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MRI PELVIC FLOOR FINDINGS IN FEMALES WITH URGENCY URINARY INCONTINENCE

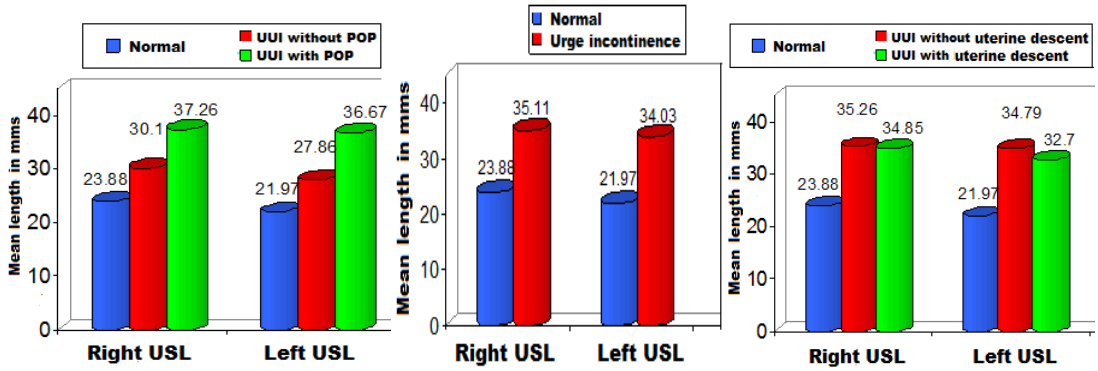
Hypothesis / aims of study

In 1993 in their 'Integral Theory' , **Petros and Ulmsten** assumed that the lax uterosacral ligaments (USLs) may contribute for causing urgency urinary incontinence (UUI) in females due to a lax vagina unable to support the bladder stretch receptors. Many surgical interventions were done for treating female LUTs by repairing the USLs depending on this theory and reporting a high overall cure rate .We tried to to find a correlation between the laxity (length) of the USLs and the UUI in females using the MRI pelvic floor.

Study design, materials and methods

A prospective controlled study was conducted on 68 females (30 cases complaining of UUI diagnosed by history with or without positive urodynamics and 38 normal controls). They were evaluated and included in this study from May 2014 to september 2015. Both groups were of similar demographics (age) and clinical history (parity and previous surgical interventions). Informed consent was obtained from all the volunteers. Evaluation included history, clinical examination, MRI examination(static and dynamic). We compared the USL craniocaudal lengths and the levels of the USL attachments between the study groups.

Results



Interpretation of results

1. By physical examination: 21 patients (70%) had grade 1 pelvic organ prolapse (POP).
2. Comparing the MRI findings , there is significant statistical difference (P <0.01) between the USL length in both groups being longer in the cases. In the cases group: mean length of right USL is 35.11 ± 11 mms (range 18 to 49.5mms) while the left USL is 34.03 ± 11 mms (range 18 to 57mms).In the control group: mean length of rightUSL is 23.88 ± 9 mms (range 9 to 40.5mms) while the left USL is 21.97±9 (range 9 to 45mms).
3. We divided the UUI cases group into 2 subgroups: (with uterine descent [n=11] and without uterine descent [n=19]). We did not find a significant difference between the USL length of the 2 subgroups. We found that both subgroups have longer USLs length than the control group (^{a}p<0.01 relative to control group).
4. We divided the UUI cases group into 2 subgroups (with POP[n=21] and without POP[n=9])**.** We found that UUI patients with POP have longer USLs than those without POP (but p value>0.05). Both subgroups of UUI have longer USLs than the control group (^{a}p <0.05 & ^{aa}p< 0.01 relative to the control group).
5. No relation was found between the length (laxity) of the ligament and the symptoms(duration or severity).
6. Regarding the level of the ligament's caudal origin from the female genital tract : in 78 % of normal females, the USLs originated at a more cranial level , however , in 63.3% of the cases, the ligaments originated at a more caudal level.

Concluding message

We found a correlation between the long (lax) USLs and the UUI but we found no relation between the length of USLs in the cases and their urinary symptoms. There is a downward displacement of the level of the vaginal apex in most of the UUI patients. This may suggest " the lax vagina" as an explanation of the UUI in females .

Our study suggests that the long (lax) USLs may indeed be associated with the UUI itself , and that the USLs may be further longer in patients with pelvic organ prolapse in conjunction with the UUI . This is supported by many researchers who found (using the **Source** MRI) that patients with POP have longer USLs than normal.

Disclosures

Funding: NONE **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Urology department **Helsinki:** Yes **Informed Consent:** Yes