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IS VIDEO-URODYNAMIC A VALUABLE TOOL IN UROLOGICAL EVALUATION OF NEUROGENIC PATIENTS? TEN YEARS OF ROUTINE EXPERIENCE.

Hypothesis / aims of study

Various neurologic diseases are responsible for voiding dysfunction. Depending on the localization of the lesion in nervous system, symptoms and clinical features can be different. Chronic urine retention, vesico-uretheral reflux with severe kidney damage and functional bladder decompensation, may be the consequences of an untreated neurogenic bladder function. We reviewed our data taken from video-urodynamic evaluation in neurogenic patients to describe advantages of this tool in their evaluation and follow-up. <u>Study design, materials and methods</u>

Since 1994 to 2004 more than 250 neurogenic patients (age from 4 to 79 years) came to our observation and have been submitted to a videourodynamic study due to neurogenic voiding dysfunction due to various neurologic diseases (multiple sclerosis, parkinsonsism and idiopathic Parkinson, ataxia, spondilopathy, spinal trauma, vascular encephalopathy etc). A Dantec Duet Medtronic instrument was used to performed videourodynamic assessment while contrastography was executed by a General Electric Digital Prestilix apparatus. Procedure started in lying position with a video-cvstomanometrv with simultaneous concentric needle electromyography. In a second phase patients able to stand up performed a video-urodynamic study (with pressure/flow phase) in standing position with superficial electromyography, while patients unable of standing, perform this following investigation in sitting position.

<u>Results</u>

All the pts presented a good compliance during the procedure. Medium time of video-urodynamic execution was 64 min (+/-18,8). Complication rate after the test was not significant (infection rate <0,8%). Instrumental urodynamic data, supported by electromyographic findings, allowed to diagnose in all the neurogenic dysfunctional urodynamic (bladder patients patterns over/underactivity, detrusor-sphincteric synergia/dyssinergia) and consequently to identify or confirm neurologic lesional site. Digital fluoroangiographic method allowed morphologic dynamic studies of very high quality. The studies perform optimal correlation between clinic symptoms, physical examination (urological and neurological), neurophysiological data (coming from neurophysiological investigations as PES, PEV, ENG, encephalic MR), and urodynamic features.

Simultaneous radiologic evaluation allowed to assess anatomic and morphologic damage to the bladder and urethra consequent to neurogenic dysfunction and the crucial involvement of upper urinary tract: presence of bladder diverticula, bladder ernia, vesico-uretheral refluxes (secondary to detrusor overactivity), proximal urethra ectasia or urethro-prostatic refluxes (secondary to detrusor-sphincteric dyssinergia), open bladder neck (secondary to a sympathetic fibres damage). VLPP determination allowed the perfect performing of VLPP test with high accuracy in the determination of presence of an intrinsic sphincteric deficiency (somatic damage). In patients referring fecal incontinence baritate contrast medium has been introduced preliminary to the urodynamic investigation to evaluate during stress manouvers severity of fecal incontinence.

Interpretation of results

Neurogenic voiding dysfunction can determine significant deterioration of quality of life but it also may cause a severe damage to the kidney with consequent chronic renal failure and limitation of life. A correct functional and anatomic evaluation of the bladder function is essential to: help the identification of the site of neurologic lesion, establish severity of bladder dysfunction, choose the therapeutic approach. Moreover these patients need re-evaluation during the follow-up to assess therapeutic outcome or the necessity to change therapy, and video-urodynamic re-test allows a good comparison thanking to the chance of digitally storing the anatomic findings of the previous studies.

Concluding message

Videourodynamic study is an high-quality diagnostic tool which gives in neurologic patients more data than any other instrumental tools (ultrasound, urodynamic, cystography). It can contribute to a correct neurologic diagnosis suggesting or confirming the level of neurologic lesion; moreover it allows to find out lower and higher urinary tract involment and the severity of it showing morpho-anatomic changes of bladder and urethra secondary to neurogenic damage and their improvement or deterioration during the follow-up. All these data allows the urologist to prevent severe urinary complications, to reduce bladder function deterioration and to preserve patients from kidney failure improving their quality of life with a correct therapeutic approach and followup.