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Ordaz G[1], Avargues A[1], Arlandis S[1], Gallego A[1], Plaza B[1], Martinez-Cuenca E[1]
*1. La Fe University Hospital*

# IDIOPATHIC OVERACTIVE BLADDER; PREVALENCE OF UNDERLYING NEUROLOGICAL DISEASE AND ITS URODINAMYC PROFILE

Hypothesis / aims of study
To asses the prevalence of undiagnosed neuropathology in patients with theoretical idiopathic overactive bladder and define a possible characteristic urodinamyc profile for each diagnosis.

Study design, materials and methods
Retrospectivestudy performed in our urodynamic department between 2001 and 2010. Patients with diabetes mellitus, prostate hyperplasia, urinary infection, previously diagnosed neurological conditions, bladder, urethra or prostate previous surgery or neoplasm, abnormal anatomical findings in the urinary tract, renal transplantation, and urethral stricture were excluded. Finally a total of 182 patients were included. age, gender, date of US, date of neurological diagnosis, bladder compliance, maximum cystometric capacity (MCC), volume at first involuntary contraction (VIC), normal bladder sensation, maximum detrusor pressure during an involuntary contraction, detrusor pressure in maximum flow rate (PDQmax), opening detrusor pressure, maximum flow rate (Qmax), average flow rate, residual volume (RV), cavernous reflex, perineal sensation, bladder-sphincter synergy and bladder contraction index (BCI) were registered.

Results
Global descriptive outcomes are shown in table 1, whereas descriptive of neurological diagnosis are show on table 2. We created five groups to undergo statistical analysis; spinal cord pathology (1), brain organic pathology (2), Parkinson syndrome (3), Alzheimer dementia (4) against idiopathic (5) using Fisher, and Anova tests.

| Neuropathological diagnosis | Negative | 108 (59,3%) |
| | Positive | 74 (40,7%) (33,24-48,07)* |
| Age | Mean | 57,8 (55,84-59,74)* |
| Gender | Men | 43 (23,62%) |
| | Women | 139 (76,4%) |
| Delay of neurological diagnosis since US | Months | 37 (22,80-52,82)* |
| Total sample | Patients | 182 |

Table 1. *95% confidence interval.

| Diagnosis | Spinal cord pathology 48 (65,8%): | |
| | Lumbar | 33 (45,2%) |
| | Cervical | 6 (8,2%) |
| | Thoracic | 4 (5,5%) |
| | Lumbocervical | 1 (1,4%) |
| | Lumbothoracic | 3 (4,1%) |
| | All | 1 (1,4%) |
| | Cerebral organic pathology | 12 (16,2%) |
| | Parkinson Syndrome | 2 (2,7%) |
| | Alzheimer | 7 (9,4%) |
| | Others | 5 (6,7%) |
| Gender | Men | 19 (25,7%) |
| | Women | 55 (74,3%) |
| Age | Mean | 54,81 (49,93-59,68)* |

Table 2. *95% confidence interval

ANOVA results. Table 3.

| Variable | Groups | | p Value |
|---|---|---|---|
| AGE (years) | Idiopathic | 55,01 | |
| | Spinal cord | 50,31 | 0,93 |
| | Cerebral organic | 64,28 | 0,29 |
| | Parkinson | 60,01 | 0,36 |
| | Alzheimer | 74,50 | **< 0,001** |
| Bladder complicance | Idiopathic | 90,60 | |
| | Spinal cord | 41,75 | 0,43 |
| | Cerebral organic | 137,06 | 0,97 |
| | Parkinson | 195,12 | 0,13 |
| | Alzheimer | 24,07 | 0,72 |
| MCC (mL) | Idiopathic | 303,68 | |
| | Spinal cord | 285,48 | 0,53 |
| | Cerebral organic | 237,75 | 0,63 |
| | Parkinson | 166,12 | **0,036** |
| | Alzheimer | 340,86 | 0,90 |
| VIC | Idiopathic | 167,19 | |

| | | | |
|---|---|---|---|
| (mL) | Spinal cord | 163,48 | 0,97 |
| | Cerebral organic | 123,10 | 0,94 |
| | Parkinson | 105,00 | 0,71 |
| | Alzheimer | 240,86 | 0,69 |
| Normal bladder sensation (mL) | Idiopathic | 194,43 | |
| | Spinal cord | 168,64 | 0,52 |
| | Cerebral organic | 164,42 | 0,95 |
| | Parkinson | 132,50 | **< 0,001** |
| | Alzheimer | 192,67 | 0,99 |
| Max. detrusor pressure During an IC (cmH2O) | Idiopathic | 48,95 | |
| | Spinal cord | 44,79 | 0,99 |
| | Cerebral organic | 45,92 | 0,99 |
| | Parkinson | 37,50 | 0,66 |
| | Alzheimer | 29,57 | 0,34 |
| Opening detrusor pressure (cmH2O) | Idiopathic | 41,78 | |
| | Spinal cord | 40,06 | 0,99 |
| | Cerebral organic | 52,64 | 0,99 |
| | Parkinson | 47,00 | 0,99 |
| | Alzheimer | 26,00 | 0,15 |
| PDQmax (cmH2O) | Idiopathic | 40,13 | |
| | Spinal cord | 42,03 | 0,92 |
| | Cerebral organic | 43,20 | 0,99 |
| | Parkinson | 77,12 | 0,91 |
| | Alzheimer | 30,75 | 0,98 |
| Q max (mL/s) | Idiopathic | 22,35 | |
| | Spinal cord | 19,70 | 0,50 |
| | Cerebral organic | 18,05 | 0,93 |
| | Parkinson | 12,12 | **<0,001** |
| | Alzheimer | 23,17 | 0,99 |
| Average flow rate (mL/s) | Idiopathic | 37,62 | |
| | Spinal cord | 26,96 | 0,92 |
| | Cerebral organic | 65,39 | 0,99 |
| | Parkinson | 10,35 | **< 0,001** |
| | Alzheimer | 12,12 | 0,004 |
| RV | Idiopathic | 49,45 | |
| | Spinal cord | 49,45 | 0,33 |
| | Cerebral organic | 19,17 | 0,97 |
| | Parkinson | 99,12 | **< 0,001** |
| | Alzheimer | 24,07 | 0,72 |
| BCI | Idiopathic | 225.17 | |
| | Spinal cord | 173,30 | 0,92 |
| | Cerebral organic | 366,22 | 0,99 |
| | Parkinson | 128,75 | 0,17 |
| | Alzheimer | 85,20 | **0,01** |

No statistic differences were found in reflex or perineal-cutaneous exploration, synergy or sex.

Interpretation of results
Significant low BCI in Alzheimer group could be due to older age as it is also significant. Parkinson outcomes such as low bladder capacity, low volumes for normal bladder sensation, low flow rates with high RV although significant, should be interpreted with caution as the sample is too small (n=2).Compressive spinal slipped disc, was the most frequent diagnosis.

Concluding message
There is no clear urodynamic profile in this study that would predict underlying neurological disease, whereas there is a significant high prevalence in our sample; 40,7% (33,24-48,07).