



## SINUG (Ibero-American Society of Neurourology and Urogynaecology)

W32, 30 August 2011 09:00 - 12:00

Start	End	Topic	Speakers
09:00	09:10	Introducción	<ul style="list-style-type: none"> <li>• David Castro Diaz</li> </ul>
09:10	09:35	Future targets for Pharmacological therapy of Urinary incontinence	<ul style="list-style-type: none"> <li>• Francisco Cruz</li> </ul>
09:35	10:00	Female sexual dysfunction	<ul style="list-style-type: none"> <li>• Montse Espuna</li> </ul>
10:00	10:30	How do I do it? Occult SUI and POP	<ul style="list-style-type: none"> <li>• Paulo Palma</li> </ul>
10:30	11:00	Break	None
11:00	11:30	The failed sling	<ul style="list-style-type: none"> <li>• Teresa Mascarenhas</li> </ul>
11:30	12:00	How I do it? Refractory OAB	<ul style="list-style-type: none"> <li>• David Castro Diaz</li> <li>• Francisco Cruz</li> <li>• Montse Espuna</li> <li>• Teresa Mascarenhas</li> <li>• Paulo Palma</li> </ul>

### **Aims of course/workshop**


This meeting intends to provide an update on the recent advances in the field of Neurourology and Female Urology. Spanish and Portuguese speaking experts will discuss recent developments in Pharmacology of LUT, Female sexual dysfunction, Occult SUI, Failed mid-urethra sling and refractory OAB. Interaction and discussion with attendants will be encouraged. Target audience is Spanish/Portuguese speaking delegates.

### **Educational Objectives**

To update on recent developments within the field of Neurourology & Urogynaecology

## FEMALE SEXUAL DYSFUNCTION AND PELVIC FLOOR DISORDERS

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 HOSPITAL CLINIC. UNIVERSIDAD DE BARCELONA



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## SEXUAL DISORDERS IN WOMEN WITH UROGYNAECOLOGICAL CONDITIONS

- **Sexual health** is a right for the healthy or sick individual human being.

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## SEXUAL DISORDER

Is defined as :

- *“The various ways in which an individual is unable to participate in a sexual relationship as he or she would wish” (1).*

(1)- WORLD HEALTH ORGANIZATION : ICD-10. International Statistical Classifications of Diseases and Related Health Problems. 1992

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## FEMALE SEXUAL DISORDER

*Classification ( major categories) of women sexual dysfunction. Second International Consensus of Sexual Medicine (2003)\**

1. **Sexual desire / interest disorder**
2. **Arousal disorders ( subtypes) :** subjective or genital sexual arousal disorder, combined subjective and genital sexual arousal disorder, persistent genital arousal disorder
3. **Orgasmic disorder**
4. **Vaginismus ( “vaginal spasm”)**
5. **Dyspareunia (pain disorder)**

- **....which causes personal distress.**

\* Basson R, et al J Sex Med 2004; 1: 24; Basson R, et al Menopause 2004; 11: 714-25

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## A population-based survey of sexual activity, sexual problems and associated help-seeking behavior patterns in mature adults in the United States of America.

- Less than 25% of men and women with a sexual problem had sought help for their sexual problem(s) from a health professional.

Laumann EO et al. Int J Impot Res. 2009 21(3):171-8

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## FEMALE SEXUAL DYSFUNCTION

**Sexual dysfunction in women ( EUROPE):**

- N = 5,023 women (40 to 80 years)
- **32% at least one dysfunction**
- **Not consulted a physician 64%**
- **76% lack of perception of problem**

Nicolasi A et al. “Sexual behaviour and related help seeking ...” World J Urol 2006; 24 : 423

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Original Research

### Sexual Problems and Distress in United States Women

Prevalence and Correlates

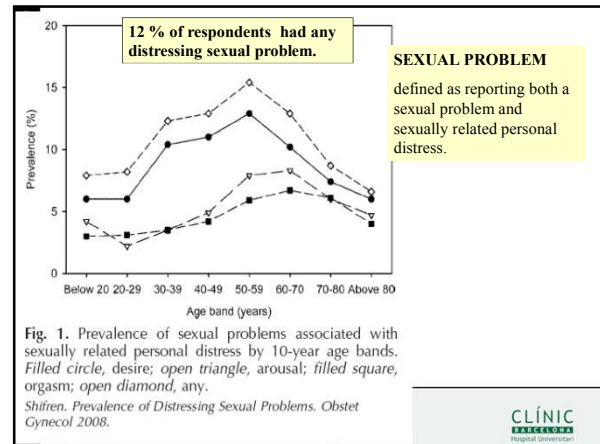
(Obstet Gynecol 2008;112:970-8)  
LEVEL OF EVIDENCE: III

Jan L. Shifren, MD, Brigitte U. Menz, MD, Patricia A. Russo, MD, Anthony Sgorii, MD, and Catherine B. Johannes, MD

To estimate the prevalence of **self-reported sexual problems (any, desire, arousal, and orgasm), accompanied by personal distress.**

**31,581 female respondents** > 18 years from a households sampled from a national research panel representative of US women

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### The epidemiology of sexual dysfunctions.

- Sexual dysfunctions are **highly prevalent** in our society worldwide, and that the occurrence of sexual dysfunctions **increases directly with age** for both men and women.
- personal distress about those symptoms appears to diminish** as individuals become older.

• Derogatis LR and Burnett AL. J Sex Med. 2008 ;5:289-300

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### FEMALE SEXUAL DYSFUNCTION:

#### In women with LUTS and PFD

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### SEXUAL DISORDERS IN WOMEN WITH UROGYNÆCOLOGICAL CONDITIONS

- In the context of **urogynecological clinical practice** we have patients sexually active or inactive, with a self perceived “normal sexual life”, or with sexual disorders that may be related or not with their pelvic floor dysfunction (PFD).

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### SEXUAL DISORDERS IN WOMEN WITH UROGYNÆCOLOGICAL CONDITIONS

- Emerging literature**
  - Pelvic floor disorders negatively impact
    - Sexual activity
    - Sexual function
- Questions to be answered**
  - Sexual function/activity affected more by one pelvic floor disorder than another?
  - Does sexual / activity function changes with treatment?

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## SEXUAL DISORDERS IN WOMEN WITH UROGYNÆCOLOGICAL CONDITIONS

### Sexual complaints, pelvic floor symptoms, and sexual distress in women over forty.

“...sexually related personal distress is significantly associated with dyspareunia, depressive symptoms, and decreased arousal during sexual activity”.

• Knoepp LR, Shippey SH, Chen CC, Cundiff GW, Derogatis LR, Handa VL. *J Sex Med.* 2010 ;7:3675-82.

## FEMALE SEXUAL DYSFUNCTION:

### In women with LUTS

- Several studies have found reduced sexual activity and function in women with **urinary incontinence** compared to continent women.

- Weber AM, et al. Sexual function in women with uterovaginal prolapse and urinary incontinence. *Obstet Gynecol.* 1995;85(4):483-7
- Barber MD, et al. Sexual function in women with urinary incontinence and pelvic organ prolapse. *Obstetrics & Gynecology.* 2002;99(2):281-9.
- Salonia A, et al. Sexual dysfunction is common in women with lower urinary tract symptoms and urinary incontinence: results of a cross-sectional study. *Eur Urol.* 2004;45:642-8.

Results of a cross-sectional study

“Sexual dysfunction is common in women with **LUTS and UI**”.

Salonia A et al. *European Urology* 2004; 45: 642-8;

**216 patients with LUTS and 102 age-matched women** assessed for yearly routine gynaecological evaluation and without urinary symptoms enrolled as cross-sectional **CONTROLS**.

Results of a cross-sectional study

“Sexual dysfunction is common in women with **LUTS and UI**” (1).

investigated in accordance with the Female Sexual Function Index (FSFI). (2)

Association of LUTS and Sexual dysfunction : 99 / 216 (46%)

Author	Method-questionnaire	N	LUTS-UI FSFI score for domains	Control FSFI score for domains	p
Salonia 2004	FSFI (higher score better SF)	216 LUTS	Desire: 2.0 Arousal: 2.8 Lubrication: 3.2 Orgasm: 4.1 Satisfaction: 2.7 Sexual pain: 1.8	Desire: 3.2 Arousal: 3.6 Lubrication: 4.4 Orgasm: 4.4 Satisfaction: 4.0 Sexual pain: 4.0	0.01 ns 0.01 ns 0.01 <b>0.001</b>
		102 controls			

(1) Salonia A et al. *European Urology* 2004; 45: 642-8;  
(2) Rosen et al *J Sex Marital Ther* 2000

Results of a cross-sectional study

“Sexual dysfunction is common in women with **LUTS and UI**” (1)

- **47 % of women with low sexual desire, also complained of a long history of SUI\***

Patients reported that sexual fantasies were frequently associated with the **fear of having an UI episode during intimacy**, thus resulting in sexual anxiety

(1) Salonia A et al. *European Urology* 2004; 45: 642-8

## FEMALE SEXUAL DYSFUNCTION:

urinary leakage during sexual activity  
Coital urinary incontinence

## Prevalence of urinary leakage during sexual activity

Author	Method	N	patients	Coital UI	What stage
Hilton 1988	questionnaire Case-control	324	urogynecologic clinic	24%	75% penetration 25% orgasm
Lam 1992	Population Random sample	441	with SUI	12 %	
Vierhout 1993	questionnaire	196	gynecologic clinic	34%	77% penetration 74% orgasm
Nygaard 1995	Mailed questionnaire	224	annual gynecologic examination	77% had UI 36% coital	
Moran 1999*	Retrospective	2153	urogynecologic clinic	10,6%	80 %penetration 20% orgasm
Burrows 2004	Retrospective	330	urogynecologic clinic	20%	
Lambrechtsen 2006	prospective	90 Consec.	urogynecologic clinic	32%	

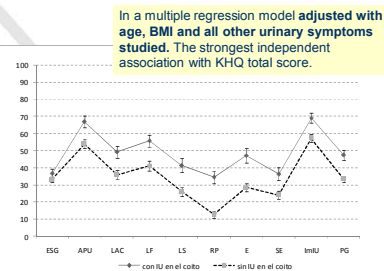
\* Only 22 (10%) of 228 women with coital UI complained without direct question

## Impact on QoL of coital incontinence

- Women with coital urinary incontinence had a higher scores ( worse QoL) in all dimensions of KHQ

N= 633  
women  
seeking  
treatment  
for UI.  
(36,2%) \*

\* positive answer  
in KHQ



\*Espuña Pons M et al. Int Urogynecol Journal 2008

EUROPEAN UROLOGY 54 (2008) 911–917

available at www.sciencedirect.com  
journal homepage: www.europeanurology.com

EAU  
European Association of Urology

Female Urology – incontinence

### Urinary Incontinence at Orgasm: Relation to Detrusor Overactivity and Treatment Efficacy

Maurizio Serati<sup>a,\*</sup>, Stefano Salvatore<sup>a</sup>, Stefano Uccella<sup>a</sup>, Antonella Cromi<sup>a</sup>, Vik Khullar<sup>b</sup>, Linda Cardozo<sup>c</sup>, Pierfrancesco Bolis<sup>a</sup>

Urodynamic finding

Coital incontinence at orgasm (n = 49)

Coital incontinence during penetration (n = 83)

Detrusor overactivity	34 (69.4%)	13 (15.7%)
Urodynamic stress incontinence	5 (10.2%)	40 (48.2%)
Urodynamic mixed incontinence	0	11 (13.2%)
Inconclusive urodynamics	10 (20.4%)	19 (22.9%)

## FEMALE SEXUAL DYSFUNCTION:

In women with POP

## Sexual function: pelvic organ prolapse

- It has been shown that women seeking treatment for advanced prolapse, their body image is decreased and they have lower quality of life scores.

Jelovsek J.E., Barber, M.D. Women seeking treatment for advanced pelvic organ prolapse have decreased body image and quality of life. *American Journal of Obstetrics and Gynecology*. 2006, 194, 1455-1461

Lowenstein L, Gamble T, Sanses TV, van Raalte H, Carberry C, Jakus S, Kambiss S, McAhran S, Pham T, Aschkenazi S, Hoskey K, Kenton K; Fellow's Pelvic Research Network. Sexual function is related to body image perception in women with pelvic organ prolapse. *Journal of Sexual Medicine* 2009; 6 : 2286-2291

**The effect of SUI surgery on the sexual function**

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**FEMALE SEXUAL DYSFUNCTION**

**The effect of pelvic surgery:**

**Anatomic**

- Shortening of the vagina
- Reduction of vaginal introitus
- Etc..

**Psychological**

- Fear of damage to internal organs
- Partner's apprehension

- All women who are going to have pelvic surgery are **worried about the effect on sexual function**

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**Assessment of sexual function with QUESTIONNAIRES :**

A new instrument to measure sexual function in women with urinary incontinence or pelvic organ prolapse

Rebecca G. Rogers, MD, Dorothy Kammerer-Doak, MD, Analisa Villarreal, MD, Kimberly Coates, MD, and Clifford Qualls, PhD  
*Albuquerque, New Mexico, and Temple, Texas (Am J Obstet Gynecol 2001;184:552-8.)*

In Urogynecol J (2003) 14: 164-168  
 DOI 10.1007/s00192-003-1063-2

ORIGINAL ARTICLE

Rebecca G. Rogers · Kimberly W. Coates · Dorothy Kammerer-Doak · Satkiran Khalsa · Clifford Qualls

**A short form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12)**

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**Effect of surgery for SUI on the sexual function comparative studies**

Author	procedure	No patients	questionnaire	Results *
Jha 2007	TVT /TVT-OT	54	PISQ	Same improvement
Murphy 2008	TVT /TVT-O	237	PISQ-12	No differences
Pace 2008	TVT-TOT	108	FSFI	Same improvement
Brubaker 2009	Burch- Sling	655	PISQ-12	Same improvement

\* Postoperatively significant increases the scores of the questionnaires (better sexual function) in all studies.

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**The effect of SUI surgery on the sexual function**

Questions for research:

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**The effect of SUI surgery on the sexual function**

**Observation:**

- The presence of a foreign body, such as polypropylene tape, **provokes a reaction** that compromises the **anterior vaginal wall, which is a rich neurovascular area.**

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## HYPOTHESIS:

The surgical techniques that perforate the paraurethral spaces to position a suburethral sling could diminish sexual functioning **because of scarring and reduced elasticity** of the vaginal wall, resulting in a **reduced blood supply** to the erectile tissues of the clitoris.

## Clitoral Blood Flow Changes After Surgery for Stress Urinary Incontinence: Pilot Study on TVT Versus TOT Procedures

Salvatore Caruso, Salvatore Rugolo, Sebastiano Bandiera, Daniela Mirabella, Antonio Cavallaro, and Antonio Cianci

UROLOGY 70: 554–557, 2007.

In the **TVT** group, the mean **pulsatility index** and **mean peak systolic velocity** were **significantly lower** and the mean resistance index was significantly greater **compared with the pretreatment values** ( $P < 0.5$ ).

In the **TOT** group, each color Doppler measurement was **similar to that obtained at baseline** ( $P = NS$ ).

## Determining the Course of the Dorsal Nerve of the Clitoris

Ashwin Vaze, Howard Goldman, J. Stephen Jones, Raymond Rackley, Sandip Vasavada, and Kenneth J. Gustafson

UROLOGY 72: 1040–1043, 2008.

This somatic nerve lies along the lateral border of the mid-urethra up to the endopelvic fascia.

Reprinted with the permission of The Cleveland Clinic Center for Medical Art & Photography © 2007.

## The effect of SUI surgery on the sexual function

### HYPOTHESIS

- The  **pudendal nerve**, which has its important sensitive termination in the area of pubocervical fascia surrounding the urethra, **could undergo detrimental fibrosis** after an anti-incontinence procedure.

## The effect of POP surgery on the sexual function

## The effect of POP surgery on the sexual function

- POP surgery has in general a **positive impact** on global sexual function.
- Satisfaction** in most patients may be due to **complete relief of feeling a vaginal bulge, improving self-image and absence of pain**

## The effect of POP surgery on the sexual function

- In a prospective study of subjects undergoing vaginal surgery for pelvic organ prolapse, *Pauls et al (1)*, found no differences in FSFI domain or total scores between the pre- and postoperative period.

1. Pauls RN, Silva WA, Rooney CM, Siddighi S, Kleeman SD, Dryfhout V, Karram MM. Sexual function after vaginal surgery for pelvic organ prolapse and urinary incontinence. *Am J Obstet Gynecol.* 2007;197:622

## The effect of POP surgery on the sexual function

- The **deterioration** in sexual function were likely to occur in women with better sexual function scores preoperatively.

1. Pauls RN, Silva WA, Rooney CM, Siddighi S, Kleeman SD, Dryfhout V, Karram MM. Sexual function after vaginal surgery for pelvic organ prolapse and urinary incontinence. *Am J Obstet Gynecol.* 2007;197:622

## The effect of POP surgery on the sexual function

- In women with coital sexual activity and good sexual life before surgery, **de novo dyspareunia** is an important factor for postoperative deterioration in sexual function.

## Effect of surgery for prolapse: rectocele and dyspareunia

Autor	technique	Preop	Postop
Kahn 1997	Levator plication	18%	27%
Cundiff 1998	Site-specific fascial repair	29%	19%
Porter 1999	Site-specific fascial repair	67%	46%
Kenton 1999	Site-specific fascial repair	28%	8%
Glavind 2004	Site-specific fascial repair	12%	6%

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## Dyspareunia de novo. Anterior repair

Author	n	Type of surgery	Follow up (months)	%	Stages and compartments of women with POP	Outcome	De novo dyspareunia	Erosion/ extrusion
Najem (2008)	76	RCT-Cystocele repair polypropylene mesh vs anterior colporrhaphy	12		anterior vaginal wall prolapse stage = > II	Symptoms	16% (no mesh) 8% (with mesh)	5%
Shvastoglu (2008)	90	RCT-Cystocele repair polypropylene mesh vs site-specific anterior repair	12		anterior vaginal wall prolapse stage = > II	Symptoms	0% (no mesh) 4.6% (with mesh)	6.9%
Nieminen (2008)	96 no / vs 104 mesh	Anterior and posterior colporrhaphy vs polypropylene mesh	24	88% and 93%	anterior vaginal wall prolapse stage = > II	history, questionnaires	13% (no mesh) 8% (with mesh)	8%
Carry (2009)	139	RCT-Anterior and posterior colporrhaphy vs polypropylene mesh (Synmesh)	12		vaginal wall prolapse stage = > II	history, questionnaires	15.2% (no mesh) 16.7% (with mesh)	5.6%

## Dyspareunia de novo. Colpoacropexy

España Pons M et al 2009

Author	n	Type of surgery	Follow up (months)	%	Stages and compartments of women with POP	Outcome	De novo dyspareunia	erosion
North (2009)	22	Laparoscopic sacrocolpopexy	26.5	100%	Vaginal vault prolapse	Symptoms / questionnaires	0%	5%
Claerhout (2009)	132	Laparoscopic sacrocolpopexy	12.5	92%	Vaginal vault prolapse	Symptoms / questionnaires	19%	4.5%
Sarlo (2008)	135	Supracervical hysterectomy-LSCP 56 only LSCP	12	75%	55 uterine prolapse and 55 vault prolapse	Symptoms / Questionnaires King's health	1%	1%
Rivore (2007)	131	Laparoscopic sacrocolpopexy	33	95%	Genital prolapse stage 3 or 4	History/ symptoms	0%	5%
Rozet (2005)	363	Laparoscopic sacrocolpopexy	14.6	90%	Genital prolapse stage 2, 3 and 4	Symptoms / questionnaires	0%	<1%



**SEXUAL FUNCTION IN WOMEN WITH PELVIC FLOOR DYSFUNCTION**

**Conclusions**

- Sexual dysfunction is prevalent in women with pelvic floor disorders
- **Assessment and management** of this problem is necessary **when it causes distress**

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**SEXUAL FUNCTION IN WOMEN WITH PELVIC FLOOR DYSFUNCTION**

**Conclusions**

- **Surgical correction is generally beneficial** but occasionally can result in negative alterations in sexual function.
- Patient selection and methods used for surgical repair are important factors in determining anatomical and functional success.

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IUGA FEMALE SEXUAL DYSFUNCTION ROUNDTABLE 2008

**IUGA Sexual Dysfunction in Women Roundtable**  
June 6-8, 2008, Lago Mar Resort, Fort Lauderdale, Florida, USA

IUGA

*A document with all the issues reviewed and presented in the Roundtable:*

Female sexual function in women with urogynecological disorders.  
**International Urogynecological Journal:supplement (2009).**



**SINUG WORKSHOP.  
ICS 2011.  
GLASGOW**

HOW I DO IT ?.

REFRACTORY OAB.

P. Arañó.  
Barcelona.

El concepto de Vejiga Hiperactiva está definido por la ICS como la consulta por parte del paciente de una situación de urgencia con o sin incontinencia de urgencia, generalmente acompañada de aumento de la frecuencia miccional y de nicturia, en ausencia de cualquier condición metabólica o patológica subyacente.

En mas del 50 % de estos paciente aparece en el estudio Urodinámico un Detrusor Hiperactivo definido como la aparición de contracciones involuntarias del detrusor durante la fase de llenado de un Estudio Urodinámico.

El tratamiento de primera línea de esta disfunción es la adopción de medidas conductuales y la indicaión de antimuscarínicos.

Existe un número no despreciable de pacientes en los que los antimuscarínicos no son eficaces o bien se intoleran o bien no pueden ser usados por estar contraindicados.

El tratamiento de los pacientes con detrusor hiperactivo no tratable con anticolinérgicos es problemático, existiendo en la actualidad tres opciones:

- Inyección endoscópica de toxina botulínica en vejiga.
- Neuromodulación.
- Ampliación vesical (clamp) + autosondajes post SOS.

En el Protocolo diagnóstico y terapéutico de esta disfunción en nuestro hospital, aparece como siguiente opción a los antimuscarínicos, la inyección de toxina botulínica y la neuromodulación de raíces sacras, dejándose los criterios de elección entre ambas opciones a la decisión personalizada en cada caso y en cada paciente.

La opción de ampliación vesical queda muy limitada, pero es algo que se ofrece a los pacientes, los cuales suelen rechazar.

**EXPERIENCIA EN NEUROMODULACION DE RAICES SACRAS.**

Entre 2007 y 2010 se realizó la prueba de NRS (PNE y Tined Lead) por detrusor hiperactivo en 58 pacientes. Fueron implantados 20 IPGs.

Tras un seguimiento medio de 112 meses (12,8 – 135) se analizaron los cambios antes y después del tratamiento en las variantes de: Diario miccional; Valoración subjetiva de mejoría percibida (1-10); Se analizaron los datos según la prueba no paramétrica de Wilconson para datos apareados.

Resultados: Los cambios en el diario miccional pre/postratamiento fueron estadísticamente significativos ( $p < 0,01$ ) en frecuencia diurna (9/5), frecuencia nocturna (3/2), volumen de micción (144/184). En 7 pacientes desapareció la incontinencia.

Doce pacientes refirieron mejoría percibida > 75 % y cuatro entre el 50 y 75 %.  
Dos paciente presentaron dolor y en uno se presentó un fallo técnico.

## EXPERIENCIA EN TOXINA BOTULÍNICA

Se presenta una evaluación retrospectiva de los casos realizados entre y Noviembre 2010 de inyección de toxina botulínica intradetrusor en pacientes con detrusor hiperactivo no tratable con anticolinérgicos y demostrado urdinámicamente. 61 casos se consideraron como detrusor hiperactivo idiopático y 31 como neurógeno. Se incluyen 100 pacientes (68 mujeres 32 varones) con edad media de 63 años, con síntomas de vejiga hiperactiva de mas de 6 meses de evolución y detrusor hiperactivo con o sin incontinencia.

Evaluación preoperatoria consistió en historia clínica, exploración física, diario miccional, cuestionario de satisfacción (1-10) y estudio urodinámico completo .

Técnica: 1) Profilaxis antibiótica. 2) Anestesia local en mujeres y espinal en hombres. 3) 20 puntos de inyección de 0.5 ml, respetando el trígono vesical, de 100 u de Botox en idiopáticos y 300 u de botox en neurógenos.

Evaluación postoperatoria: A las 3 semanas, 2, 4, y 6 meses. Se realizaron: diario miccional, cuestionario de satisfacción y estudio Urodinámico (con valoración de: desaparición o persistencia de las contracciones no inhibidas del detrusor y en este último caso, volumen infundido en la primera contracción, contracción involuntaria máxima, capacidad cistométrica máxima).

Resultados: Tras un seguimiento de 2 semanas a 6 meses, se observó:

- Desaparición de la hiperactividad en 30 % de los casos.
- Incremento significativo de:capacidad cistométrica máxima.
- Disminución significativa de la contracción máxima del detrusor.
- Disminución significativa de la frecuencia miccional diurna y nocturna.

La variación observada en el volumen a la primera contracción involuntaria, Q.max. y residuo postmiccional no son significativas.

### Complicaciones:

5 episodios de hematuria macroscópica autolimitada

3 retenciones agudas de orina tras un intervalo medio de 2 semanas.



41<sup>st</sup> ANNUAL MEETING OF THE  
INTERNATIONAL CONTINENCE SOCIETY (ICS)  
29 AUGUST- 2 SEPTEMBER, 2011, GLASGOW, UK

## ICS- SINUG

Salvador Bustamante Alarma  
University Hospital Puerta de Hierro Majadahonda  
(Madrid-Spain)

## Refractory Overactive Bladder (anticholinergic treatment)

How I treat it

### Smooth muscle involvement

- Ach responsible for 50% of human detrusor contraction in normal conditions. Cowan y Daniel. *J Physiol Pharmacol* 61: 1236-1246. 1993
- Part of the contraction is atropine-resistant. Bayliss et al. *J Urol* 162:1833-1839. 1999
- In terms of hyperactivity the atropine-resistant component is significantly increased. Andersson KE, Arner A. *Physiol Rev* 84: 935-986. 2004

### Noradrenaline (NA)

- Scarce adrenergic innervation in human detrusor. Gosling JA, et al *Eur Urol* 36 Suppl 1: 23-30. 1999
- In most species  $\alpha_1$  agonists contract the detrusor that is increased in the overactive bladder, which also knows a predominance of  $\beta$  receptors. Perlberg S et Caine M. *Urology* 20: 524- 527. 1982
- Presence of receptors  $\beta_1$   $\beta_2$  and  $\beta_3$  predominantly where  $\beta_3$  is responsible for muscle relaxation. Perlberg S et Caine M. *Urology* 20: 524- 527. 1982

### Adenosine triphosphate (ATP)

- ATP participates in the excitatory neurotransmitter ACh in the bladder. Bayliss et al. *J Urol* 162:1833-1839. 1999
- The initial contractile component is due to release of ATP, whereas the sustained phase is due to the release of ACh
- ATP contraction of the bladder is produced by activation of P2X<sub>2</sub> receptors. O'Reilly et al. *BJU Int*. 87: 617-622. 2001
- In the bladder neck induces a relaxing effect through A2<sub>A</sub> and P2Y<sub>1</sub> receptors. Hernández, M et al. *Br J Pharmacol* 157:1463-1473. 2009

### Nitric oxide (NO)

- Main NANC inhibitory neurotransmitter in the lower urinary tract. Andersson KE. *Pharmacol Rev* 45:253-308. 1993
- No evidence of NOSn produced in the detrusor. There has not been consistently demonstrated nerve relaxation produced by NO release. Elliot RA and Castleden CM. *Br J Clin Pharmacol* 36: 479. 1993
- In the bladder neck NO act during bladder parasympathetic activation resulting in relaxation of the bladder base. Hernández, M et al. *Neurourol Urodynam* 26: 578-583. 2007

## Endothelins

- 3 types of isoforms ET-1, ET-2 and ET-3 act through ET<sub>A</sub> and ET<sub>B</sub> [Arai H et al. Nature 348: 730-732. 1990](#)
- In the outlet obstruction increases the expression of ET<sub>A</sub> indicating possible involvement of endothelin receptors in BPH and detrusor hypertrophy associated with this clinical picture. [Khan MA et al. Urol Res 27: 445-453. 1999](#)
- ET<sub>B</sub> endothelin induced relaxation in the pig's bladder neck. [Bustamante et al. Abstarct ICS 2011](#)

## Prostanoids

- The way of Cyclooxygenase (COX) responsible for the synthesis of prostanoids (PG and thromboxanes). There are 2 isoforms, COX-1 and COX-2, the latter is increased during inflammation. [Tramontana M et al. Naunyn-Schmiedebergs Arch Pharmacol 361: 452-459. 2000](#)
- PG<sub>1</sub> and PG<sub>2</sub> prostaglandins contract the human detrusor muscle by direct action. [Khan MA et al. Urol Res 27: 445-453. 1999](#)
- In PG<sub>2</sub> are known 4 receptors named EP1 to EP4 that have been located in mucosa, muscle and intramural bladder lymph nodes, where EP<sub>1</sub> is responsible for modulating bladder. [Mc Cafferty GP et al. Am J Physiol Renal 295: F507. 2008](#)

## Hygienic measures

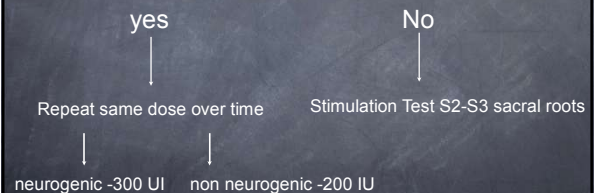
- Physiotherapy
- Oral care
- Relaxation
- Heat
- Acupuncture

## Avoid

- citrus
- NSAIDs
- Caffeine
- Antibiotics
- Decongestants
- Alcohol
- Ibuprofen
- Peppers, tomatoes

## Treatment of refractory overactive bladder (OAB) to antimuscarinics

Botulinum toxin A (Allergan) 300 IU  
(Suppression of ACh release and inhibition of activity of P2X<sub>2/3</sub> receptors) [J Urol 174 \(3\) 977-982. 2005](#)



## Refractory Overactive Bladder to anticholinergic treatment

### New Horizons

## OAB- therapeutic targets

- Opening of K<sup>+</sup> channels
- P2X<sub>2/3</sub> receptors blockade [Andersson NK et al. Curr Opin Urol 19\(4\): 380-394. 2009 Review](#)
- TVP receptors "
- ET<sub>A</sub> endothelins "
- NK<sub>1/3</sub> receptors "
- Gene therapy to increase levels of GABA, opioids. [Yashimura N et al. J Neuroscience Oct 18;26\(42\): 10847-10855. 2006](#)
- GABA agonists produce clinical improvement in patients with neurogenic bladder. [Carbone et al. Eur Urol Supp 2:141\(abstract 555\). 2003](#)
- Tramadol produces benefits in OAB in rats, in a randomized, double-blind controlled study. [Pehrson R et al. Eur Urol 44\(4\): 495-499. 2003](#)

### Mucosa Targeted Therapy

Acetylcholine	Antimuscarinic
Vanilloid receptor	Antagonists TRPV1 ?
Prostaglandins E2	Antagonists EP1 ?

### Muscle

	<b>Antimuscarinic</b>
B <sub>2</sub> ARS	Agonistas B <sub>2</sub> ARS
PDE	PDE-5 Inhibitors
Rho Quinasa	Rho Inhibitors ?

### Central

<b>GABA ?</b>
Opioid ?
Antagonists NK <sub>1</sub> ?

Andersson KE. *Discov Med* Oct; 8(42): 118-124. 2009

- The GW427353 is a  $\beta_3$  antagonist receptor that induces relaxation of the spontaneous activity in the human detrusor. [Biers SM et al. BJU Int 98\(6\): 1310-1314. 2006](#)
- SCORE IPSS improvement in BPH with the use of Sildenafil. [Mac Vary et al. J Urol 177\(3\) 1071-1077. 2007](#) y Vardenafil. [Stief CG et al. Eur Urol 53\(6\): 1236-1244. 2008](#)
- In rats treated with blocking vitamin D<sub>3</sub>, there is an improvement in bladder pressure. [Schroder A et al. BJU Int 98\(3\): 637-642. 2006](#)

- Urothelial cells may secrete neurotrophins, peptides, ATP, ACh, prostaglandins, NO and cytokines that can influence the excitability of sensory neurons. [Birder L et de Groat WC. Nat Clin Prac Urol 4: 46-54. 2007](#)

Artibani V. 2008



THE FAILED SLING  
HOW I DO IT?

Dr. Luis Prieto Chaparro  
Hospital Universitario de Elche, Alicante, España

STATEMENT OF RELATIONSHIP WITH THE  
PHARMACEUTICAL INDUSTRY AND MEDICAL  
DEVICES

I HAVE NO CONFLICT OF INTEREST WITH THE  
BUSINESS OF THESE DEVICES

ADJUSTABLE MESH FOR THE  
TREATMENT OF URINARY  
INCONTINENCE

Dr. Luis Prieto Chaparro

Hospital General Universitario de Elche, Alicante.

Stigma  
involvement variable  
Suffering in secret  
disease quality of life  
whenever we are required more  
provide more and better results

First, prevention

Urgency  
Obstruction lower urinary tract  
Complications  
Conflicting expectations  
Inefficiency  
technical failure

Urgency Prevention

Study prior to surgery  
Avoid excess tension  
Associated prolapse  
Study after surgery

Obstruction lower urinary tract

Post void residual volume  
Low flow  
Associated prolapse  
Underactive detrusor  
Mesh misplaced  
Mesh migration  
Technical defect  
Comorbidities

Complications Prevention

Learning curve  
Always the same mesh in series with  
significance  
Test results: clinical exploration QoL  
Inform patients that there are failures

Inefficiency Prevention

Technical failure  
No fewer than 20 procedures / year  
Test of cough in operating room  
TOT-TVT: TVT Much better hypermobility  
Adjustable

Reunión Nacional del Grupo de Urodinámica  
La Coruña, Marzo de 2001

SITUACIÓN ACTUAL DE LA CIRUGÍA DE LA INCONTINENCIA  
URINARIA FEMENINA

Dr. L. Prieto Chaparro

10 YEARS AGO

monográfico urología femenina

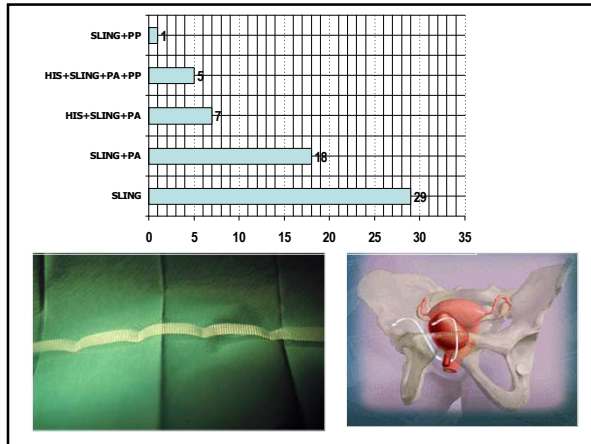
Arch. Esp. Urol., 55, 9 (1955-1956), 2002

El sling de malla de prolene en el tratamiento de la incontinencia urinaria de esfuerzo. Tratamiento integral de las alteraciones del suelo pélvico. Resultados a largo plazo.

JESÚS ROMERO MAROTO, LUIS PRIETO CHAPARRO, CRISTÓBAL LÓPEZ LÓPEZ,  
JOSÉ MANUEL QUILEZ FENOLL Y SERGIO BOLLIFER NADAL.

Unidad de Urodinámica. Servicio de Urología. Hospital Universitario de "San Juan". San Juan. Alicante. España.





## Complications

- Excess sling tension of 4 cases (6.6%)
- Section - restructuring
- By default tension (sling ineffective) 3 cases (5%):
- Adjusting sling tension or new
- Bladderperforation 2 cases (3.3%)
- Infection-abscess in 1 case mesh anchor
- Suprapubic pain, rectal itch and 6 cases (10%)
- Wound infection in 1 case

### Results

urgency in 19 of 102  
11 cases after  
4 de novo  
continence 91%  
(operating failures)

ACTAS UROLOGICAS ESPAÑOLAS FEBRERO 2006

**ORIGINAL**

**TVA y TOA. Nuevas mallas ajustables de tensión en el tratamiento de la incontinencia urinaria de esfuerzo. Resultados preliminares**

J. Romero Maroto, M. Ortiz Garratá, L. Prieto Chaparro, C. López López, J.M. Quílez Fernell, E. Rodríguez Fernández, J.J. Pacheco Bru

Servicio de Urología, Hospital Universitario San Juan de Alicante.

Actas Urol Esp 2006; 30 (2): 186-194

**RESUMEN**

**TVA y TOA. NUEVAS MALLAS AJUSTABLES DE TENSIÓN EN EL TRATAMIENTO DE LA INCONTINENCIA URINARIA DE ESFUERZO. RESULTADOS PRELIMINARES.**

**Objetivo:** Valoración de una nueva malla de incontinencia (TVA/TOA) que permite postoperatoriamente ajustar la tensión dada en quirófano.

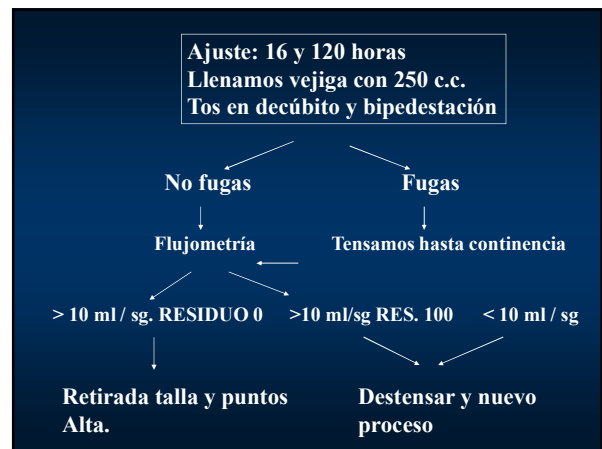
**Pacientes y Métodos:** 62 pacientes tratados con la malla TVA, seguimiento medio de 14 meses (DS 7.8, rango 6-38). En 33 pacientes (53%) se realizó corrección de algún problema. La valoración se ha realizado mediante historia clínica, urografía con vejiga llena con 250 cc de suero salino, fluorometría y resultados. 40 pacientes han realizado 4 cuestionarios de calidad de vida: (QoL, ICIQ-SF, PGI-S y PGI-I).

**Resultados:** 62 pacientes eran continentes en la valoración postoperatoria. De estos, fue necesario disminuir la tensión en 7 (11%) por obstrucción urinaria (flujos: 10 ml/sg y/o residuos). En 20 pacientes (32%) se aumentó la tensión por continuar algún grado de incontinencia. Todos fueron dados de alta continentemente y sus resultados. En la última revisión, 56 (90%) con tratamiento conservativo y 4 (6.5%) han mejorado notablemente su incontinencia. El Q<sub>max</sub> es 19.8 ml/s (DS 9.8). La urgencia nocturna ha disminuido o mejorado en 32 (70%) de los pacientes que la presentaban preoperatoriamente y ha mejorado en 3 (15%) de los que no la presentaban. La historia clínica muestra un alto grado de concordancia con el cuestionario ICIQ-SF (Kappa=0.90) en cuanto a la incontinencia de esfuerzo se refiere, disminuyendo considerablemente (Kappa=0.13) cuando se toma en consideración la incontinencia por urgencia. De los 40 pacientes que completaron los cuestionarios de calidad de vida, 34 (85%) tienen una puntuación superior a 95 sobre 110 en el QoL, 30 (75%) tienen una puntuación inferior a 6 en ICIQ-SF, 32 (80%) tienen una puntuación de normalidad y 4 (10%) de enfermedad leve en el PGI-S. En el PGI-I 29 (72.5%) están mucho mejor y 11 (27.5%) bastante mejor. Existe relación directa entre urgencia nocturna y pérdida de calidad de vida.

**Conclusiones:** La malla TVA (transuretral) ajustable permite ajustar la tensión dada en quirófano, permitiendo corregir los defectos y los excesos.

Palabras clave: Incontinencia urinaria. Oruga. Sling ajustable. Continencia. Calidad de vida. Prognóstico.

Clinical History  
250 ml into bladder  
Flowmetry  
Residue  
Urodynamics  
SUIQ Questionnaire  
I-QoL questionnaire  
ICIQ-SF  
PGI-S questionnaire  
PGI-I questionnaire



### Valoración inicial

46 continentes  
70%

20 incontinentes  
30%

38 Q. Max > 10 ml/sg  
8 Q. Max <10 / residuo

Ajuste 28 pacientes

20 tensamos  
8 destensamos

### Hypothesis / aims of study

#### Study design, materials and methods

Within-subject study initiated in January 2005. TOA (AMI) is a macroporous polypropylene monofilament non-elastic tape with two groups of polypropylene threads permitting postoperative readjustment of tension that are removed when continence without obstruction is achieved. Seventy-seven incontinent women (29.9% stress incontinence, 70.1% mixed incontinence) received TOA tape. The local ethics committee approved the study.

#### Results

Fifty-one (66%) were continent in the immediate postsurgical evaluation. Twenty-six (34%) were incontinent. Eight of the 51 continent patients were obstructed (Qmax inferior to 10 ml/s and/or more than 50 ml residue). After adjustment, all patients rendered continent, none had PVR and mean Qmax was 16.7±5.7 ml/s. Mean follow-up was 14.8±8.5 months. Objective cure rate was 89.6%, with 7.8% greatly improved. Subjective cure rate: 54.7 % of patients never leak urine. The subjective failure depended on the existence of urgency incontinence 25 patients (32%), mixed incontinence 4 patients (5%) and pure stress incontinence 5 patients (6%). Qmax was 21.3±7.2 ml/s. The QoL questionnaire improved from 31.4±20.3 to 85±17.2 points and the PGI-I showed 91% of patients to be better or very much better than before. There were no cases of bowel, nerve or major vessel injury. No infection or urethral erosions were identified. Two small vaginal erosions were detected.

#### Interpretation of results

This is the first time that an adjustable transobturator regular mesh has been described that allows post-operative adjustment of the tension applied during surgery. This has allowed that all our patients have been discharged without any incontinence or any PVR.

Our data suggests that with TOA tape better results can be obtained than with the traditional non-adjustable mesh, furthermore without increasing surgical complications.

#### Concluding message

TOA adjustable tape procedure allows adjustment of tension for a number of days after surgical intervention, thus permitting correction of postoperative incontinence or obstruction

#### References

1. Transvaginal adjustable tape (TVA): an adjustable mesh for surgical treatment of female stress urinary incontinence. J Romero; M Ortiz; L Prieto et al. Intern Urogynecol J. DOI: 10.1007/s00192-008-0590-2

conclusion

conclusion

- 1. Not all meshes are well established on the day of surgery, can improve outcomes.
- 2. We do not think that is a short-stay surgery and outpatient, to know what the situation is the patient is essential and can be changed if you can avoid a new surgical procedure

conclusion

3. Add a few threads setting lets you modify a trouble to the patient and the urologist
4. In complex or multi-operator sick is a good alternative

## conclusion

- 5. What makes the result in terms of quality of life and from the functional point of view rather than a failure of a surgical procedure for incontinence is
  - Urgency "de novo" OR PERSISTENT
    - OBSTRUCTION
    - COMPLICATIONS

Never forget to follow the patients, not just the result, but because there are complications

## How I do it? Occult SUI and POP

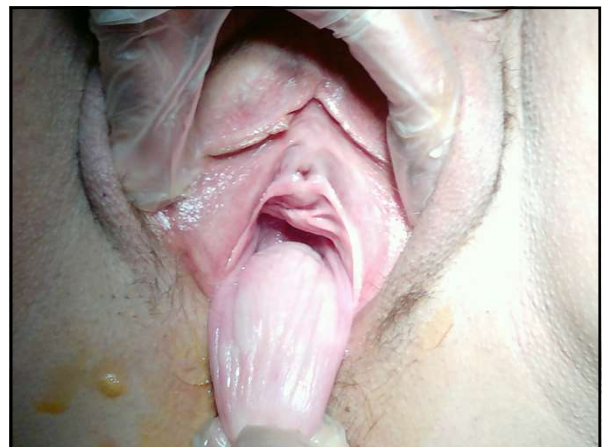
Dra. Blanca Madurga Patuel  
Unidad de Urología Funcional, Femenina y  
Urodinámica. Hospital Puerta del Mar de Cádiz

## Occult SUI and POP

Occult SUI is defined as urinary leakage which is prevented by POP and only becomes symptomatic after surgical correction of the pelvic anatomy.

## Occult SUI and POP

The International Continence Society has been reported that after reduction of the prolapsed organs 30-86% of continent woman with severe POP are at risk of symptomatic SUI.





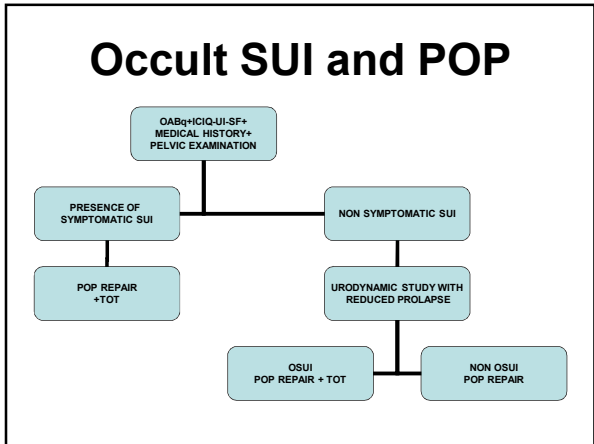
**Occult SUI and POP**

OUR EXPERIENCE:

- 40% SUI
- 9% URGE INCONTINENCE
- 8% STRESS AND URGE INCONTINENCE
- 43% NON URINARY INCONTINENCE:
  - 76% NON OSUI DURING URODYNAMIC STUDY
  - 24% OSUI DURING URODYNAMIC STUDY

**Occult SUI and POP**


**How I do it?**



**THANKS**


## Occult incontinence How I manage?

Omar Grossi  
Federación Argentina de Urología



*Instituto de Urología y  
Uro-Ginecología*

GLASGOW August 31 2011



Federación Argentina de Urología
Instituto de Urología y Uro-Ginecología

Does OSUI observed on urodynamic accurately predict the need for anti-incontinence surgery?

Does the absence of OSUI on urodynamic safety predict that prolapse repair alone is adequate?

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Predicting the need for anti-incontinence surgery in continent women undergoing repair of severe urogenital prolapse.  
*Chaikin DC J Urol 2000.*

Preoperative urodynamics evaluation **is essential**, decision to perform concomitant surgery "tailored" to individual urodynamics findings

fau
IUUGA

The Correlation Between Clinical and Urodynamic Diagnosis in Classifying The Type of Urinary Incontinence in Women.  
A Systematic Review of the Literature

Sanne van Leijsen et al The Netherlands  
Neurol. and Urodynamics 30:495-502; 2011

Review 23 articules 6282 women whit UI .

**Conclusing:** The level of agreement between calssification based on Clinical Evaluation and Urodynamics investigation is poor. Urodynamic observations are regarded as gold standard, but based on the **poor correlation, this assumption should be questioned.**

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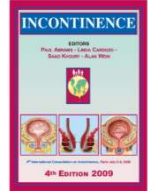
### Surgery for Stress Urinary Incontinence

Transient Incontinence		Permanent	
<b>Grade 1</b> Clinic <b>Type I</b> VLPP +90 (3)	<b>Grade 2</b> Clinic <b>Type II</b> VLPP60-90 (36)	<b>Grade 3</b> Clinic <b>Type III</b> VLPP30-60 (54)	<b>Grade 4</b> Clinic <b>Type IV</b> VLPP - 30 (6)
<b>Mini-slings</b> T.O.T Slings Pubo-vaginals Bulking agents Burch	<b>T.O.T Slings</b> Pubo-vaginal Slings Burch	<b>Readjustable ó Regulables Pubo-vaginal Slings</b> T.O.T. Bulking agents	<b>Cross-over Sling + Urethral reconstruction and support or Artificial Sphinter</b>

GROSSI O. "Manejo del fallo de los slings en la IOE." PAMCU Federación Argentina de Urología 141-145. Módulo 1, 2008. Actualizados los (%)

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Instituto de Urología y Uro-Ginecología

**CONCLUSIONS**  
There is Level 2/3 evidence that when prolapse repair surgery is performed at the same time as a TVT to treat stress incontinence, the cure rate for the stress incontinence is not adversely affected.



Federación Argentina de Urología
Instituto de Urología y Uro-Ginecología



• **GRADE B** usually depends on consistent level 2  
A single RCT provides level 1 evidence that  
concomitant **Burch colposuspension is recommended**  
in women without symptoms of stress incontinence at  
the time of open sacrocolpopexy.

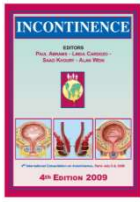
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Abdominal Sacrocolpopexy with Burch Colposuspension to Reduce Urinary Stress Incontinence

*Linda Brubaker, M.D., Geoffrey W. Condliff, M.D., Paul Fava, M.D., Ingrid Nygaard, M.D., Holly E. Richter, M.D., Ph.D., Anthony G. Visco, M.D., Halina Zyczynski, M.D., Morton B. Brown, Ph.D., Anne M. Weber, M.D., for the Pelvic Floor Disorders Network*

**In women without stress incontinence who are undergoing abdominal sacrocolpopexy for prolapse, Burch colposuspension significantly reduced postoperative symptoms of stress incontinence without increasing other lower urinary tract symptoms**



Level 1 evidence exists from the **CARE study** which randomized 322 stress-continent women with Stage II-IV POP to a Burch colposuspension or no continence procedure at the time of concomitant open abdominal sacrocolpopexy [11]. The trial demonstrated the significant **reduction of de novo SUI three months after surgery in women who were assigned to the Burch colposuspension** compared to the group without a continence procedure

EAU European Association of Urology

**Must Colposuspension Be Associated with Sacropexy to Prevent Postoperative Urinary Incontinence?**

*Elisabette Costantini<sup>1</sup>, Alessandro Zucchi<sup>2</sup>, Antonella Giannantoni<sup>3</sup>, Luigi Mezzini<sup>4</sup>, Vittorio Sini<sup>5</sup>, Massimo Porcino<sup>6</sup>*

**Sacropexy and Burch colposuspension for pelvic organ prolapse associated with urinary incontinence: results of a randomized study. E. Costantini, EAU Berlin, 2007**

*Colposuspension performed during sacropexy as prophylaxis for post-operative incontinence seems to emerge as over-treatment*

*These preliminary data cast doubts on whether Burch colposuspension should be performed during sacropexy*

*As our approach partially corrects urethral hypermobility, Burch colposuspension is not always required*

A PROSPECTIVE RANDOMISED CONTROLLED TRIAL COMPARING VAGINAL PROLAPSE REPAIR WITH AND WITHOUT TVT IN WOMEN WITH SEVERE GENITAL PROLAPSE AND OCCULT SUI: LONG TERM FOLLOW UP

Schierlitz L, Dwyer P et al Australia  
Neurol. and Urodynamic 806-7:2010  
ICS-IUGA Meeting Toronto

80 pts. Stage + 2 POP + OSUI Follow up 2 years.

**Concluding message:** The results indicate that the routine insertion of a mid-urethral sling, TVT, in women with OSUI + POP **cannot be recommended**

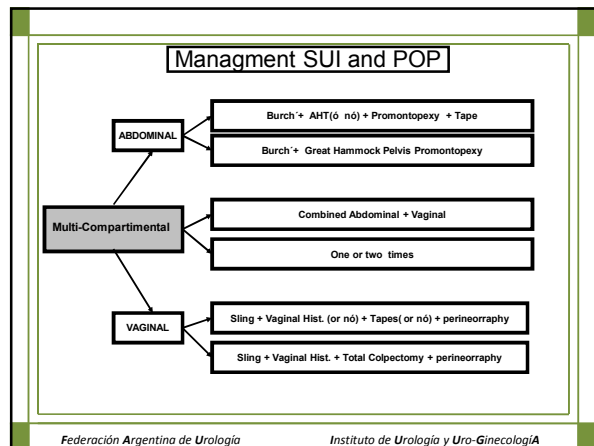
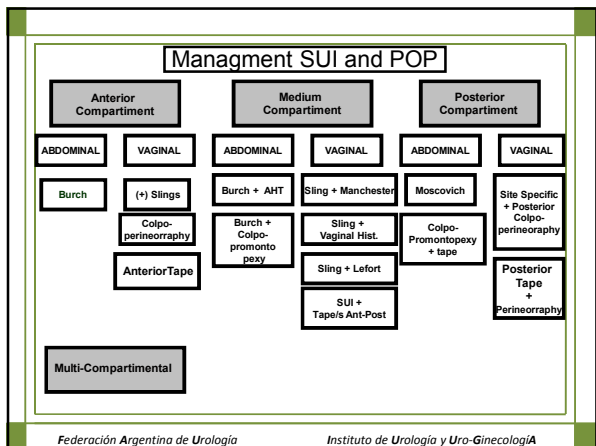
Federación Argentina de Urología Instituto de Urología y Uro-Ginecología

Managing the Urethra at Transvaginal Pelvic Organ Prolapse Repair: A Urodynamic Approach

Katie N. Baltzer, Grace Y. Biggs, Anthony Isenalanmia, Jr., Nirrit Rosenblum and Victor W. Nijl<sup>1</sup>

*From the Department of Urology, New York University and New York University School of Medicine (AE, New York, New York*

**The risk of requiring further intervention due to obstruction is essentially equal to the risk of requiring intervention due to SUI when no clinical, urodynamic or occult SUI was present and no mid urethral synthetic sling was placed**

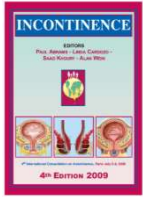


### Video

Stage IV POP and Ocult SUI  
80 years old  
TOT + Vaginal Histerectomy + Total Colpectomy

Federación Argentina de Urología      Instituto de Urología y Uro-Ginecología

The committee recommends that the following areas be prioritized for **future research**:  
determine the optimal management of stress continent women at the time of prolapse repair, by any technique



Federación Argentina de Urología      IUGGA

### Literature Conclusions

Preoperative evaluations: No concluding

Ocult incontinence does not seem to predict the need of anti-incontinence procedure

There are some data providing doubt on whether or not an anti-incontinence procedure should be performed during sacrocolpexy or prolapse repair in both continent and incontinent and women

We have to balance the risk of SUI vs overtreatment and anti-incontinence surgery related complications

Federación Argentina de Urología      Instituto de Urología y Uro-Ginecología

### Our Conclusions

Vaginal and abdominal routes

**One or two times**

High grade POP + OSUI in women **with coital activity**  
1st. Abdominal without TVT and 2nd Vaginal + TVT if necessary


High grade POP + OSUI in women **coital activity negative**  
Vaginal route + TVT or TOT

**"Common sense"** is probably more important than **"Evidence"**

Federación Argentina de Urología      Instituto de Urología y Uro-Ginecología

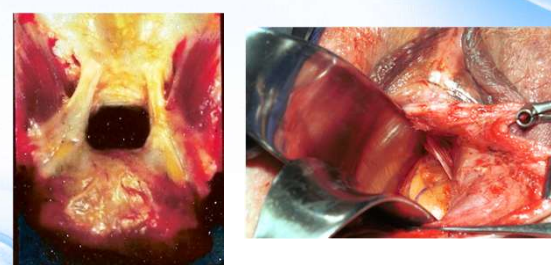


### Occult SUI and POP: how I do it?




Prof Paulo Palma  
Títular Urología UNICAMP  
Diretor Escola Brasileira de Urologia

### Bases Anatómicas: Ligamento pubouretral



Zaccharin, Pereira

### Bases Anatómicas



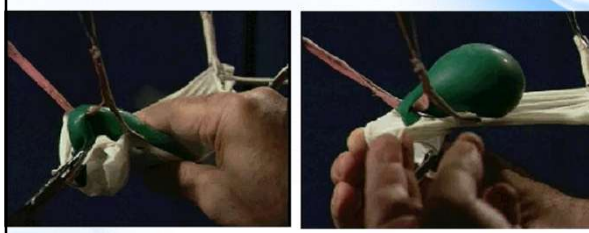
Ligamento Urethro-pélvico

Palma, Grossi

### Reposo



### Esfuerzo



### Micción



### Teoría Integral

1 = ligamento pubouretral

### Teoría Integral

1 = lig. pubouretral externo  
2 = Inserción uretral del PUL

### Teoría Integral

1 = Ligamento pubouretral  
2 = Inserción del PUL

### Teoría Integral

1 = Ligamento pubouretral  
2 = Inserción uretral LPU  
3 = "Hammock"

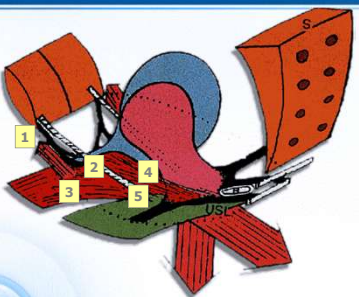
### Teoría Integral

1 = Lig. pubouretral externo  
2 = Inserción uretral de LPU  
3 = "Hammock"

### Teoría Integral


1 = lig. pubouretral externo  
2 = Inserción uretral de LPU  
3 = "Hammock"  
4 = Base Vesical

### Teoría Integral



- 1 = Lig. pubouretral externo
- 2 = Inserción uretral de LPU
- 3 = "Hammock"
- 4 = Base vesical
- 5 = Arco Tendineo

### Teoría Integral



- 1 = Ligamento pubouretral
- 2 = Inserción uretral LPU
- 3 = "Hammock"
- 4 = Base vesical
- 5 = Arco tendineo

### Cirugías Virtuales



Petros, Macmilan, 2007

### Cirugía virtual : IUE Tipo III



### Cirugía Virtual & Prolapsos



### Calistar A: monoprotesis para IUE, defecto apical y anterior



## EGGS: goal-based approach

- **Expectations**
- **Goal setting**
- **Goal achievement**
- **Satisfaction**

Freeman R, Maturitas 65 (2010) 11–14

## EGGS: The Real Gold Standard



## How I do it? Occult SUI and POP

Paulo Palma,

Prof. Titular de Urologia, UNICAMP, SP, Brazil

Director Brazilian School of Urology (SBU)

CAU General Secretary

Occult SUI is associated with positive anterior vaginal wall prolapse and with urine descensus in 60% of the case.

Virtual surgery, as proposed by Peter Petros, may help to disclose occult SUI.

When positive, surgical correction of SUI is indicated at the same time.

Although the concept of prophylactic sling is advocated by some researchers (Shlomo Raz), for “de novo” SUI may occur in 30% of patients after mesh repair, The potential risks of complication is the major drawback for this approach.

To overcome this situation, a new mesh (Calistar A – Promedon, Argentina) was developed to treat concomitantly anterior and apical prolapses even when associated to stress urinary incontinence (SUI). It is made of type I macroporous polypropylene with 6 millimeter diameter orifices in the body to improve tissue in growth and to provide flexibility. The suburethral portion of the mesh is attached to two self-anchoring polypropylene arms with a multi point fixation design, especially developed to be anchored at the internal obturator muscle bilaterally, in order to provide a strong suburethral primary fixation. Each arm is attached to a polypropylene stitch, to move it backwards during the procedure, if necessary, for a fine suburethral adjustment. A new tissue anchoring system was also developed, to fix the mesh's arms to the sacrospinous ligament bilaterally, which represent the other anatomical landmark of the procedure. The set also includes a disposable retractable insertion trocar (Fig. 1).

In this study, it is evaluated the safety, feasibility and the results of this technique in a cohort of patients with stage 3 anterior / apical prolapses.

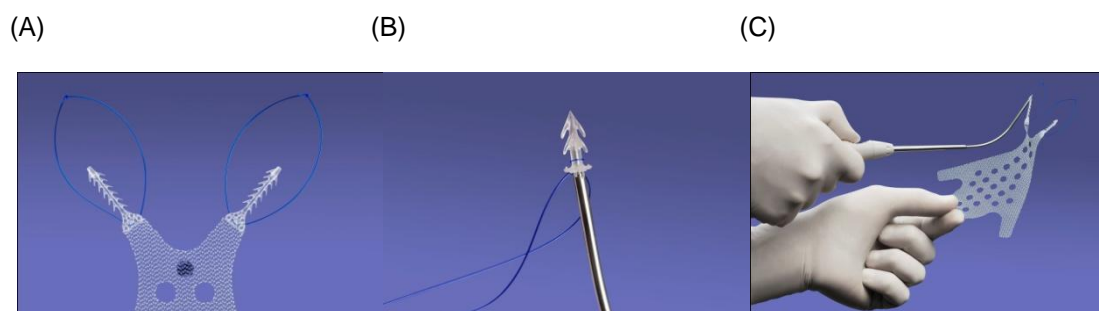


Figure 1. (A) Polypropylene mesh and multipoint fixation arms (B) Tissue anchoring system and trocar. (C) Surgical set.

### Study design, materials and methods

From January 2010 to March 2011, 31 patients were enrolled in the study. Only patients with Pelvic Organ Prolapse Quantification System (POP-Q) stage 3 anterior vaginal wall prolapse were included. Concomitant SUI were diagnosed in 19 (61%) patients. The work-up included history, physical examination, stress test, standardized 1-h pad test, POP-Q staging, and

validated questionnaires (International Consultation on Incontinence Questionnaire Short Form – ICIQ-SF; International Consultation on Incontinence Questionnaire Vaginal Symptoms – ICIQ-VS). Sexual function was assessed with the Female Sexual Function Index (FSFI). Follow-up was performed at 1, 3, 6 and 12 months post implant.

The procedure was carried on with the patient in lithotomy position. The anterior vaginal wall was incised from midurethra towards the uterine cervix and the pubocervical fascia is carefully dissected. Blunt dissection was performed until identification of the ischial spines and the sacrospinous ligaments. Then, the retractable insertion guide was primed with the tissue anchoring system and was introduced into the sacrospinous ligament 1.5 cm medial from the ischial spine bilaterally. The same retractable guide was connected to the multipoint fixation arm for fixation of the suburethral part of the mesh bilaterally to the internal obturator muscle, one centimeter above the vaginal fornix. Then the polypropylene stitches were attached to the arms of the implant bilaterally. Stitches were placed at the posterior body of the implant and fixed at the remnants of cardinal ligaments or pericervical ring in order to avoid high cystocele recurrence. Finally, the vaginal incision is closed in the usual manner. Cystoscopy was not mandatory (Fig. 2).

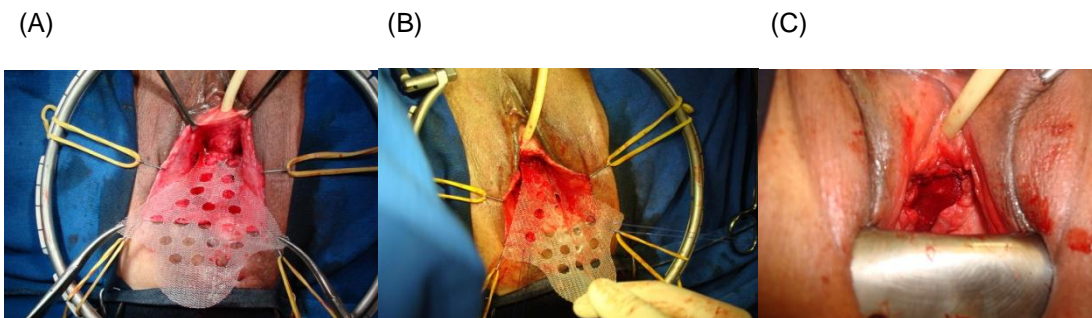


Figure 2. Surgical procedure. (A) Suburethral insertion. (B) Anchoring of mesh to the stitches placed at sacrospine ligaments. (C) Mesh at correct place before vaginal wall suture.

### Results

The mean age of patients is  $59 \pm 8.5$  years old. Other demographic data are summarized in Table 1. All surgeries were performed under spinal anesthesia. Severe bleeding and technical or mechanical problems of the device were not observed. Until march 2011, seven patients (22%) completed 12 months follow up but as soon as 11 patients (35%) who completed 6 months follow up showed successful POP-Q staging improvement, as showed in Table 2. Also, all of the patients with concomitant SUI presented negative stress test and improvement of the ICIQ-SF score (Table 2). One patient (3%) presented mesh exposure, diagnosed in the second post-operative day, and were treated with excision and vaginal suture / topical estrogen replacement and antibiotics. This patient presented mesh infection (3%). Urinary retention were observed in one patient (3%), and solved spontaneously at the third day post-operative. One subject who maintained urgency in the post-operative was treated successfully with anticholinergics. The Female Sexual Function Index (FSFI) was  $26 \pm 1.4$  before surgery,  $48 \pm 21.5$  in six months and  $49 \pm 12.7$  in one year follow up.

**Table 1. Demographics**

Previous gestation (mean $\pm$ SD)	3.0 $\pm$ 2.6
Stress urinary incontinence - Stamey (%)	54.1%
Previous anti-incontinence surgery (%)	29.1%
Body Mass Index (mean $\pm$ SD)	27.7 $\pm$ 4.6

**Table 2. Follow up**

	<b>Pre</b>	<b>1 month</b>	<b>3 months</b>	<b>6 months</b>	<b>1 year</b>
<b>N</b>	31	6	7	11	7
<b>Aa POP-Q point</b>	+2 $\pm$ 1.5	-2 $\pm$ 0.9	-2 $\pm$ 0.7	-2 $\pm$ 0.8	-2 $\pm$ 0.9
<b>Ba POP-Q point</b>	+4 $\pm$ 1.7	-2 $\pm$ 1.1	-3 $\pm$ 0.6	-3 $\pm$ 0.7	-3 $\pm$ 0.9
<b>C POP-Q point</b>	+1 $\pm$ 3.4	-7 $\pm$ 3.1	-7 $\pm$ 1.5	-7 $\pm$ 1.7	-7 $\pm$ 2.1
<b>Positive stress test</b>	37,5%	0.0%	0.0%	9%	0.0%
<b>ICIQ-SF score (0-21)</b>	31	6	7	11	7
<b>FSFI</b>	26 $\pm$ 1.4	--	--	48 $\pm$ 21.5	49 $\pm$ 12.7

Interpretation of results

In opposite to the transobturator approach, anchoring the mesh to sacrospinous ligaments allows for a D'Lancey level one correction as showed by the optimal POP-Q point C results in the follow-up. Also, the multipoint fixation arms provided primary and stable suburethral support, keeping the mesh in the proper place and allowing for an effective treatment of SUI, if present.

Conclusion

Initial results demonstrate that this technique represents an effective option for the treatment of prolapse and SUI. It introduces the advantages of simultaneous treatment of anterior and apical vaginal prolapses and SUI by a single vaginal incision, building safety and a fully level I correction

## Future targets for Pharmacological therapy of Urinary incontinence

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## Drugs with antimuscarinics effects

### Non-subtype selective

- Atropine, hyoscyamine
- Propantheline
- Trospium
- Tolterodine
- Fesoterodine
- Solifenacin

### Mixed actions

Antimuscarinic + other actions

- Oxybutynin
- Trospium
- Tolterodine

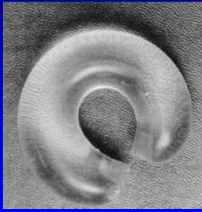
Oral route

### Subtype selective (M<sub>3</sub>)

- Darifenacin

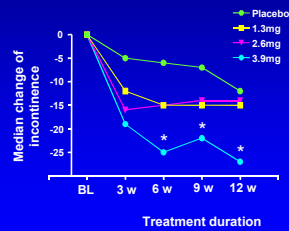
## Non-oral routes for oxybutynin

### Intravesical oxybutynin



Intravesical reservoir, Sitis Corp. USA

### Transdermal oxybutynin

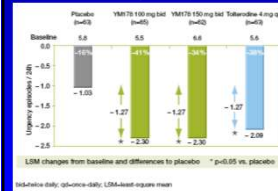


Dmochowski et al. J Urol. 2002

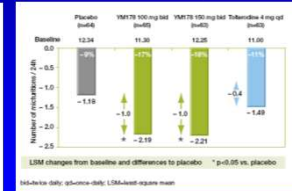
## β<sub>3</sub> Adrenoceptor agonist YM178

### BLOSSOM trial

### Urgency

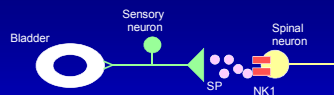


### Frequency

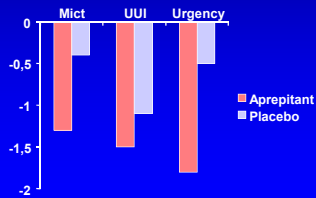


Chapple et al. Eur Urol Suppl, 2008 (abstract)

## Aprepitant, a new NK-1 receptor antagonist



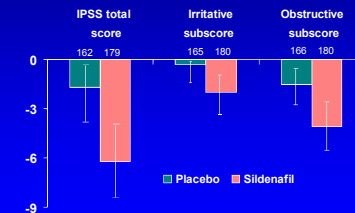
Effect on the number of events/day



Green et al. J Urol 2006

## PDE-5 inhibitors

### 12 weeks of sildenafil (50-100 mg/day) vs placebo in BPH patients



McVary et al. J Urol, 2007



### TRPV1 receptor

- Intravesical: Vanilloids (RTX), BONT/A
- Intrathecal: Vanilloids (RTX)
- Oral: TRPV1 small molecule antagonists

### Intravesical RTX desensitizes TRPV1

RTX instillations in patients with refractory IDO

At 6 month treatment remained effective in 50% of patients

- RTX with different origins/preparations
- RTX solutions still very unstable

### BoNT-A decreases TRPV1 (but not PGP 9.5) immunoreactivity in the suburothelium of NDO patients

BoNT-A prevents SNARE-dependent TRPV1 trafficking in neurones

### Intrathecal RTX decreases the expression of TRPV1 but not IB4 fibers at L6 spinal cord

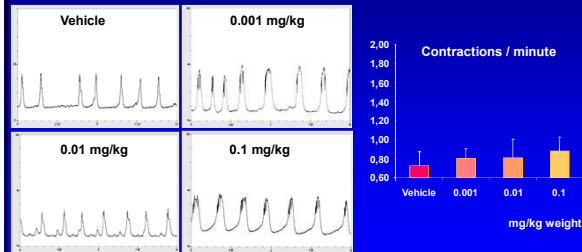
### Intra-thecal RTX decreases bladder reflex contractions in SCT-rats

### TRPV1 antagonists

GlaxoSmithKline: SB-705498  
 Abbott: A-425619  
 Amgen: AMG-9810  
 Neurogen: BCTC, Nrgn-3  
 Glenmark: GRC 6127 **GRC 6211**  
 Johnson & Johnson: JNJ 17203212  
 Bayer: WO 040028440, 04052845, 04072020, 05044786  
 Takeda: WO 04007495  
 Novartis: WO 04033434, 020779476  
 Merck Sharp & Dohme: WO 04074290, 05049601, 05049613

Piperazine  
 Pyrrolidine  
 Aryl-urea  
 Arylamide  
 Quinazoline  
 Benzopiran  
 Amino-thiazoles

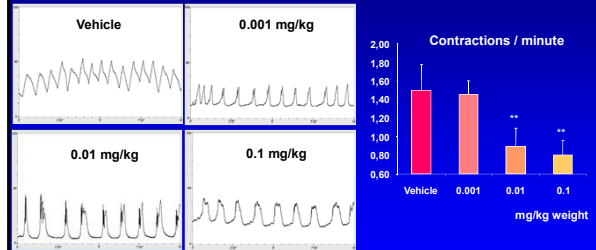
## Oral GRC 6211 Effect on rat intact bladders



Vehicle: 0.5% methylcellulose

Charrua et al, *J Urology*, in press

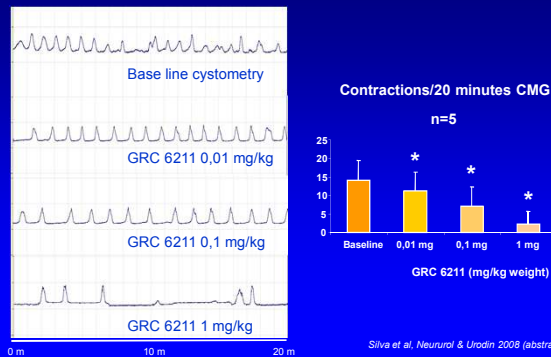
## Oral GRC 6211: Effect on CMG with 0,5% acetic acid



Vehicle: 0.5% methylcellulose

Charrua et al, *J Urology*, in press

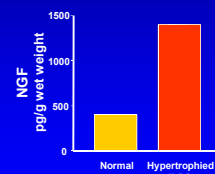
## Oral GRC 6211: Effect on bladder reflex contractions in SCI-rats



Silva et al, *NeuroUrol Urodin* 2008 (abstract)

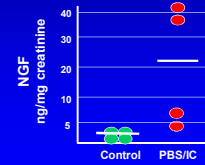
## NGF bladder content in BOO and PBS/IC

NGF protein in normal and hypertrophied (BOO) human bladders



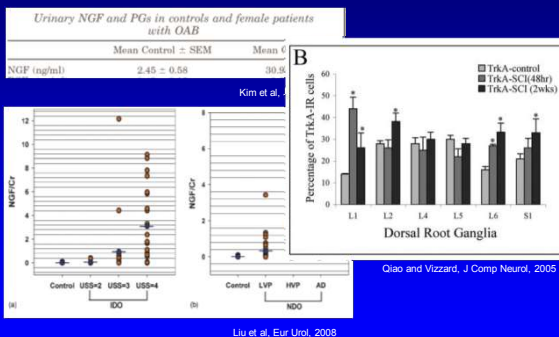
Sloers et al, *J Clin. Invest.* 91

NGF protein in the bladder of patients with IC



Cikragy et al, *J Urol*, 99

## NGF and IDO-NDO



Giao and Vizzard, *J Comp Neurol*, 2005

Liu et al, *Eur Urol*, 2008

## Effect of NGF neutralization on CMG of SCI rats

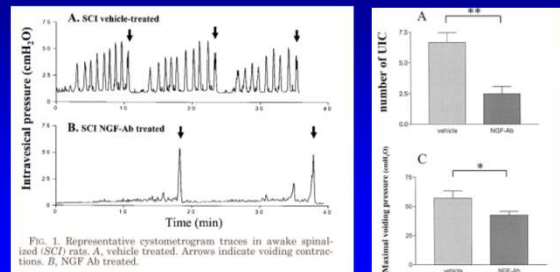
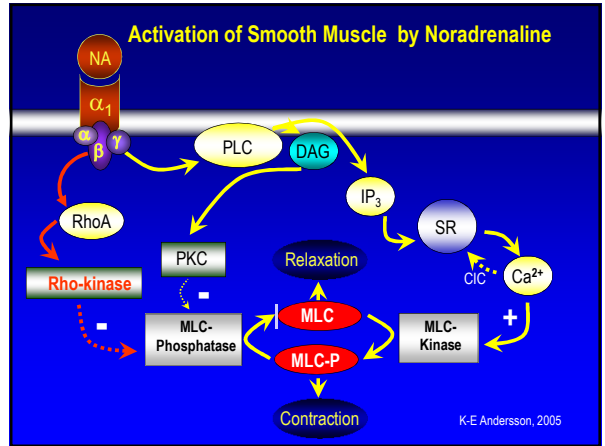
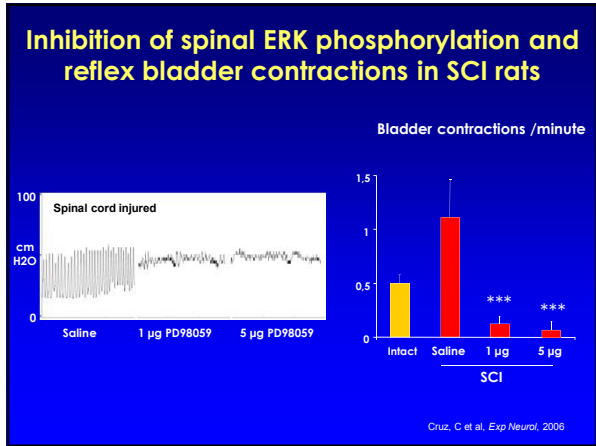
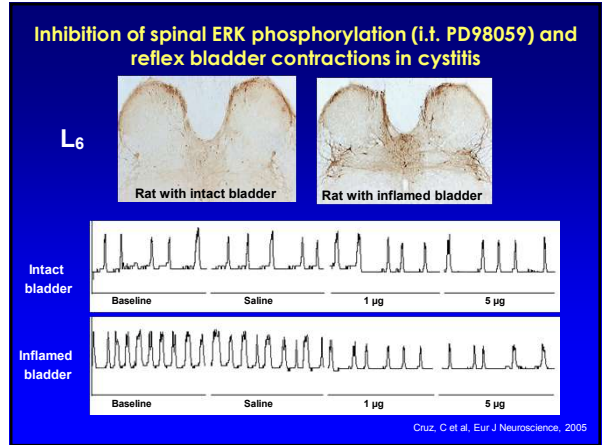
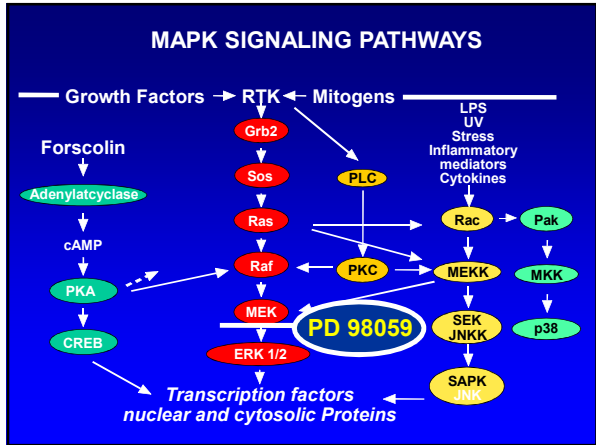
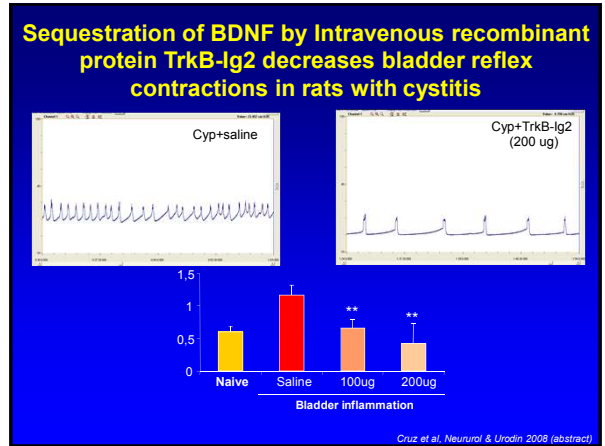
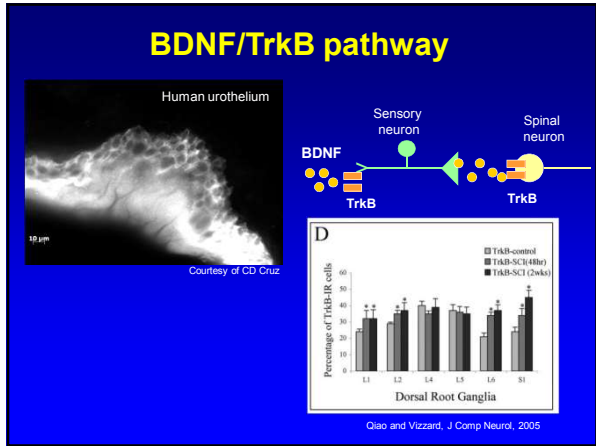


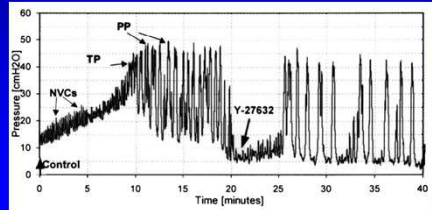
Fig. 1. Representative cystometrograms traces in awake spinalized SCI rats. A, vehicle treated. Arrows indicate voiding contractions. B, NGF Ab treated.

Seki et al, 2002



### Rho-Kinase Inhibition Suppresses Bladder Hyperactivity in Spontaneously Hypertensive Rats

Mahadevan Rajasekaran,\* Nathan Wilkes, Steven Kuntz, and Michael E. Albo  
Division of Urology, University of California San Diego Medical Center, San Diego, California,  
and Urology Research Laboratory, Veterans Medical Research Foundation, La Jolla, California



## Conclusions

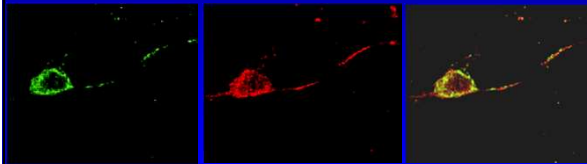
- Oral route is probably the ideal one to deliver compounds for OAB/DO
- B<sub>3</sub> adrenoreceptor agonists, NK1 antagonists and PDE-5 inhibitors are already in clinical trials
- Oral TRPV1 antagonist GRC 6211 is promising
- Neurotrophins and intracellular pathways are emerging as new potential targets

## BoNT-A prevents SNARE-dependent TRPV1 trafficking in sensory cells

VAMP-2

TRPV1

Overlay



Morenila-Palao et al, *J Biol Chemistry*, 2004

## Trends in antimuscarinic therapy

- Oral route
- Long half-life/slow releasing formulations
- Good intestinal absorption
- High muscarinic receptor subtype selectivity
- Organ selectivity
- Dosage flexibility

## **Biomechanical overview of pelvic floor dysfunction**

Teresa Mascarenhas MD

Pelvic Floor dysfunctions in women represent an important health problem. The major risk factor for developing these conditions is vaginal birth.

Biomechanics is considered one of the main topics of current pelvic floor research recommendations. It is only recently that researchers have begun biomechanical analysis to evaluate the mechanism of pelvic floor normal support and its failures as well as sequelae of vaginal birth.

Bioengineering is the science that deals with structure-function relationships. The translation of biomechanics research to clinical settings may contribute to understand the etiology of these complex conditions and improve assessment and treatment of pelvic floor dysfunctions.

The combined technology will allow us to identify mechanisms of pelvic floor disorders, assume preventive strategies and optimize surgical procedures.