

# COEXISTENT OVERACTIVE-UNDERACTIVE BLADDER (COUB) SYNDROME: A MULTICENTER ITALIAN STUDY

## Introduction

Coexistence of overactive-underactive bladder was described for the first time in 2019 as a unique real clinical syndrome by International Consultation on Incontinence research society.

**Coexistent overactive-underactive bladder (COUB)** is different from single overactive bladder (OAB) and underactive bladder (UAB). Literature lacks in details about characteristics of population affected.

## Aims of the study

**Primary aim:** creation of a database including all personal and pathological data of COUB.

**Secondary aims:** identification of predictive clinical factors for early detection and the role of urodynamic test

## Methods and Materials

Many Italian centers were involved from **January to December 2020 in a multicenter retrospective study.**

**Inclusion criteria;** clinical evidence of coexistence of OAB symptoms (urgency/frequency/urgency urinary incontinence) + UAB symptoms/signs (sensation of incomplete bladder emptying and/or postvoid residual [PVR] >100 ml and/or Qmax ≤12 ml/s on uroflowmetry in both men and women).

Age and sex of patients, aetiology, BMI, personal history, time of diagnosis, parity in women, urinary tract infection rate, sexual activity, previous gynecological surgery, presence and stage of pelvic organ prolapse, stress/urgency urinary incontinence, urodynamic test, medical therapy, intermittent catheterization, advanced treatments data were collected.

Were enrolled a total of **201 patients** that were divided into 2 groups 34 whit neurogenic aetiology and 167 non-neurogenic.

	N=201	Non Neurogenia (N=167)	Neurogenia (N=34)	P Value
<b>Age</b>	61.0 (50.0, 73.0)	62.0 (52.0, 74.0)	50.0 (43.0, 65.0)	<b>0.0004</b>
<b>Gender, n (%)</b>				
Uomo	28 (14%)	11 (7%)	17 (50%)	<b>&lt;0.0001</b>
Donna	173 (86%)	156 (93%)	17 (50%)	
<b>Diabetes, n (%)</b>				
No	196 (98%)	164 (98%)	32 (94%)	0.2
Si	5 (2%)	3 (2%)	2 (6%)	
<b>BMI</b>	25.3 (22.8, 29.0)	25.6 (23.2, 29.0)	21.0 (20.0, 25.0)	<b>0.006</b>
<b>TVU, n (%)</b>				
No	139 (70%)	119 (72%)	20 (59%)	0.12
Si	60 (30%)	46 (28%)	14 (41%)	
<b>Alvo attico, n (%)</b>				
No	130 (66%)	115 (70%)	15 (45%)	<b>0.006</b>
Si	67 (34%)	49 (30%)	18 (55%)	
<b>Dispareunie, n (%)</b>				
No	81 (47%)	66 (40%)	15 (52%)	0.6
Si	91 (53%)	77 (54%)	14 (48%)	
<b>Dispareunie, n (%)</b>				
No	104 (85%)	85 (84%)	19 (90%)	0.5
Si	18 (15%)	16 (16%)	2 (10%)	
<b>PCOM, n (%)</b>	0 (0.0)	2 (1.3)	0 (0.0)	<0.0001
<b>RPMA, n (%)</b>	77 (50, 120)	50 (50, 150)	145 (90, 229)	0.0002
<b>Qmax, n (%)</b>	15 (10, 22)	17 (11, 23)	10 (7, 15)	<b>&lt;0.0001</b>
<b>Stress test, n (%)</b>				
Negativo	148 (76%)	118 (73%)	30 (88%)	0.058
Positivo	48 (24%)	44 (27%)	4 (12%)	
<b>STADIO POP-Q, n (%)</b>				
0	67 (42%)	36 (28%)	33 (100%)	<b>&lt;0.0001</b>
1	36 (23%)	36 (28%)	0 (0%)	
2	37 (23%)	37 (29%)	0 (0%)	
3	17 (11%)	17 (13%)	0 (0%)	
4	1 (1%)	1 (1%)	0 (0%)	
<b>SUI dopo riduzione manuale prolasso, n (%)</b>				
Assente	79 (83%)	71 (80%)	8 (80%)	0.2
Presente	18 (19%)	18 (20%)	0 (0%)	
<b>URGE INCONT, n (%)</b>				
Assente	118 (59%)	105 (63%)	13 (48%)	<b>0.008</b>
Presente	83 (41%)	62 (37%)	21 (62%)	

## Results

**Neurogenic group** showed lower mean age at diagnosis than other group (p 0.0004), higher rate of urgency urinary incontinence (p 0.008) and constipation (p 0.006), lower Qmax (p 0.0001), higher PVR (p 0.0002). The **non-neurogenic group** (mostly women, p 0.001) presented a higher mean BMI (p 0.006).

**Medical therapy** (alpha-blockers, antimuscarinics, mirabegron and combinations) had good efficacy rate in 68% of patients (no statistically significant difference between the 2 groups).

Mirabegron achieved the best results either alone and in combination and is recommended as the first line for treatment. **Intradetrusorial injection of botulinum toxin** performed excellently on OAB, but also in mixed cases; **sacral neuromodulation** had better results in non-neurogenic group.

The neurogenic group revealed higher rate of self-catheterism (p 0.002). Urodynamic test was performed in 143 patients with diagnosis of detrusorial overactivity (DO) (50.3%), detrusor underactivity (DU) (38.5%), coexistence of DO+DU (15.4%), obstruction (46.1%).

**Predictive factors** by multivariate analysis were lower Qmax, higher PVR and lower rate of POP in women (p 0.0002; p 0.05; p 0.04 respectively).

	No treated patients	No improvement (%)	OAB improvement (%)	UAB improvement (%)	OAB + UAB improvement (%)
<b>Medical therapy</b>	12	8.3 (1)	0	75 (9)	16.7 (2)
Alpha-blockers	64	21.9 (14)	59.3 (38)	0	18.8 (12)
Antimuscarinics	27	14.8 (4)	18.5 (5)	0	66.7 (18)
Mirabegron	10	50 (5)	0	0	50 (5)
Alpha-blockers + Antimuscarinics	5	40 (2)	0	20 (1)	40 (2)
Alpha-blockers + Mirabegron	12	0	58.3 (7)	0	41.7 (5)
Intravesical Botulinum toxin	11	9.1 (1)	0	18.2 (2)	72.7 (8)
Sacral neuromodulation	2	0	0	0	100 (2)
Tibial nerve stimulation	116	23.3 (27)	38.8 (45)	0	37.9 (44)
<b>OAB treatment</b>	78	16.7 (13)	0	26.9 (21)	56.4 (44)
<b>Overall treatment</b>	59	23.7 (14)	<b>76.3 (45)</b>	-	-
OAB	21	0	-	<b>100 (21)</b>	-
UAB	57	22.8 (13)	-	-	<b>77.2 (44)</b>

Diagnosi	N (%)	N (%)	N (%)
DO solo	47 (36.7)	3 (20)	50 (34.9)
DU solo	20 (15.6)	3 (20)	23 (16.1)
DO+DU	17 (13.3)	5 (33.3)	22 (15.4)
Totali DO	64 (50)	8 (53.3)	72 (50.3)
Totali DU	37 (28.9)	8 (53.3)	45 (31.5)
No DO/DU	44 (34.4)	4 (26.7)	48 (33.6)

	N (%)	UAB coesistenza (N=133)	UAB coesistenza (N=133)	UAB coesistenza (N=133)	P Value
<b>RPMA, n (%)</b>	50 (50, 150)	50 (50, 150)	150 (50, 200)	0.057	
<b>Stress test, n (%)</b>	17 (10, 22)	18 (11, 23)	10 (6, 17)	<b>0.0002</b>	
<b>Stress test, n (%)</b>					
Negative	109 (79%)	79 (78%)	29 (65%)	0.2	
Positive	38 (27%)	25 (24%)	13 (35%)		
<b>STADIO POP-Q, n (%)</b>					
0	42 (33%)	28 (28%)	14 (54%)	<b>0.040</b>	
1	33 (26%)	25 (25%)	8 (31%)		
2	34 (27%)	32 (32%)	2 (8%)		
3	17 (13%)	15 (15%)	2 (8%)		
4	1 (1%)	1 (1%)	0 (0%)		

## Conclusions

**COUB is not the simple combination of both syndromes,** and a specific treatment of the pre-dominant symptoms is recommended. COUB has not (by far) any predictive characteristics and always should be treated, often in combination therapy.

**Urodynamic test** really confirmed the coexistence of DO + DU in 15.4% of cases only, and it is recommended in doubtful situations or in patients with no response to first line treatment.

## REFERENCE

Is coexistent overactive-underactive bladder (with or without detrusor overactivity and underactivity) a real clinical syndrome?

ICI-RS 2019. NeuroUrol Urodyn. 2020 Jul;39 Suppl 3:S50-S59. doi: 10.1002/nau.24311