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Kim J S[1], Yoo D H[1], Rho J H[1], Lim D H[2], Rho J[2], Kim C S[2], Cho W J[2]
1. *Kwangju Christian Hospital,* ***2.*** *Chosun University Hospital, Chosun University School of Medicine*

ASSOCIATION OF OVERACTIVE BLADDER AND BIOMARKERS OF INFLAMMATION IN WOMEN WITH URINARY INCONTINENCE

Hypothesis / aims of study

Some lower urinary tract dysfunction (LUTD) may be associated with low-grade infections or inflammation. C-reactive protein (CRP) as general biomarker of acute or chronic inflammation and infection, were elevated in patients with overactive bladder (OAB) in several studies. Urinary incontinence is relatively common in middle age women. So, we investigated the serum biomarkers related acute or chronic inflammation including CRP, erythrocyte sedimentation rate (ESR), and procalcitonin level in women with urinary incontinence.

Study design, materials and methods

One hundred thirteen women underwent mid-urethral sling for urinary incontinence were included in this study. Patients with previous bladder or urethral surgeries, active urinary tract infections, possible neurogenic lesions such as stroke or spinal injury, cancerous diseases, rheumatic diseases and CRP > 2mg/dl were excluded. OAB group was defined when urgency score of overactive bladder symptom score (OABSS) questionnaire is more than two points and total score was more than six points and the others was classified to stress urinary incontinence (SUI) group.

Results

A total of one hundred thirteen women (OAB group: 60, SUI group: 53) were included. The mean age of OAB and SUI group were 55.55±9.10 and 55.40±10.89 years (p=0.936) respectively and the others' characteristics of patients were listed in table1. Among urodynamic parameters, bladder volume at first sensation to void (Vfst), maximal cystometric capacity (MCC), voided urine volume (VUV), and presence of detrusor overactivity (DO) were significant (p<0.05) (Table 2). Serum CRP and ESR levels except procalcitonin level of OAB group were significantly elevated compared with SUI group. However, when comparing depending on presence of DO, there were no significant differences in CRP, ESR and procalcitonin levels between OAB and SUI group (Table 3).

Table 1. Baseline patients' characteristics

Variable	OAB (n=60)	SUI (n=53)	P value
Age (years)	55.55±9.10	55.40±10.89	0.936[a]
BMI (kg/m^2)	24.50±2.27	24.08±3.91	0.489[a]
DM	6 (10.0%)	6 (11.3%)	0.820[b]
HTN	13 (21.7%)	11 (20.75%)	0.906[b]
POP	23 (38.3%)	17 (32.1%)	0.488[b]
Parity	2.45±0.87	2.43±0.97	0.926[a]
Menopause	42 (70.0%)	35 (66.0%)	0.652[b]
Hormone therapy	3 (5.0%)	6 (11.3%)	0.301[c]
Hysterectomy	11 (18.3%)	18 (34.0%)	0.058[b]

Values are given as mean ± standard deviation or n (%)
BMI = body mass index; DM = diabetes mellitus; HTN = hypertension; POP = pelvic organ prolapse
[a] unpaired t-test
[b] χ^2 test
[c] Fisher's exact test

Table 2. Urodynamic parameters and serum CRP level

Variable	OAB	SUI	P value
Q-tip test (degree)	59.50±15.53	58.87±13.54	0.819[a]
Vfst (ml)	177.70±102.16	216.98±57.64	0.012[a]
MCC (ml)	390.85±125.20	465.77±65.56	0.000[a]
VUV (ml)	371.80±133.51	463.72±129.21	0.000[a]
Qmax (ml/sec)	24.58±9.01	25.42±7.59	0.596[a]
RU (ml)	17.50±27.59	11.89±12.26	0.158[a]
DO	33 (55.0%)	5 (9.43%)	0.000[b]
CRP (mg/dl)	0.19±0.17	0.09±0.05	0.000[a]
ESR (mm/hr)	11.85±9.14	6.28±3.18	0.000[a]
Procalcitonin (ng/ml)	0.04±0.01	0.04±0.01	0.973[a]

Values are given as mean ± standard deviation or n (%)
Vfst = bladder volume at first sensation to void; MCC = Maximum cystometric capacity; VUV = voided urine volume; Qmax = maximum flow rate; RU = residual urine volume; DO = detrusor overactivity; CRP = C-reactive protein
[a] unpaired t-test
[b] χ^2 test

Table 3. detrusor overactivity and inflammatory biomarkers

Variable	DO (n=38)	Non-DO (n=75)	P value
CRP (mg/dl)	0.16±0.14	0.13±0.13	0.365
ESR (mm/hr)	10.34±8.08	8.68±7.20	0.288
Procalcitonin (ng/ml)	0.04±0.01	0.04±0.01	0.192

Values are given as mean ± standard deviation
Unpaired t-test
DO = detrusor overactivity; CRP = C-reactive protein, ESR = erythrocyte sedimentation

Interpretation of results
High serum CRP and ESR levels were found in women with OAB compared with pure SUI, but there were no significant differences between DO and inflammatory biomarkers.

Concluding message
Subclinical inflammation might play a role in the pathophysiology of overactive bladder.

References
1. Urology 86:139-144, 2015
2. Int Urogynecol J 23:935-940, 2012
3. Urology 73:950-957, 2009

Disclosures
Funding: none **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Chosun University Hospital Institiutional Review Board **Helsinki:** Yes **Informed Consent:** Yes