

## COUGH STRESS TEST IN WOMEN WITH ADVANCED PELVIC ORGAN PROLAPSE WITH AND WITHOUT SYMPTOMS OF STRESS URINARY INCONTINENCE.

### Hypothesis / aims of study

The aim of this study was to analyse the prevalence of the sign of SUI, defined as positive cough stress test, with and without prolapse reduction, in women with advanced pelvic organ prolapse (POP), with and without associated symptoms of SUI.

### Study design, materials and methods

This was a prospective observational multicentre study with consecutive women, in the awaiting list for prolapse surgery, in 37 Gynaecology departments, enrolled between September 2012 and December 2012. Women with any previous pelvic surgery were excluded. A routine urogynaecological assessment was performed, with clinical history and assessment of the degree of prolapse with empty bladder using the ICS-IUGA POP-Q system. Symptoms of stress incontinence were evaluated separately with the corresponding questions of two validated symptom's questionnaires: "Epidemiology of Prolapse and Incontinence Questionnaire" (EPIQ) (1) and "International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form" (ICIQ-UI SF) (2). A patient was considered to have symptoms of SUI, if she gave a positive answer, in both questionnaires, to the specific questions about having leakage with effort. All patients included had symptoms of "sensation bulge in vagina or that something is falling out vagina" and POPQ  $\geq$  2nd degree.

Women were asked to perform the stress test when they had sensation of full bladder. First they were asked to cough five times, without prolapse reduction, in standing position and then in semilithotomic position. Keeping this last position, they were asked to cough again, while reducing the prolapse, first by a speculum and then by a vaginal ring pessary, without causing urethral obstruction. Finally, with the pessary on place, women stood up and performed five coughs again. Patients who were observed with leaking urine when coughing, at least in one of those circumstances, were classified as positive for the stress test. At the end of the test, the pessary was removed and women were asked to void in complete privacy. The voided volume was measured and postvoid residual was obtained by urethral catheterisation. Demographic and clinical data were recorded by means of an electronic case report form and were exported to the data analysis and statistical software Stata 10.0 (Stata Corp LP). A descriptive analysis was performed. Association of the results of the stress test and volume was studied by the  $\chi^2$  statistic. A statistical significance of 0.05 was considered.

### Results

In total 297 women with POP were studied. The average age was 64.61 (10.19) years (range 20-85 years), mean parity 2.71 (1.29) (range 0-9) and mean body mass index (BMI) was 26.62 (3.38) (range 19- 36). Table 1 shows the distribution of these 297 women by degree of the descent for each compartment, according with the ICS-IUGA POP-Q.

	Anterior		Middle		Posterior	
	n	%	n	%	n	%
<b>Grade IV</b>	48	16.16	39	13.13	8	2.69
<b>Grade III</b>	158	53.2	111	37.37	25	8.42
<b>Grade II</b>	64	21.55	97	32.66	47	15.82
<b>Grade I</b>	15	5.05	34	11.45	107	36.03
<b>No prolapse</b>	9	3.03	11	3.7	100	33.67

**Table 1.** Of the 297 women, 99 (33.3%) reported SUI symptoms in both questionnaires and 92 (92.9%) of them, had a positive cough stress test, in at least one of the positions. Of the 297, we found 198 (66.7%) women without symptoms of SUI, of these 60 had a positive stress test, which means we detected an occult SUI (OSUI) in 20% of women with POP when evaluated preoperatively with a systematic stress test.

Table 2 summarizes for each group (with/without symptoms), the positive cases for each separate stress test and the percentage of the total positive cases identified by each position (or combination of positions). In the group with POP and associated symptoms, leakage caused by cough was demonstrated without POP reduction only in half of the patients. The individual tests which detected a higher percentage of patients with OSUI, were those using a vaginal ring pessary. The combination of the two positions using a pessary, and the reduction of POP with a speculum, is the more effective strategy for detecting leakage with effort in women with advanced POP.

	Without SUI symptoms		With SUI symptoms	
	n	%	n	%
<b>a) No reduction and standing</b>	7	11.67	49	<b>53.26</b>
<b>b) No reduction semilithotomy</b>	9	15	43	46.74

<b>c)Speculum semilithotomy</b>	45	75	74	80.43
<b>d)Pessary semilithotomy</b>	46	<b>76.67</b>	76	<b>82.61</b>
<b>e)Pessary and standing</b>	47	<b>78.33</b>	71	<b>77.17</b>
<b>(c) + (d)</b>	55	91.67	86	93.48
<b>(c) + (e)</b>	56	93.33	88	95.65
<b>(d) + (e)</b>	54	90	81	88.04
<b>(c) + (d) + (e)</b>	59	<b>98.33</b>	90	<b>97.83</b>

**Table 2:** Number of cases of SUI identified using each test. % are calculated over the total positive cases for each group (60 in asymptomatic, 92 in symptomatic women).

The median volume in which the test was performed was 270 ml (range 32-930 ml.). The percentage of detected cases in asymptomatic women with pre-mictional bladder volumes under 200ml is significantly lower than that found for volumes  $\geq 200$ ml (Table 3)

	Without SUI symptoms				With SUI symptoms			
	Volume			p	Volume			p
<b>Stress test</b>	<b>&lt;200ml</b>	<b><math>\geq 200</math>ml</b>	<b>Total</b>		<b>&lt;200ml</b>	<b><math>\geq 200</math>ml</b>	<b>Total</b>	
negative	33	72	105	<b>0,046</b>	1	6	7	0,541
positive	6	34	40		16	49	65	
Total	39	106	145		17	55	72	

**Table 3.** Association of the result of the stress test and pre-mictional volume for women without and with symptoms (chi2)

#### Interpretation of results

Prolapse reduction is not only useful to detect OSUI; without prolapse reduction, the stress test was positive only in a half of the symptomatic patients.

Stress test performed in women with an advanced POP, reduced with a speculum in semilithotomic position and after repeated with a pessary, both in semilithotomic position and standing, is the strategy that evidences a higher number of patients with a positive cough stress test, both in symptomatic and asymptomatic patients.

Bladder volume during cough stress test plays a role in the detection of incontinence in asymptomatic women.

#### Concluding message

In women with advanced POP, with or without symptoms of SUI, the combination of different methods for the detection of SUI with POP reduction, is the strategy with a higher diagnostic power. A high bladder volume during the stress test is a key factor for the detection of OSUI.

#### References

1. España M, Fillol M, Pascual MA, Rebollo P, Prieto M. Validación de la versión en español del cuestionario "Epidemiology of Prolapse and Incontinence Questionnaire-EPIQ". Actas Urol 2009; 33 (6): 646-653.
2. España P, Rebollo P, Puig M. Validación de la versión española del ICIQ-SF. Un cuestionario para evaluar la incontinencia urinaria. Med Clin (Barc) 2004; 122: 288-292.

#### Disclosures

**Funding:** This study was funded by Astellas Pharma **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Research Ethics Committee of Hospital Clinic of Barcelona. **Helsinki:** Yes **Informed Consent:** Yes