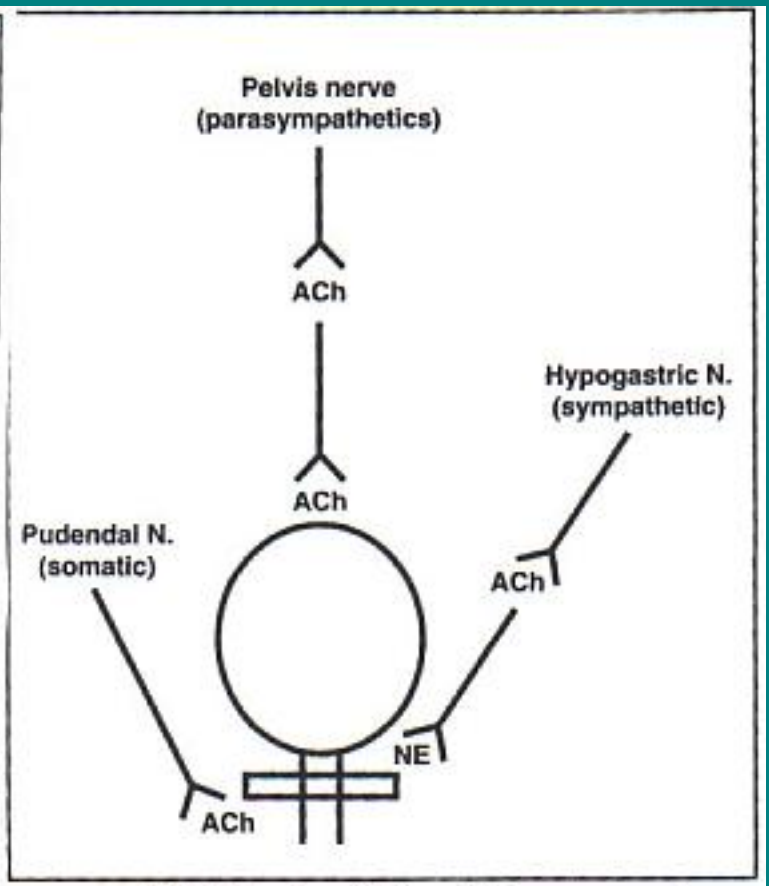
Posti tuo kaikenlaista,,,

,,, josta ei aina tiedä

Lantionpohjan hermotus



Detailed description of the neuroanatomy.



Detailed description of the neuroanatomy.

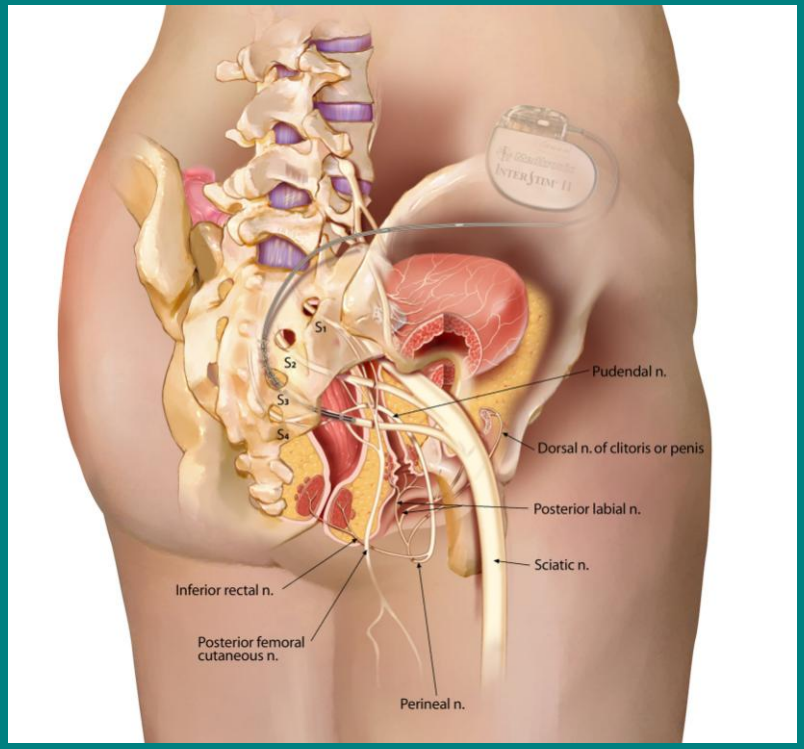
Mitä on neuromodulaatio?

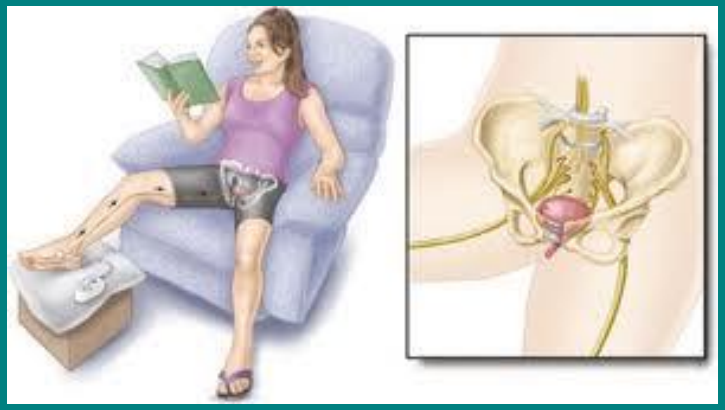
- Ei ole neurostimulaatiota eli ei vaikuta suoraan johonkin elimeen VAAN
- Muokkaa hermoimpulsseja lantion lihaksiston, rakon ja peräsuolen sekä aivojen välillä useilla perifeerisen ja sentraalisen hermojärjestelmän tasoilla
- Tasapainottaa ärsyttävien ja inhiboivien säätelymekanismien toimintaa

Neuromodulaation tyypit

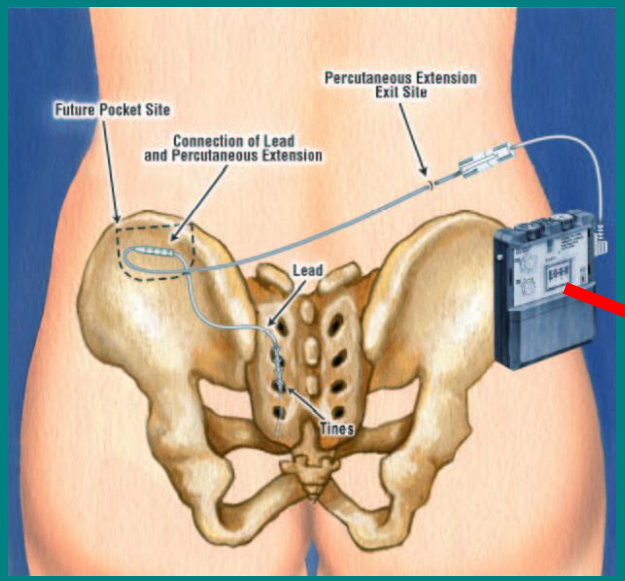
- Sakraalinen neuromodulaatio
- Tibiaalinen neuromodulaatio
- Pudendaalinen neuromodulaatio

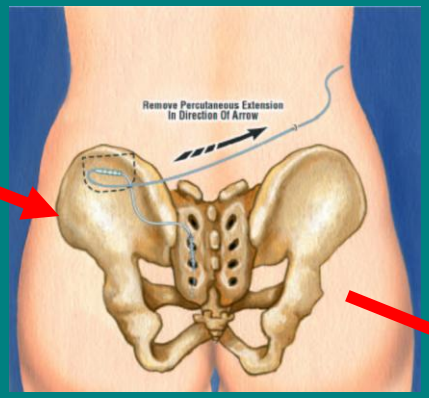
Tapoja toteuttaa neuromodulaatio

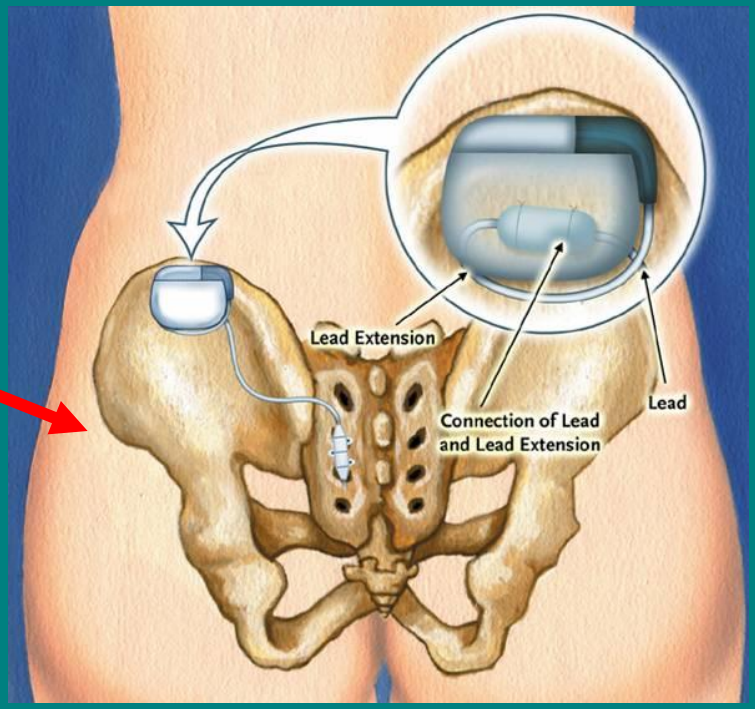




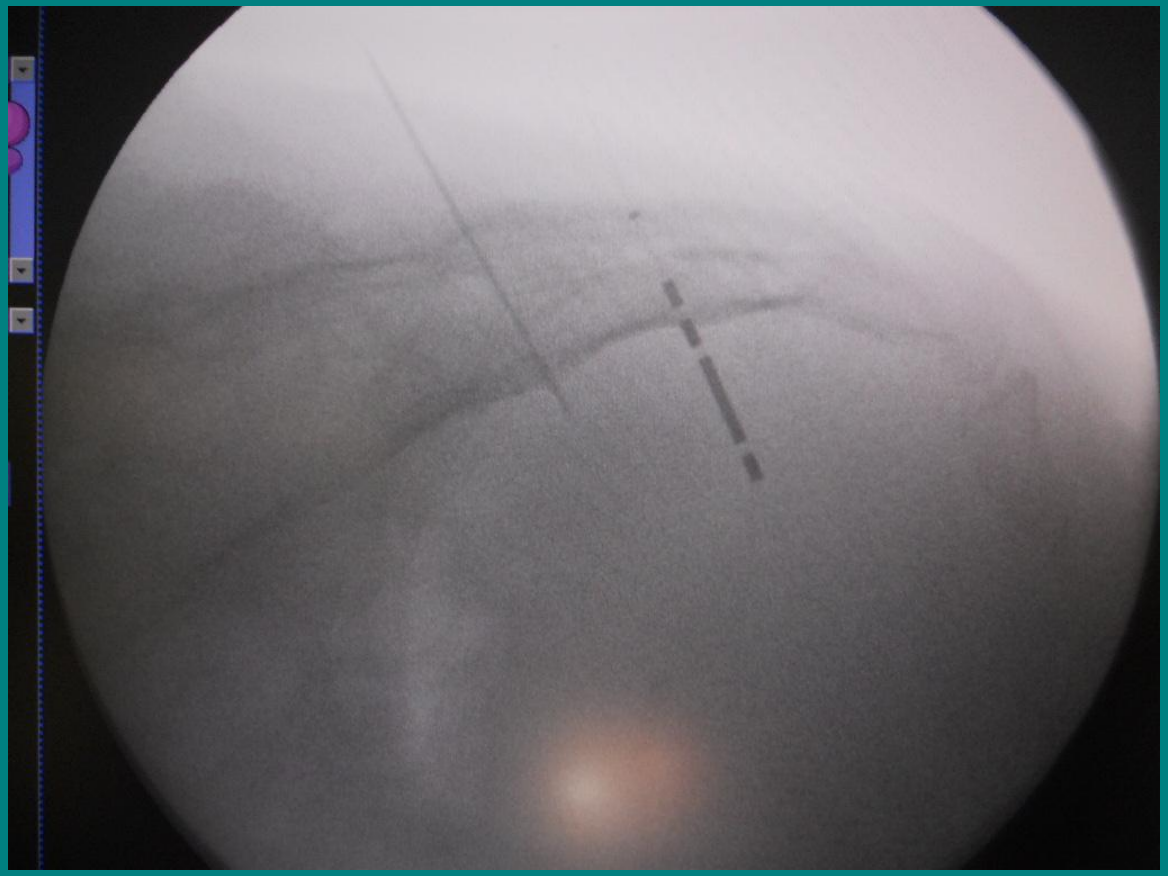
Testaus + pysyvä neuromodulaattori







S3 vai S4



Levator-refleksi

SNS: yliaktiivinen rakko

	FU (mo)	No pat	> 90%	>50%	Failed
Van Kerrebroeck 2007	60	78	53	25 (32%)	
Ruiz-Cerda 2003	Mean 7	25	14	2	9 (36%)
Amundsen 2002	Mean 8	12	2	10	0
Everaert 2002		12	5	4	1 (20%)
Groenendijk 2002		6	84	55	29 (35%)
Hedlund 2002	18	14	8	5	1 (7%)
Carabello 2001	13.4	15	1	11	3 (20%)
Janknegt 2001	Mean 31	96	25	35	36 (38%)
Bosch 2000	Mean 47	45	18	9	18 (40%)
Grunewald 2000	6	26	6	13	7 (27%)
Siegel 2000	36	41	19	5	17 (41%)
Koldewijn 1999	Mean 29	28	18	3	7 (25%)
Shaker 1998	Mean 14	18	8	4	6 (33%)
Weil 1998	Mean 38	24	14	3	7 (29%)
Dijkema 1994	17	17	6	5	6 (35%)
Total		528	139 (26%)	217 (41%)	172 (33%)

Onnistuminen: 67 %

SNM: virtsaumpi

	FU (months)	No patients	Success
Shaker et al 1998	Mean 15	18	100%
Swinn et al 2000		12	75%
Jonas et al 2001	18	24	71%
Aboseif et al 2002	Mean 24	20	85%
Dasgupta et a 2004	Mean 37	26	77%
Elhilali et al 2005	Mean 77	9	78%
Van Voskuilen et al 2006	Mean 71	42	76%
Van Kerrebroeck et al 2006	60	31	71%
De Ridder et al 2007	Mean 43	62	55%
Datta et al 2008	Mean 48	60	72%
White et al 2008	Mean 40	28	86%
Total		**332**	**73%**

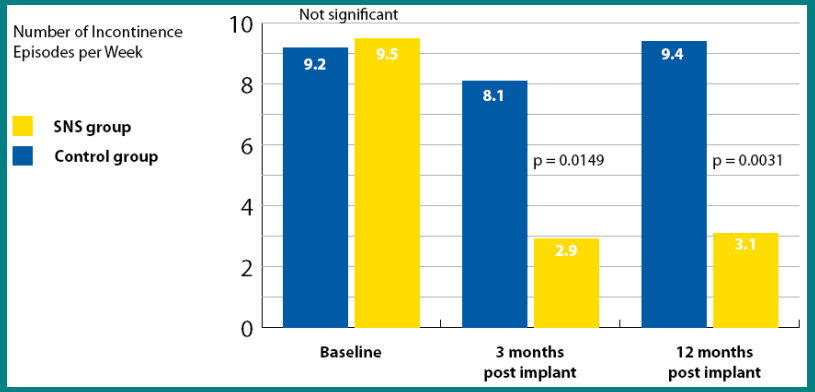
DISEASES OF THE COLON & RECTUM

ORIGINAL CONTRIBUTION

Sacral Nerve Stimulation is more Effective than Optimal Medical Therapy for Severe Fecal Incontinence: A Randomized, Controlled Study

Joe J. Tjandra, M.D., F.R.A.C.S.[a] • Miranda K. Y. Chan, M.B.B.S., F.R.A.C.S. • Chung Hung Yeh, M.D. • Carolyn Murray-Green

- 120 pt's randomized to :
  - SNS (n=60)
  - Best conservative therapy (control, n=60): Imodium, bulking agents, pelvic floor exercises, and diet
- **Control**: no significant improvements in FI symptoms, Wexner, FIQL and SF-12 scores
- **SNS**:
  - 67% decrease (9.5 → 3.1) of incontinence episodes/week at 12 months
  - 47.2% of pt's became fully continent
  - 24.4% of pt's had improvement of 75-99%



Sacral neuromodulation Interstitial Cystitis

- Whitmore et al 2003
- 30 patients IC – mean 44 years
- **77% subjective improvement in > 50% of complaints**

	Baseline	Test
Frequency (24h)	19.7 ± 10.1	12.3 ± 4.8
Pain (0-3)	2.2 ± 0.7	1.6 ± 0.8
Void vol (ml)	92 ± 73	134 ± 106
ICSI	16.4 ± 3.0	10.3 ± 5.4
ICPI	13.8 ± 2.4	8.6 ± 5.3

Whitmore et al. Int Urogynecol J 2003; 14: 305-309

- Comiter et al 2003
- 17 patients IC – mean 47 years
- **94% subjective improvement in > 50% of complaints**

	Baseline	Test
Freq / Nocturia	17.1 / 8.7	4.5 / 1.1
Pain (0-10)	5.8	1.6
Void vol (ml)	111	264
ICSI	16.5	6.8
ICPI	14.5	5.4

Comiter et al. J Urol 2003; 169(4): 1369-1373

SNM ja IC: uusimmat tutkimukset

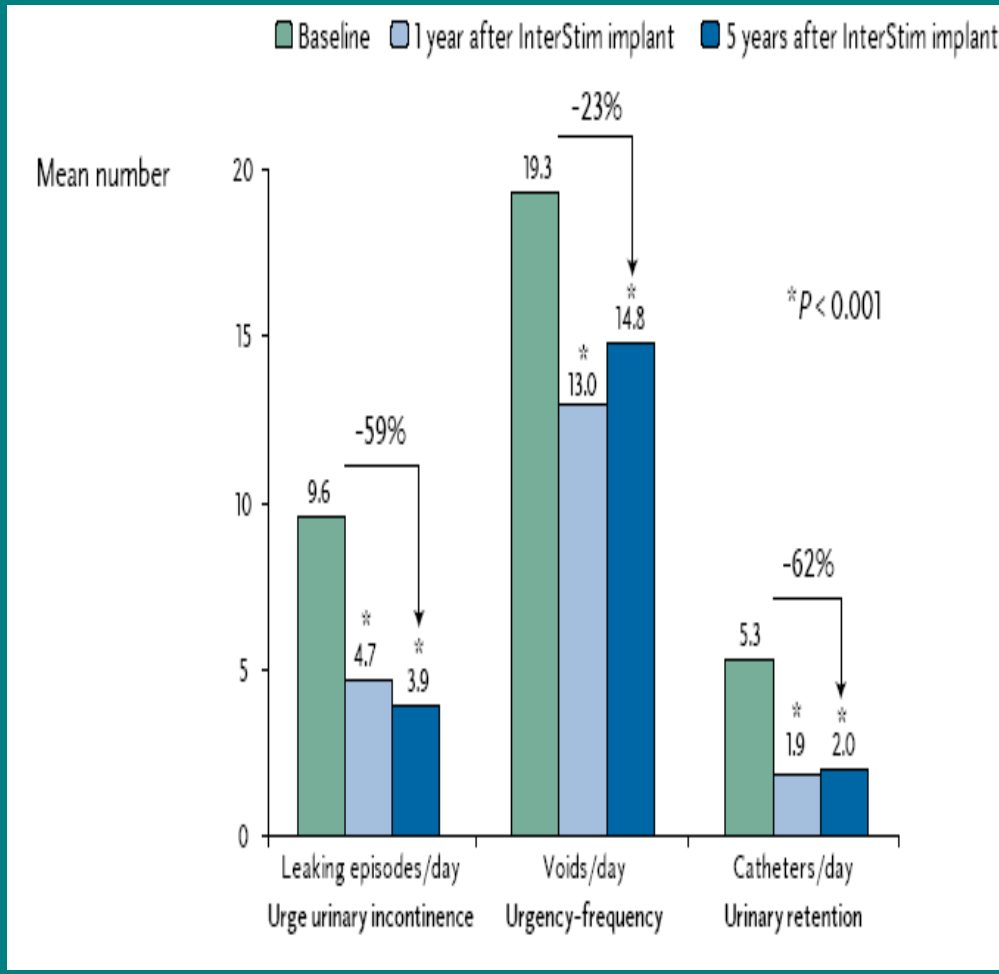
- Marinkovic, Gillen, Marinkovic 2010: 34 potilasta, YA, seuranta 86 kk
- Virtsaamiskerrat 21.61 => 8.6
- Kipu (VAPS) 6.5 =>2.4

- Gajevski, Al-Zahrani 2010: 78 potilasta, 61.5 kk seuranta
- 72 %:lle 50 %:n helpotus oireisiin

Säilyykö SNM:n teho

70% of patients experience clinical success after 5 years

- Prospective, multicenter study with 5 year FU
- 152 pt's:
  - 96 UUI (63.2%)
  - 25 (16.4%) urgency-frequency and
  - 31 (20.4%) urinary retention
- 105 pt's had 5 year data
- AE resulting in surgical intervention occurred respectively in 19.9% and 39.5% of patients at 1-year and 5-year follow-up
- There was a high correlation between 1- and 5-year success rates:
  - 84% of patients with UUI,
  - 71% with UF and
  - 78% with UR
- who were successfully treated at 1 year continued to have a successful outcome after 5 years



van Kerrebroeck PEV, et al. J Urol 2007;178:2029-34

Wehbe, Whitmore and Ho: Sacral neuromodulations for female lower urinary tract, pelvic floor, and bowel disorders. Curr Opin Obst Gyn 2010.

- UUI ja OAB: 52-88 % saa 50 % avun ja teho säilyy 5 vuotta 54-88 %:lla näistä
- Ulosteinkontinenssi: 45-90 % saa merkittävän avun
- Ummetus: 42-87 % saa avun

SNM ja seksuaalisuus

- Prospective study of seven patients with OAB and Female Sexual Function Index (FSFI) was completed before and at a mean of 5.7months after SNM: Overall sexual frequency, FSFI total scores, and FSFI domain scores for desire, lubrication, orgasm, satisfaction, and pain were increased significantly with SNM. (Pauls et al. Int Urogynecol J Pelvic Floor Dysfunct 2007).
- Prospective study of 36 consecutive female patients with pain and LUT symptoms: FSFI scores improved by 52% at 6-month follow-up (Zabihi et al Int Urogynecol J Pelvic Floor Dysfunct 2008)
- In women with OAB, modest improvement in sexual function in 33 studied patients (FSFI and the Female Sexual Distress Score(FSDS), the mean duration of sexual improvement was 23 months. Lombardi et al J Sex Med 2008
- Case reports: SNS beneficial in severe vulvar vestibulitis who failed conservative therapy and also in clitoral pain after hysterectomy.

SNS kliinisessä työssä

- J Urol. 2011 Mar;185(3):970-5. **National trends in the usage and success of sacral nerve test stimulation.**Cameron et al: In the Medicare sample 358 patients received percutaneous test stimulation and 1,132 underwent 2-stage lead placement, of whom 45.8% and 35.4%, respectively, underwent subsequent battery implantation. In the privately insured sample there were 266 percutaneous procedures and 794, 2-stage procedures. Percutaneous procedures were followed by battery placement in 24.1% of cases, whereas 50.9% of staged procedures resulted in battery implantation. **CONCLUSIONS:**The sacral neuromodulation success rates are inferior to those published in case series and small randomized, controlled trials.

SNS: TAYS-tulokset 1/2012 mennessä

- Ulosteinkontinenssi 8/9 (89 %)
- Ummetus 1/2 (50 %)
- OAB 24/39 (61.5 %)
- NDOA □9/18 (50 %)
- IC 10/17 (58.8 %)
- virtsaumpi 6/13 (46.2 %)
- neurogeeninen virtsaumpi 3/10 (30 %)
- kipu 2/5 (40 %)
- DSD 2/4 (50%)
- Yhteensä 65/117 (56 %), 8:lla teho mennyt (jää 49 % käytössä)
- Viralliset indikaatiot: 39/63 (62 %)

TAYSin tulokset

- Yli 55-vuotiailla tulos on huonompi (43 vs. 63 %)
- Yleisanestesiassa onnistuminen 61 %:lle, paikallispuudutuksessa 58 %:lle
- S3-juuren stimulaatio auttoi 58 %:lla , S4-juuren 67 %:lla.

Tibiaalinen neuromodulaatio

- Levin et al.: **The efficacy of posterior tibial nerve stimulation for the treatment of overactive bladder in women: a systematic review** Int Urogynecol J. 2012 Mar 13. 4 of the 17 studies met criteria for good quality: reported success rates of 54-93 %

Kenneth Peters 2009, 2010

- Randomized, multicenter study with 100 adults PTNS vs. tolterodine (OrBIT = Overactive Bladder Innovative Therapy). PTNS arm reported a 79.5% cure or improvement rate vs. 54.8% of those on tolterodine
- Multicenter, double-blind, randomized trial SUmiT (Study of Urgent PC Versus Sham). 54.5% of the PTNS patients moderately or markedly improved, compared with 20.9% of sham patients ($P < 0.001$). Increased voided volume from 83 (baseline) to 169.5 mL

Yoong et al: a shortened 6-week treatment protocol with PTNS

- The positive response rate was 69.7% with an almost 50% decrease in the median daytime and nocturnal frequency (11.8 vs 6.9 and 3.5 vs 1.8)
- fewer urge incontinence: 3.5 to 2.4 per 24 h
- number of pads used in 24 hours decreased by 34% (3.8 vs 2.5)
- PTNS treatment course can be halved

PTNS: ylläpitohoito?

- MacDiarmid et al: the second phase of the OrBIT study
- Thirty-three of the 35 responders from the initial 12-week treatment course elected for maintenance therapy. Participants selected treatment intervals allowing them to control OAB symptoms at an acceptable level: a mean of 21 days (median, 17)
- longer time intervals during the second 6 months than during the first 6 months of the evaluation (14 vs 24 days)

Onko ylläpitohoito välttämätön?

- Van der Pal et al: 64% of patients reported greater than 50% worsening in frequency and incontinence episodes after a 6-week pause

Tibiaalisen neuromodulaation toteuttaminen TAYS:ssa

- Urgent PC stimulaattori, hoitaja toteuttaa
- 6 kertaa viikon välein
- Jos apua: harvennetaan 2x 2 viikon välein, 3x 3 viikon välein, 1x 4 vkon välein
- Ylläpitohoito vuoden, jos oireet palaavat

Pudendaalinen neuromodulaatio

- Peters et al: a retrospective review of patients undergoing tined lead placement at the pudendal nerve. 84 patients with various primary urologic diagnoses
- Almost all individuals with a history of failed sacral neuromodulation responded to the pudendal lead stimulation (93.2% [41 of 44]). Positive response (≥50% improvement) was achieved in 60 of 84 participants (71.4%)
- Omat tulokset pettymys: 4/10 saanut avun, vain 2:lla pysyvä stimulaattori

Potilastapaus

- s -74, sirkustaiteilija
- migreeni hypotyreoosi, ärtynyt suoli, fosfolipidisyndrooma=> 2x keuhkoembolia
- vuoto-ongelmia, laparoskooppinen kohdunpoisto 12/08=> post-op vuoto ja laparotomia 2. po. pvänä

- 8/2010: virtsankarkailu, alavatsakivut
- 3/11 Sepram, bisoprololi, Thyroxin, Marevan, Klotriptyl, Lyrica 150x2, Tramal, Panacod, Para-tabs
- Repivä päivittäinen alavatsakipu, yhdyntäkivut, rakon ja suolen toimintavaikeuksia ja -kipuja, virtsankarkailu yskiessä/nauraessa

- 4/11: labrat, status OK=> laparoskopia, vas ovarion poisto, kiinnikkeiden irroitus, kystoskopia => corpus luteum kysta ja levyepiteelimetaplasia
- 6/11 ulostus 10 x vrk:ssa, suoli ei tyhjene, yhdyntäkivut, anaali-inkontinenssi, urge helpottanut=>
- Dg: vulvodynia

- 11/11 mennessä ainakin neurologi, reumatologi, kipupkl, fysioterapia, seksuaalineuvoja, ENMG, vatsan MRI, FSH, Borrelia vasta-aineet, värinätuntokynnyksen mittaus, vatsan uä, CT, thorax, l-s -ranka=>
- R10.4 Dolores abdominis et pelvis chronica
- N90.9 Vulvodynia
- Dysuria

12/11 Lantionpohjameeting: SNM?

- 21.3.12: elektrodi S4:ään oikealle
- Tuntemus peräaukon seutuun
- Purkukäynti: EI KIPUJA, VIRTSAOIREET POISSA, lievä ulosteinkontinenssi
- 24.4. Pysyvä InterStim2

Lantionpohjan ongelmien hoito neuromodulaatiolla

- Spinelli: Dysfunctions previously thought to be idiopathic are now regarded as non-overt neurogenic. The indication for SNM is localised sacral symptoms. The sacral area can be regarded as a crossroad of vesical-sphincteric, anorectal, and sexual function.