

COMPARISON BETWEEN UROFLOWMETRY AND INTERNATIONAL PROSTATE SYMPTOMS SCORE IN MALES WITH LOWER URINARY TRACT SYMPTOMS

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INTRODUCTION, AIM OF THE STUDY

International Prostate Symptoms Score (IPSS) is a very common questionnaire used for the office evaluation of the lower urinary tract symptoms (LUTS). Uroflowmetry (UF) is a very useful urodynamic tool to assess patient's micturition. The use of both IPSS questionnaire and UF is the main part of the first clinical assessment in males reporting LUTS. Aim of the study was to assess the concordance between IPSS questionnaire and UF outcomes in males with LUTS.

MATERIALS AND METHODS

This is an observational, prospective multicenter study involving two Urological Departments from September 2016 to December 2017. All males who performed UF for LUTS were enrolled. The following data were recorded: demographic characteristics, urological history, IPSS, and Liverpool nomograms. The UF and IPSS parameters were correlated as following: (i) peak-flow (Qmax) at the UF and IPSS total score; (ii) Qmax threshold 10 mL/s and IPSS total score; (iii) Qmax and IPSS stratified in three classes of LUTS severity: 0-7 moderate urinary symptoms, 8-19 fair urinary symptoms, 20-35 severe urinary symptoms; (iiii) Qmax and each IPSS domain; (iiiii) Total IPSS score and each IPSS domain compared to Qmax stratified < 5mL/s, Qmax 6-7 mL/s, Qmax 8-10mL/s, Qmax 11-12mL/s, Qmax 13-15mL/s, Qmax >15 mL/s; (iiiii) Liverpool nomograms and IPSS. For the statistical analysis we used Mann-Whitney test, Kruskal-Wallis test, and Bravais-Pearson correlation test.

RESULTS

Data were collected on 461 UF and 442 IPSS questionnaires. The mean age of the patients was 70.95 years (+/- 8.06). The strength of statistical correlation (Bravais-Pearson's r) between Qmax to IPSS total score and each IPSS domain were generally weak. In IPSS total score, in higher classes of LUTS severity, and in IPSS domain regarding intermittency and weak stream was found slightly higher correlation strength (table 1-2). Tables 3-4 report the correlation between Qmax and IPSS stratified for LUTS severity, and between Qmax threshold of 10mL/s and IPSS total score. These findings showed that median IPSS total score was associated to population with Qmax higher than 10 mL/s (p<0,001). Moreover, the decrease of IPSS total score corresponded to Qmax increase. Stratifying Qmax, we found that mean IPSS total score and mean IPSS score in the domains of weak stream and quality of life decreased with Qmax increasing (table 5). No significant association was found between Liverpool nomograms and IPSS. Moreover, there was only a very little difference in mean IPSS scores between normal and not normal UF at Liverpool nomograms analysis (Table 6).

INTERPRETATION OF RESULTS

Our data showed only a weak inverse correlation between Qmax and IPSS questionnaire. However, due to the increase of Qmax and the consequent decrease of IPSS, higher severity classes of LUTS at IPSS were associated to lower Qmax. Therefore, Qmax seems well correlated to severity of LUTS with an inversely related association. The IPSS domain of weak stream was the more correlated to Qmax. Liverpool nomograms did not correlate to IPSS questionnaire and therefore this UF analysis was poor consistent with LUTS.

CONCLUSIONS

We found that patients with more severe urinary symptoms at IPSS questionnaire showed also lower Qmax at UF. Therefore, LUTS reported at IPSS questionnaire seems concordant respect to the findings of UF. UF and IPSS appear accordant and reliable parameters in the evaluation of patients with LUTS and voiding dysfunction. The UF analysis with Liverpool nomograms was poor concordant with LUTS.

Table 1: Bravais-Pearson correlation between Qmax and IPSS

	IPSS1	IPSS2	IPSS3	IPSS4	IPSS5	IPSS6	IPSS7	IPSS8	IPSStot
r =	-0.16	-0.04	-0.22	-0.09	-0.28	-0.15	-0.08	-0.12	-0.22

Table 2: Bravais-Pearson correlation between Qmax and IPSS classes of LUTS severity

	IPSS 0-7	IPSS 8-19	IPSS 20-39
r =	-0.09	-0.26	-0.27

Table 3: Correlation between Qmax and IPSS classes of LUTS severity.

	IPSS 0-7	IPSS 8-19	IPSS 20-39	p
Qmax (media)	15.8	13.7	11.7	
Qmax (mediana)	14.0	12.5	10.0	<0.001*

Table 4: Correlation between Qmax threshold of 10mL/s and IPSS total score

Qmax	Group 1 (≤ 10 mL/sec)	Group 2 (>10 mL/sec)	p
N° pts	134	308	
IPSS tot (median)	10.0	7.0	<0.001*

Table 5: Correlation between Qmax levels and IPSS.

IPSS	Q max, ml/sec					
	≤5 (23 pts)	6-7 (41 pts)	8-10 (70 pts)	11-12 (50 pts)	13-15 (90 pts)	15 (168 pts)
1 (mean)	1.65 ± 1.82	1.66 ± 2.00	1.83 ± 1.84	1.52 ± 1.78	1.16 ± 1.60	1.00 ± 1.51
1 (median)	1	1	1	1	0.5	0
2 (mean)	1.48 ± 1.41	1.83 ± 1.69	1.90 ± 1.69	1.38 ± 1.44	1.43 ± 1.49	1.48 ± 1.49
2 (median)	1	1	1	1	1	1
3 (mean)	1.35 ± 1.58	1.76 ± 1.98	1.47 ± 1.79	1.00 ± 1.48	1.24 ± 1.60	0.76 ± 1.25
3 (median)	1	1	1	0	1	1
4 (mean)	1.00 ± 1.54	1.32 ± 1.79	0.89 ± 1.44	0.80 ± 1.43	0.78 ± 1.22	0.85 ± 1.38
4 (median)	0	0	0	0	0	0
5 (mean)	2.39 ± 1.85	2.46 ± 1.86	2.39 ± 1.85	1.70 ± 1.75	1.66 ± 1.49	1.27 ± 1.52
5 (median)	2	2	2	1	1	1
6 (mean)	0.91 ± 1.53	0.98 ± 1.49	0.79 ± 1.32	0.66 ± 1.21	0.50 ± 1.03	0.43 ± 1.01
6 (median)	0	0	0	0	0	0
7 (mean)	2.26 ± 1.36	2.22 ± 1.47	2.04 ± 1.33	2.10 ± 1.45	2.10 ± 1.35	1.81 ± 1.41
7 (median)	2	2	2	2	2	2
8 (mean)	2.35 ± 1.53	2.59 ± 1.77	2.37 ± 1.62	2.02 ± 1.63	2.02 ± 1.48	1.90 ± 1.40
8 (median)	3	3	3	2	2	2
Tot (mean)	11.04 ± 6.79	12.22 ± 8.34	11.30 ± 7.99	9.16 ± 6.31	8.87 ± 6.62	7.60 ± 6.12
Tot (median)	10	9	10.5	8	7.5	6

Table 6: Comparison between Liverpool nomograms and IPSS.

	Liverpool ≤25, (127 pts)		Liverpool > 25, (32 pts)		P of mean (t student)	P of median (Mann-Whitney test)
	Mean	Median	Mean	Median		
IPSS 1	1.28 ± 1.68	0	1.31 ± 1.87	0	>0.5	>0.5
IPSS 2	1.62 ± 1.53	1	1.66 ± 1.58	1	>0.5	>0.5
IPSS 3	1.04 ± 1.60	0	0.97 ± 1.66	0	>0.5	>0.5
IPSS 4	0.78 ± 1.36	0	0.97 ± 1.62	0	>0.5	>0.5
IPSS 5	1.66 ± 1.75	1	1.97 ± 1.98	2	>0.5	>0.5
IPSS 6	0.51 ± 1.07	0	0.38 ± 0.87	0	>0.5	>0.5
IPSS 7	1.86 ± 1.28	2	2.19 ± 1.40	2	>0.5	>0.5
IPSS 8	1.92 ± 1.54	2	2.13 ± 1.84	2.5	>0.5	>0.5
IPSS tot	8.70 ± 6.81	7.0	9.44 ± 6.57	8	>0.5	>0.5