The myth of prostate symptom scores, a look at the future

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Background: I-PSS symptom score is essentially based on psychometric measurements and analysis of subjective parameters; namely symptoms; and since symptoms are not correlated to objective parameters by conventional predictive statistical models.

Hereby, we are exploring a modality, relatively new to urology, in the evaluation of patients with LUTS and the prediction of BOO

Methods: Since May 1997, 460 patients were prospectively included in this study, age range is 41-88 (mean: 60.4 ± 9.4 years) of patients with LUTS.

All patients had the following investigations: Clinical examination, including DRE and neuro-urologic examination, Serum total PSA, Free flow rate, TRUS, OPD cystoscopy. Filling and voiding cystometry, with interpretation of the pressure flow relation using the model of Lin.PURR. I-PSS questionnaire: A validated standardized physician-administered Arabic translation was used.

A specially designed feed forward back propagation neural network was used. The input layer included 7 neurons and the hidden layer consisted of 15 neurons.

The output layer consisted only of 3 neurons. Unsupervised followed by supervised training was carried out for the training set. Training set composed of the records of 300 patients, the number of records in the testing set is 160. The input consisted of the scores of the elementary questions of the I-PSS and the output was rated: obstructed, non- obstructed and equivocal

The network output was measured versus the results of pressure flow study.

Results: In the training set, the diagnostic accuracy of obstruction is 94%, while in the testing set, the accuracy of the network in predicting obstruction based on questions only is 87%.

Conclusion: The ANN model used is helpful in predicting BOO with a good percentage of accuracy. This might be a good substitute for the use of more invasive urodynamics. Further modifications and validation of the model are not only pertinent but also essential.