

*Abstracts from the 29th Annual Meeting of
the International Continence Society*

1

K. Höfner, M. Oelke, T. Wagner, J. Mebert, U. Jonas
Department of Urology, Hannover Medical School, Hannover, Germany
COUGH LEAK POINT PRESSURE (CLPP) - DEVELOPMENT OF A NEW METHOD FOR ROUTINE USE AND TESTING OF CLINICAL RELIABILITY

Aims of Study

The measurement of Leak Point Pressure (LPP) has become an interesting new method in the diagnosis of stress urinary incontinence (SUI). Despite of a wide routine use standardisation is lacking. The correlation with clinical measures of incontinence severity or parameters of the urethral pressure profile is controversial. Dependence of LPP on catheter size, bladder volume and the variability of the interactive action of the individual investigator are the principal limitations. Therefore, a development of a new computerized measuring technique of LPP for routine use in daily urodynamic practice, testing of reproducibility and clinical reliability in a pilot study was strived for.

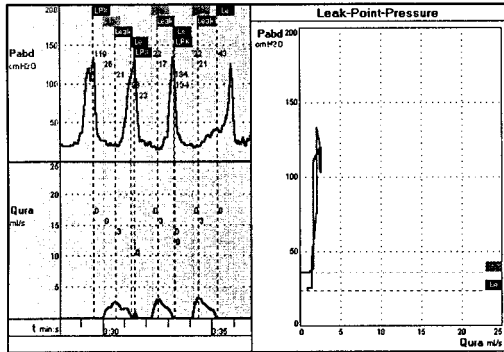
Methods

Technical development: Instead of the Valsalva maneuver, coughing should be used as the principal tool for abdominal pressure rise. Additionally, the parameters of the corresponding leak should be recorded simultaneously. Therefore, the investigator-independent, computer-aided recording of fast signals was necessary. The software was developed on the basis of the Ellipse/AUDACT-System (Andromeda Medical Systems, Taufkirchen, Germany). *Pilot study of reproducibility and clinical reliability:* In 30 females with SUI (mean age 59 years) urodynamic measurements including cystometry, urethral pressure profiles under rest (RUPP) and stress conditions (SUPP) and CLPP (minimal in duplicate) were performed. Statistical analysis included correlation analysis of CLPP and Qmax/volume of corresponding leak with parameters of RUPP and SUPP including pressure transmission ratio, clinical incontinence grade and numbers of pads/24h.

Results

Measurement: To realize minimal invasivity in routine practice, CLPP-measurement uses only abdominal pressure without transurethral catheter in combination with simultaneous recording of leak parameters by a uroflowmeter. The routine measurements performed by several not specifically trained investigators show an uncomplicated applicability in clinical practice.

Software: Simultaneous recording of pressure and flow is performed user-independent. The inevitable time delay of the signals is corrected automatically.



The presentation is performed as pressure-flow (p/q)-plot (Fig.). CLPP is defined as the corresponding pressure at Leak-start.

Clinical pilot study: CLPP and all other measured parameters were reproducible in repeated measurements (twice to thrice). The mean differences were not significant: CLPP (p=.617), Leak-end-pressure (p=.475), Leak-Qmax (p=.413) and time delay of p and q (p=.136) (Wilcoxon test). Overall there was a

strong correlation between CLPP and Leak-Qmax (corr.-coeff. .620, p<.0001), however there is individual variability of Leak-Qmax independent of CLPP. The clinical correlations of CLPP and Leak parameters show that only Leak-Qmax correlates well with clinical incontinence grade or number of pads/24 h in contrast to UPP-variables and pressure transmission (Table).

	incontinence - grade		pads/24h	
	corr.-coeff.	p	corr.-coeff.	p
functional length	.101	.655	-.024	.911
max. closure pressure	.175	.437	-.229	.270
closing area	.144	.523	-.149	.356
transmission at % functional length				
20	.364	.151	.123	.617
30	.215	.424	.001	.996
40	.142	.601	.033	.896
50	.378	.149	.191	.432
60	-.006	.980	.055	.816
70	-.089	.783	-.245	.378
80	-.293	.290	-.125	.621
CLPP	-.143	.516	-.036	.911
Leak-Qmax	.477	.021	.419	.033

Conclusions

CLPP - measurement was developed as a new tool in the diagnosis of SIU. The development included changes in measurement technique to realize minimal invasivity and a new software for simultaneous recording of fast pressure/flow signals while coughing. The system allows standardisation due to the user-independence. The clinical use is easy

and reproducible. Only the new defined Leak-Qmax correlates with the clinical severeness of SIU.