

## SIMULTANEOUS URODYNAMIC DATA RECORDING WITH TWO SETS OF URODYNAMICS –A PROSPECTIVE COMPARATIVE TRIAL.

### Hypothesis / aims of study

Both in congenital and in acquired neurogenic lower urinary tract dysfunction (NLUTD), early diagnosis and treatment is essential as irreversible changes may occur, even if the related neuropathological signs may be normal [1]. This proposition is certainly the same for those with non-neurogenic LUTD. We have reported sphincter overactivity is a cause of urinary frequency or poor/weak flow in patients with lower urinary tract symptoms (LUTS) by means of urodynamic examination using a set of Janus Life-Tech [2, 3]. Can other set of urodynamic equipment, such as MMS or Andromeda, be equivalent to Janus Life-Tech? A prospective comparative trial was carried out in our institution.

### Study design, materials and methods

Conventional urodynamic examination was routinely carried out for patients with LUTS. The patient was lying supine on the table and the transducers for pressures of the bladder, the abdomen, and urethra of patients (Pves, Pabd and Pura, respectively) were linked to appropriate tubes of two sets of urodynamics by way of a Y piece or three-way joint (Fig 1). A needle and a ground cable for electromyogram were connected to cables of the electromyogram unit through the binding post (Fig 2). When both equipments, one main and another subcardinal, were at work, the messages of pressure and potentials were simultaneously recorded. The pump of the main set worked and that of the subcardinal rested. The flow rate of the subcardinal was carefully analogued by pouring water into its flowmeter. Generally, the patient did not receive more intervention and his or her urodynamic parameters simultaneously recorded, could be compared with each other. The equivalence or judgement of fit and unfit could be gained thereafter.

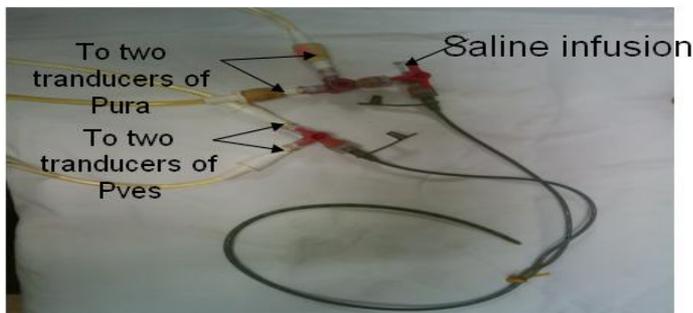


Fig 1

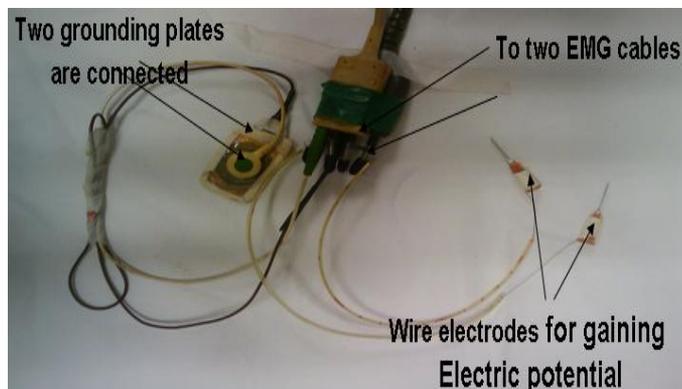


Fig 2

### Results

From December 2010 to December 2011, a total of 700 cases were examined in our institution in this way and got successful results. The patterns of the pressure or potential curves from two sets were the same in average. The examples were pasted below as Fig 3 a-d. The weight of the joint was increased, so sometimes caution should be paid to hold it in avoidance from dropping down.

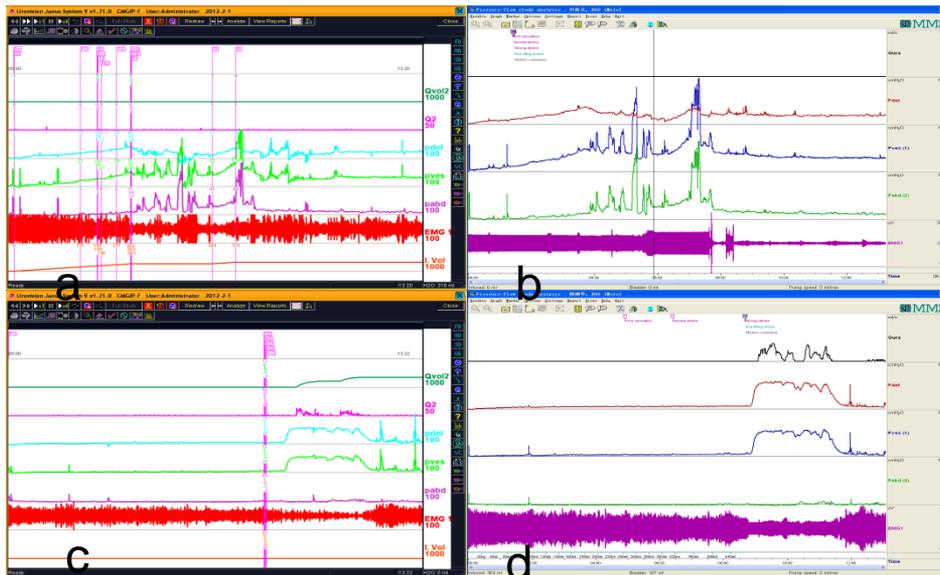


Fig 3

#### Interpretation of results

On account of good design, one could compare the result of newly designed equipments with the golden standard. The electrophysiological data of the lower urinary tract produced by infusion of saline into the bladder (pressure, potential, flow rate and volume) were displayed in the screen synchronously. This way, clinical education of urodynamics by any kind of equipment is available. When something is wrong with one, the alternated one can replenish it.

#### Concluding message

By way of Y piece or three-way joint, physiological parameter data of the human beings were transferred to two or three sets of equipment and simultaneous comparison is possible between different sets. This method could be experienced and used in modern urodynamic laboratory.

#### References

1. 1 Stöhrer M, Blok B, Castro-Diaz D, et al. EAU guidelines on neurogenic lower urinary tract dysfunction. *Eur Urol*, 2009, 56: 81-88
2. 2 Xu DF, Qu CY, Meng H, et al. Dysfunctional voiding confirmed by transdermal perineal electromyography, and its effective treatment with baclofen in women with lower urinary tract symptoms: a randomized double-blind placebo-controlled crossover trial.
3. 3 Qu CY, Xu DF, Wang CZ, Chen J, Yin L & Cui XG. Anal sphincter electromyogram for dysfunction of lower urinary tract and pelvic floor. In: Mizrahi Joseph, edi. *Advances in Applied Electromyography*. Rijeka: InTech, 2011: 161-188. <http://www.intechopen.com/articles/show/title/anal-sphincter-electromyogram-for-dysfunction-of-lower-urinary-tract-and-pelvic-floor>

#### Disclosures

**Funding:** This paper is a retrospective analysis, so ethical comment is not necessary thereafter. We have no funding. This institution is designated as MMS Urodynamic Technology Education Center of Shanghai from 2010. Dr Qu CY is a Life-Tech International Clinical Advisor from 2008. **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics not Req'd:** This paper is a retrospective analysis, so ethical comment is not necessary thereafter. **Helsinki:** Yes **Informed Consent:** Yes