

CÉLIA DUARTE CRUZ

# Bladder pain syndrome/interstitial cystitis (BPS/IC) – an example of visceral pain

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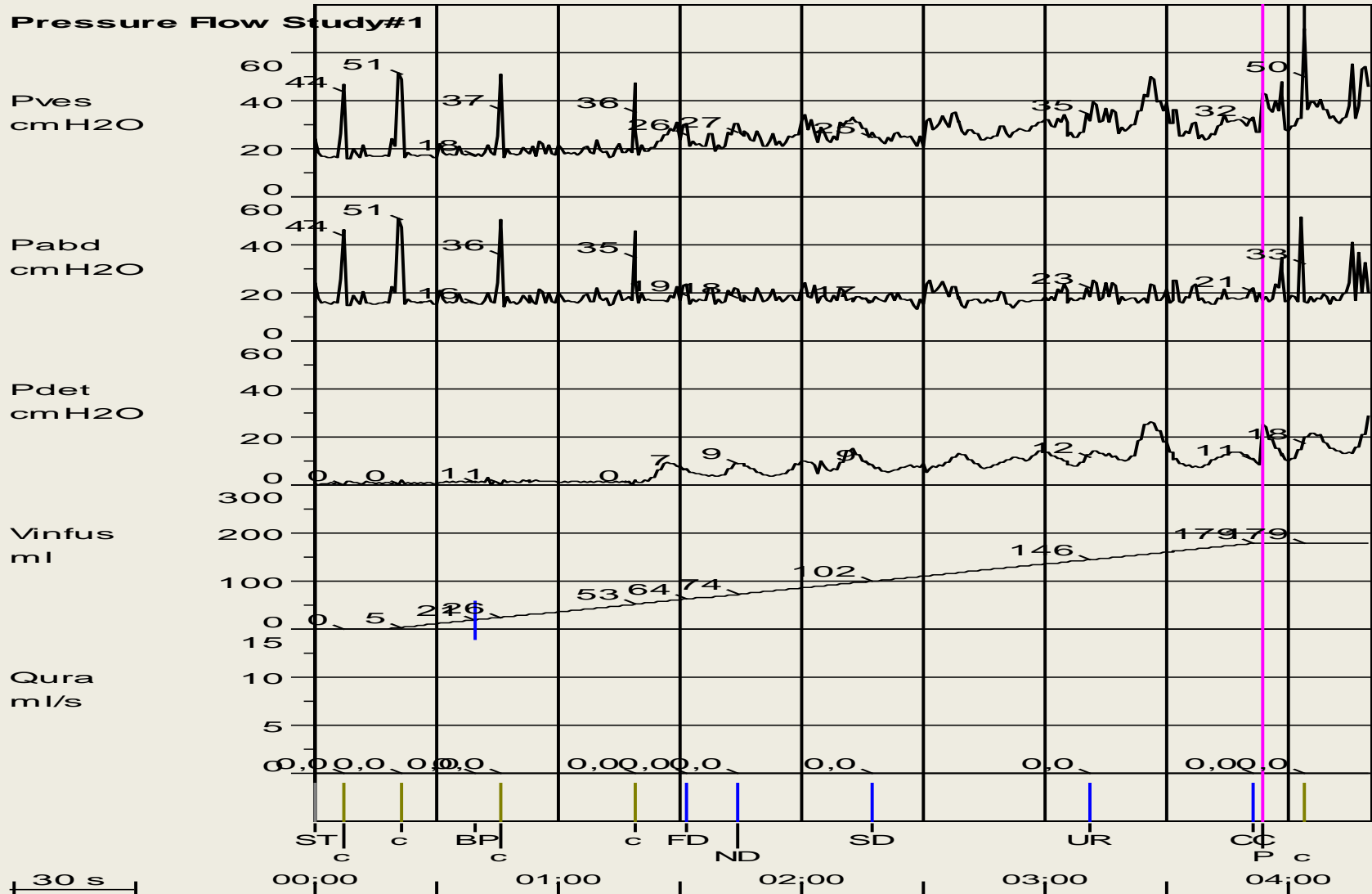
# Bladder pain syndrome/interstitial cystitis

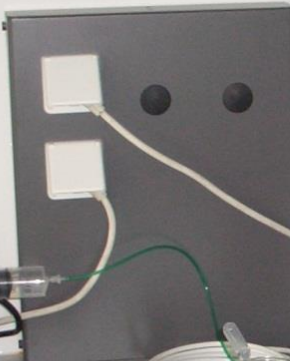
## (BPS/IC) – visceral pain

- Lower urinary tract disorder
- Main symptoms: urgency, frequency, strong suprapubic pain
- Other symptoms: increased urinary noradrenaline

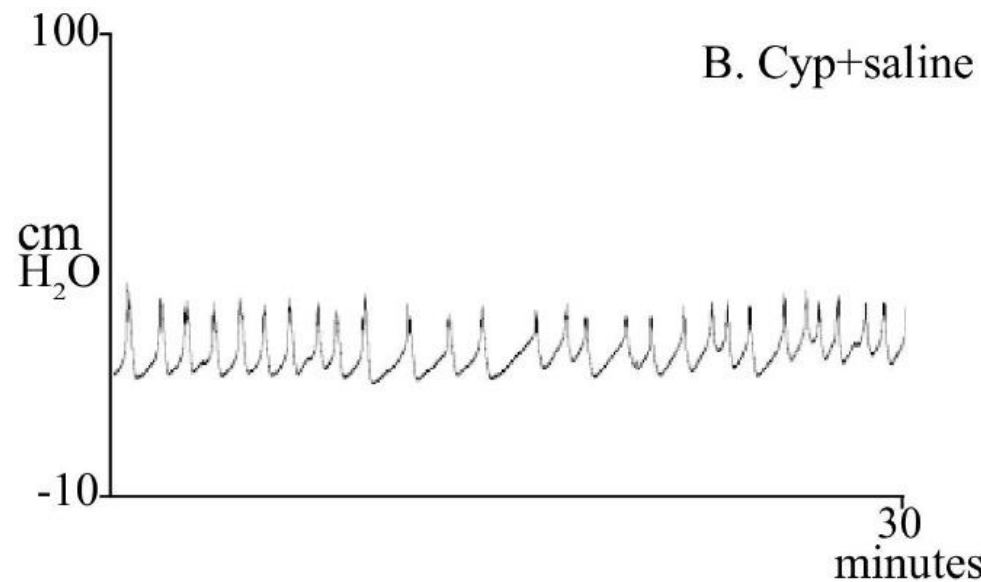
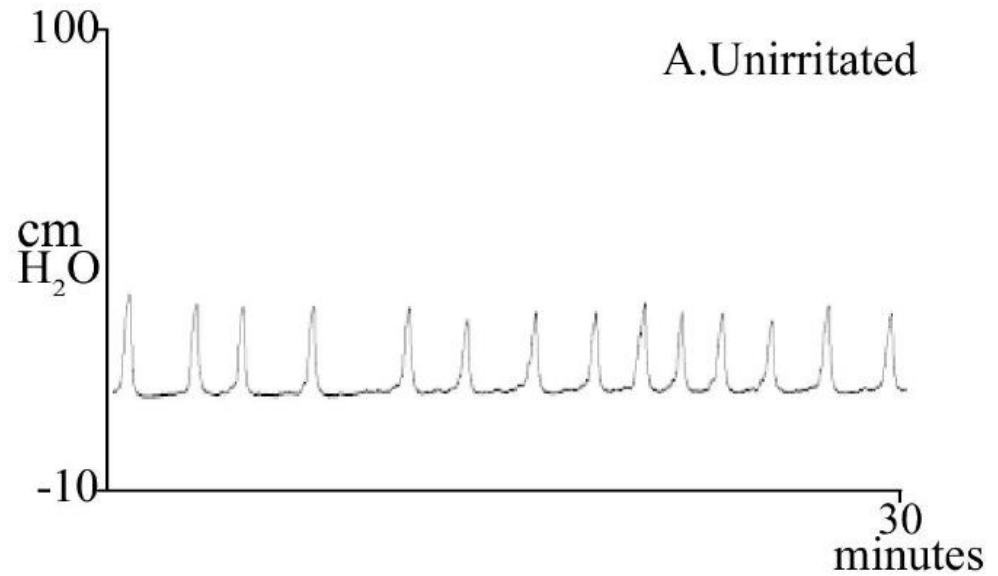
Demonstration of Cutaneous Allodynia in Association with  
Chronic Pelvic Pain \_ Protocol (video)

# Doente com síndrome dolorosa vesical

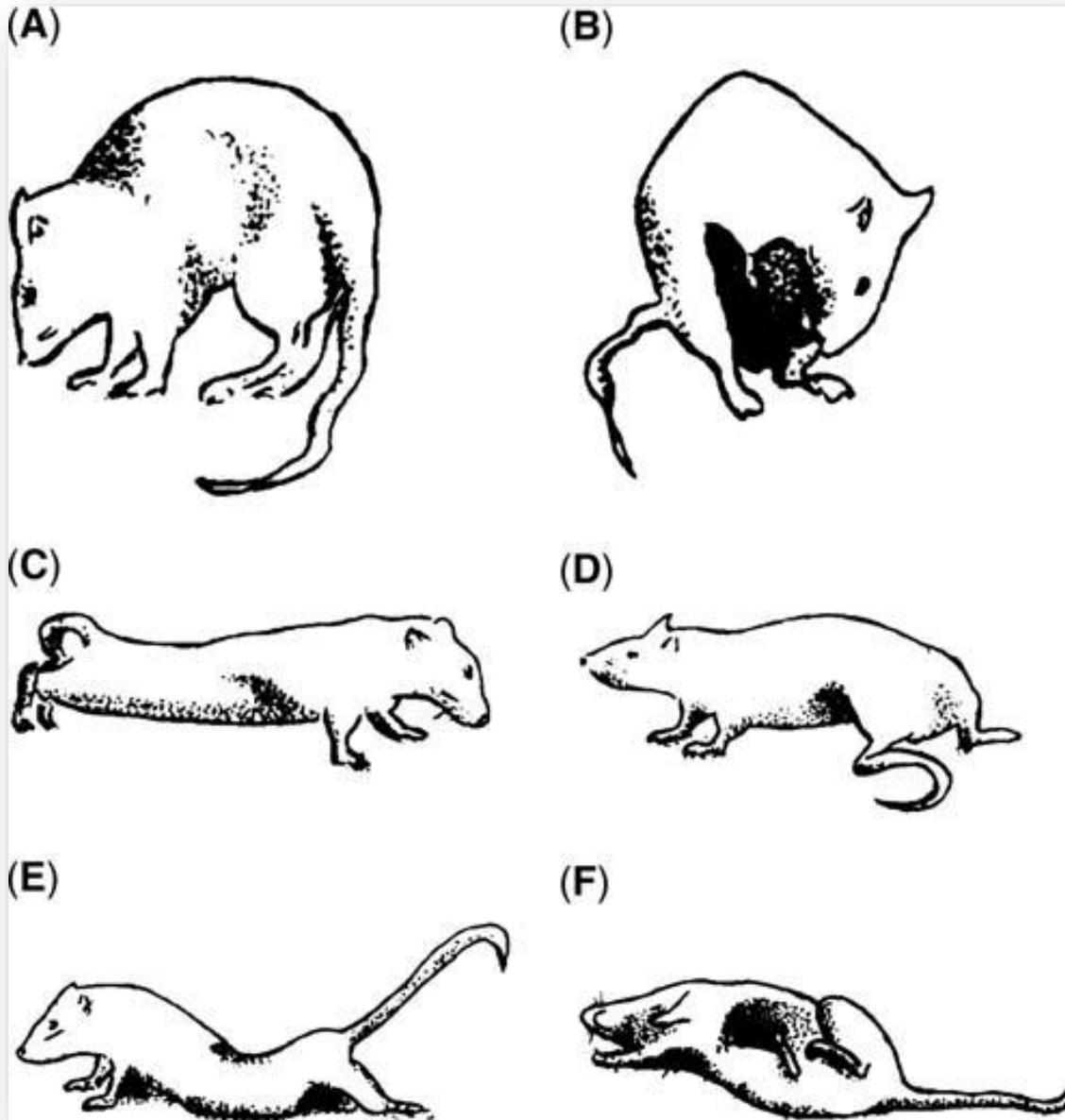




# Bladder function in CYP-inflamed animals

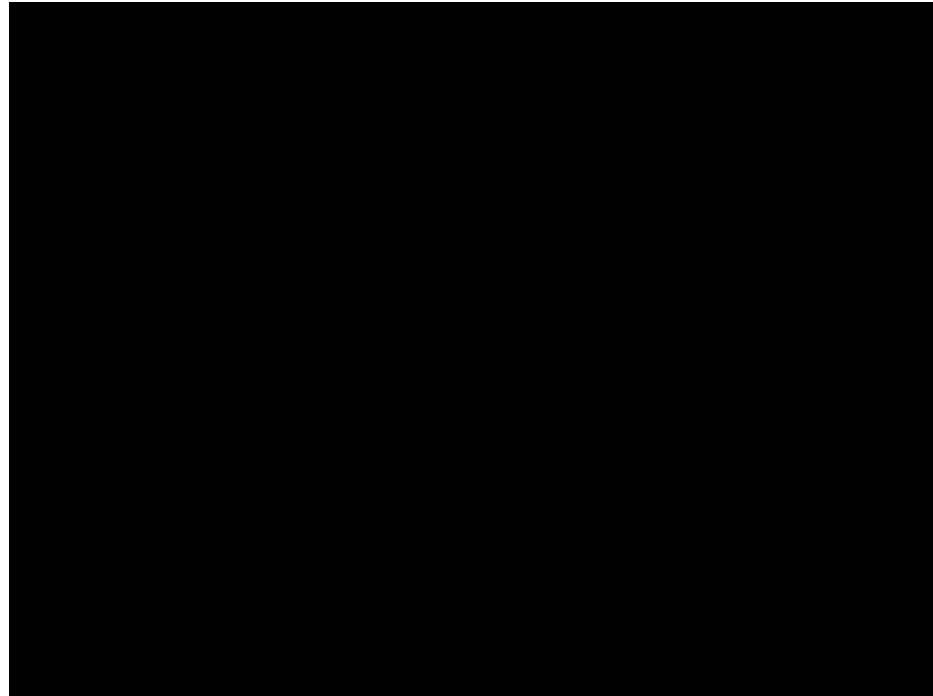


# Behavioural signs of bladder pain

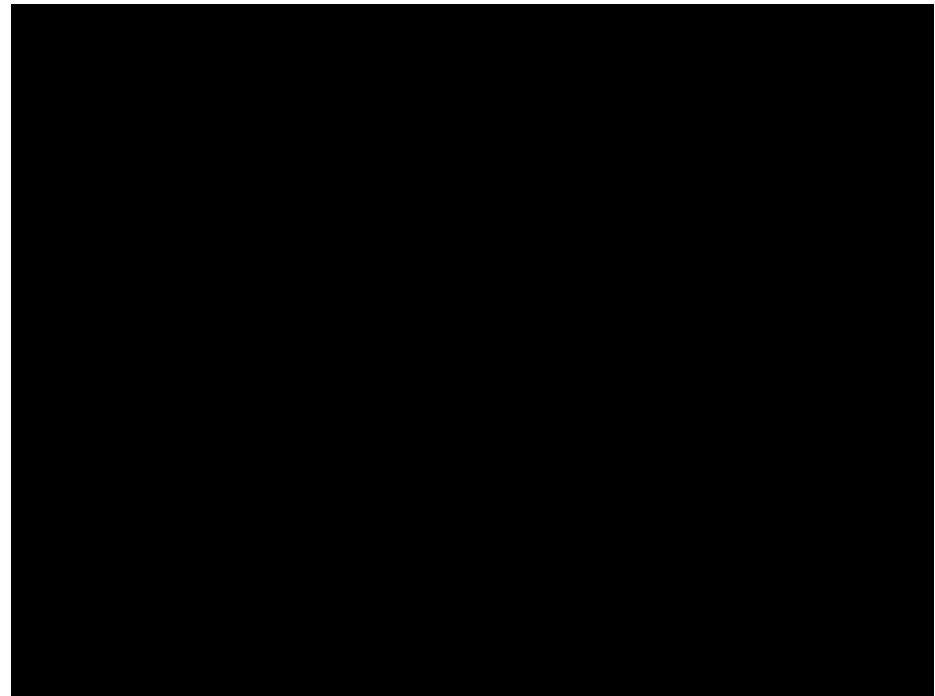


Models of BPS/IC:

- Injection of cyclophosphamide (CYP)
- Injection of phenylephrine (sympathetic stimulation)
- Instillation of LPS



Non-inflamed



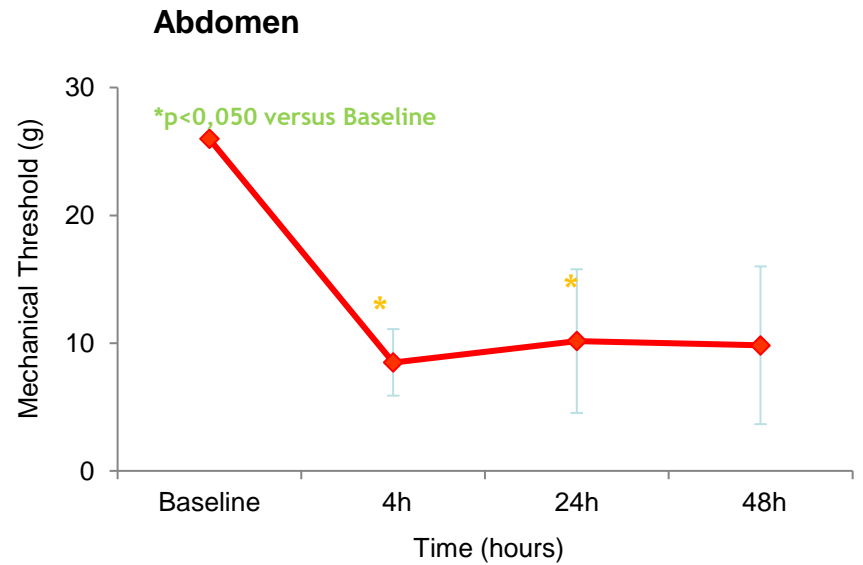
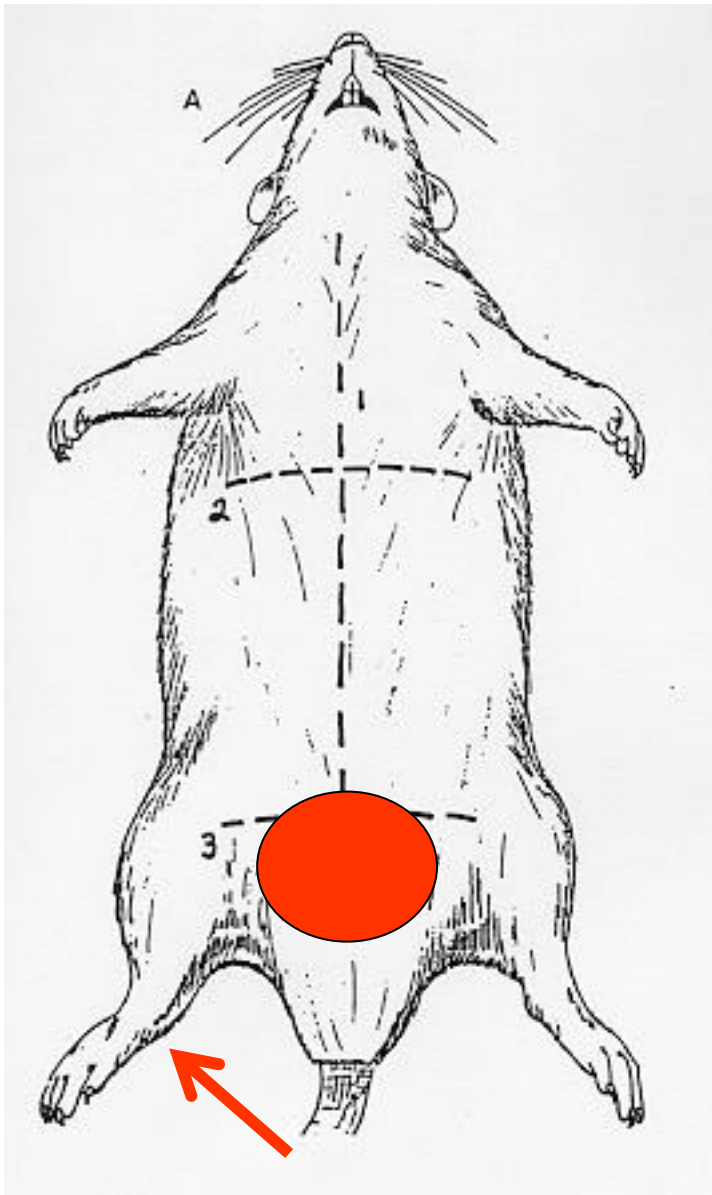
CYP-induced cystitis



Measurement of Tactile Allodynia in a Murine Model of Bacterial Prostatitis Protocol (video)

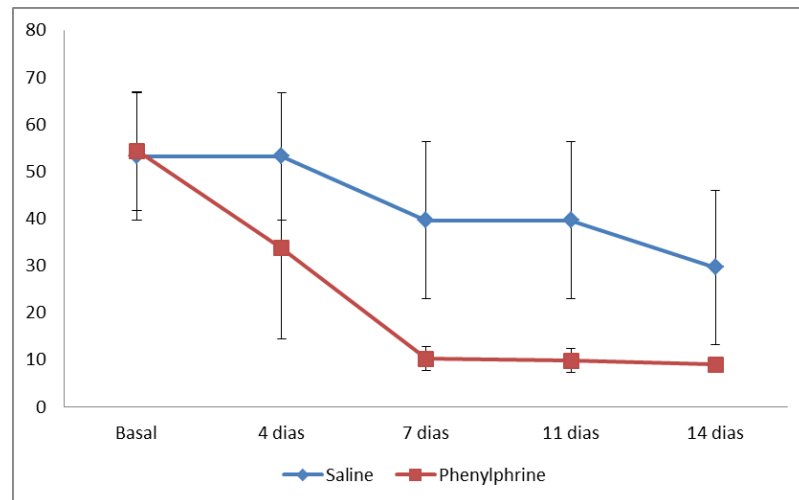
Assessment of Perigenital Sensitivity and Prostatic Mast Cell Activation in a Mouse Model of Neonatal Maternal Separation Protocol (video)

# Cystitis leads to cutaneous hypersensitivity.



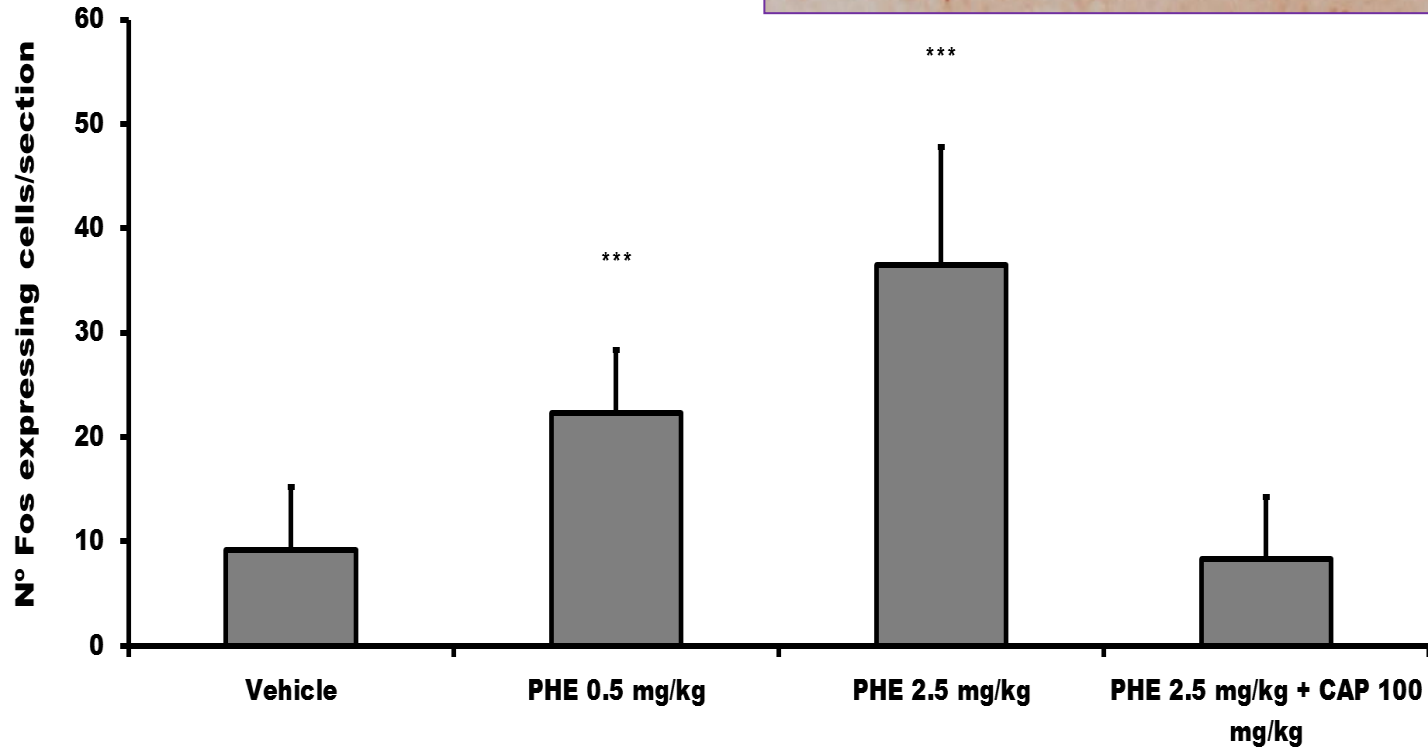
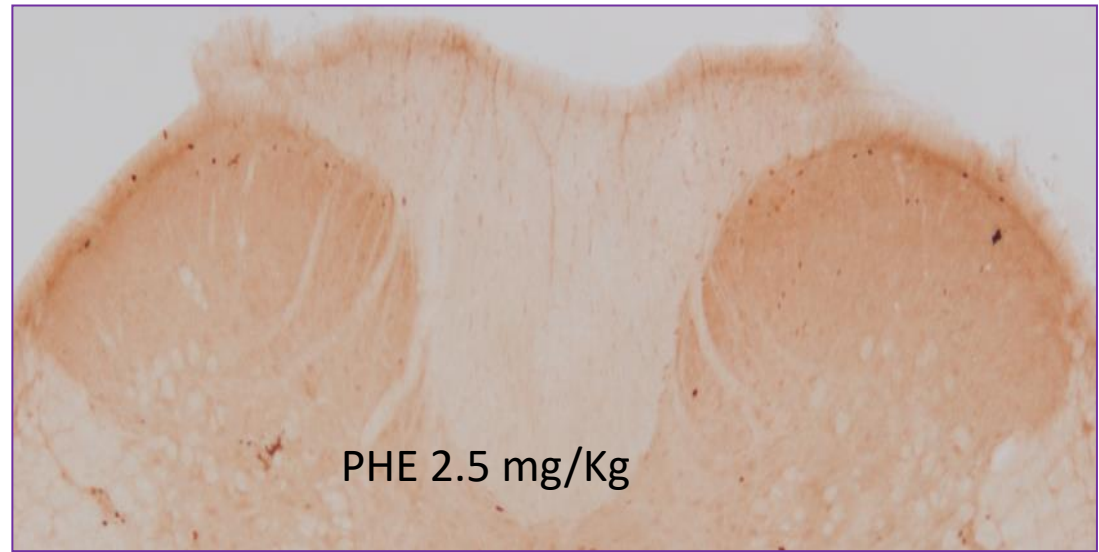
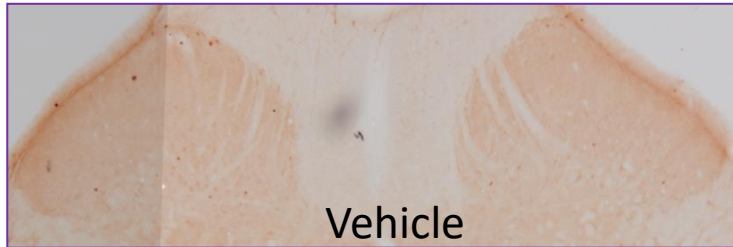
◆ CYP + Saline

Frias B et al, Neuroscience (2013)

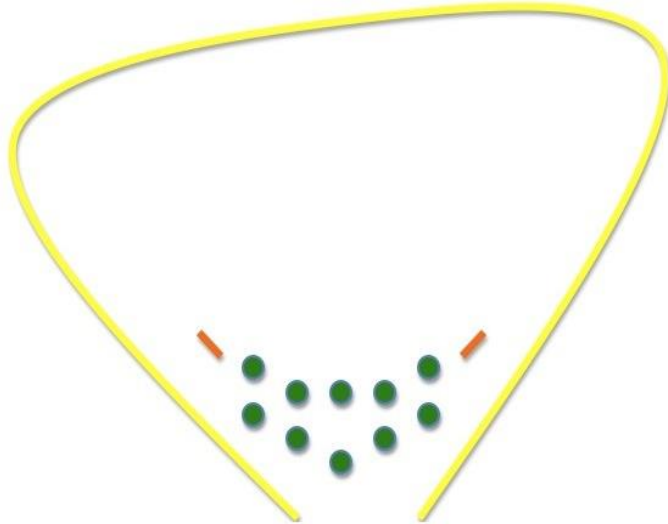


Charrua et al, 2013

# Chronic adrenergic stimulation increases FOS expression in superficial laminae of L6 spinal cord segment



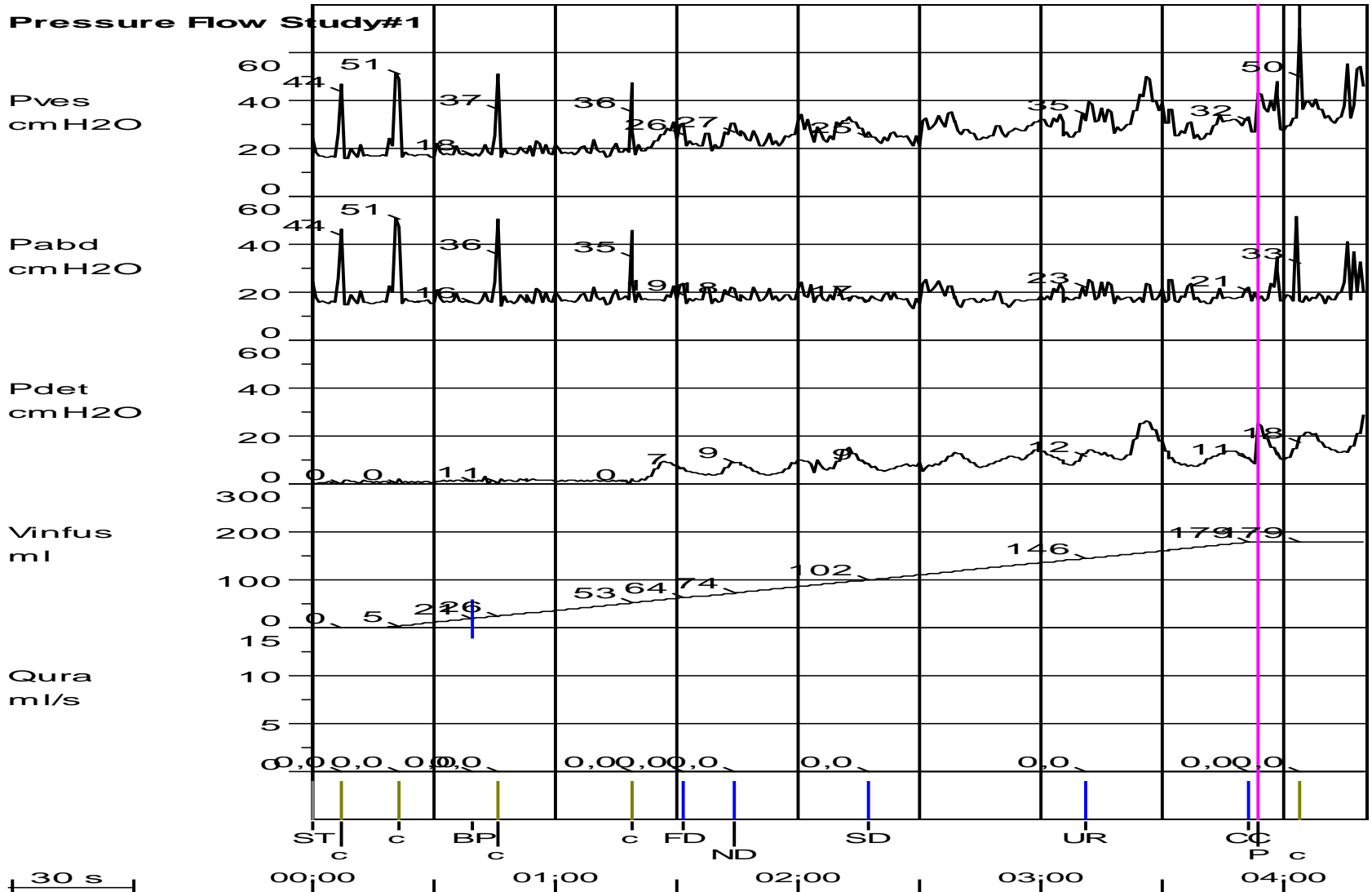
## ***Rationale for Onabotulinum Toxin A for BPS/IC***



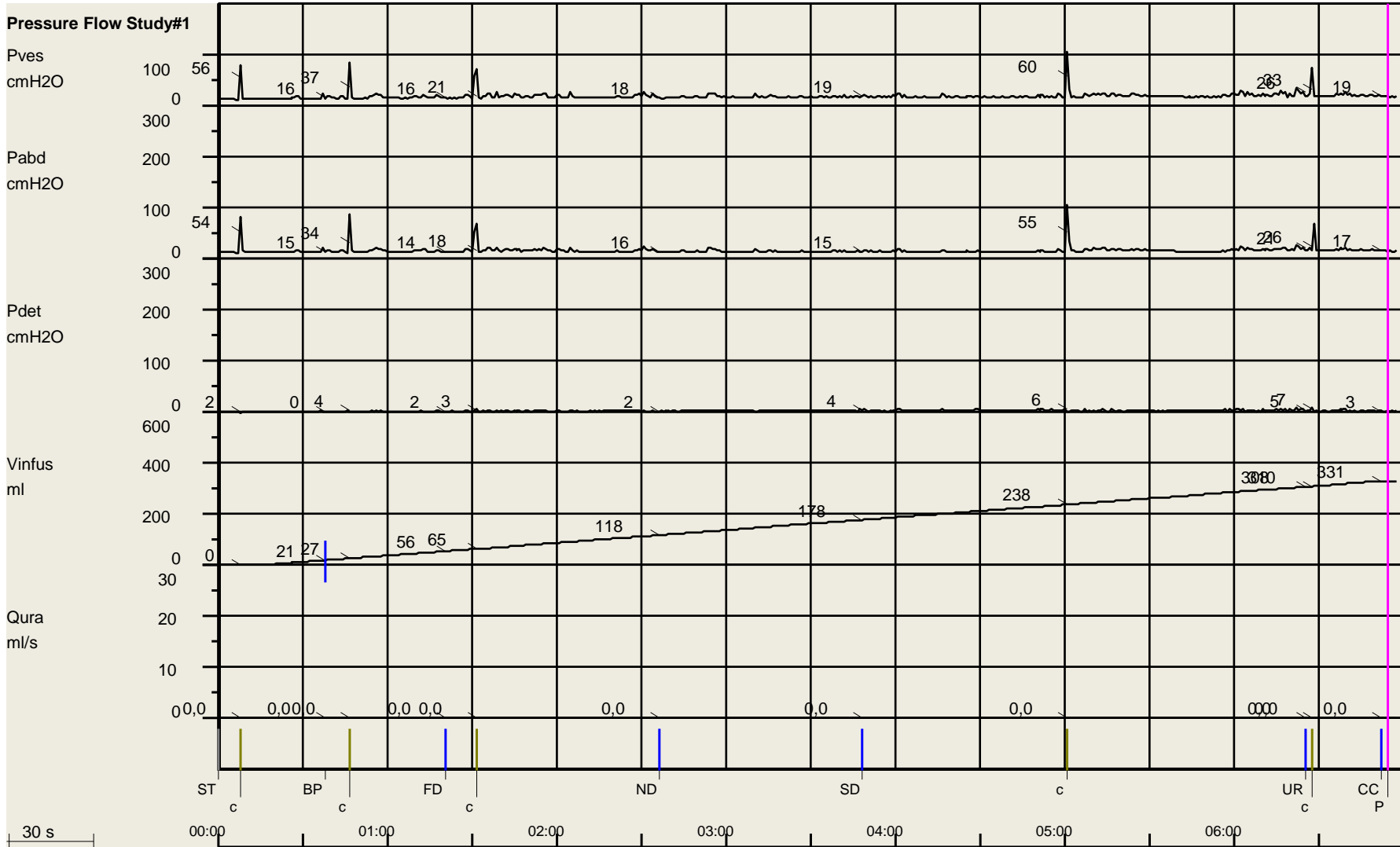
Location of trigonal injection sites, each site was injected with BoNT-A 100 U (10 U/1ml saline x 10 sites)

Pinto et al, 2010

# Doente com síndrome dolorosa vesical



# Após toxina botulínica



## ***Pain and other symptoms relief***

|   | <b>1st Treatment<br/>Baseline</b> | <b>1st Treatment<br/>Third month</b> |
|---|-----------------------------------|--------------------------------------|
| <b>Pain Visual Analog Scale (0-10)</b>        | <b>5,8 ± 1.8</b>                  | <b>1,7 ± 0.8*</b>                    |
| <b>Day-time Frequency</b>                     | 11.4 ± 3.6                        | 4.7 ± 0.9*                           |
| <b>Night-time Frequency</b>                   | <b>5.5 ± 1.9</b>                  | <b>2.1 ± 0.7*</b>                    |
| <b>O'Leary-Sant Score for Symptoms (0-20)</b> | 15,6 ± 3                          | 6,8 ± 1.2*                           |
| <b>O'Leary-Sant Score for Problems (0-16)</b> | 13,4 ± 3.4                        | 4,6 ± 1.3*                           |
| <b>Quality of Life (0-6)</b>                  | 5,1 ± 0.9                         | 0,7 ± 0.5*                           |

## *Onabotulinum toxin A decreases sympathetic activity*

