

An evaluation of fecal incontinence in women with urinary incontinence

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Abstract. – OBJECTIVE: To investigate the occurrence of and risk factors for fecal and/or gas incontinence in female patients having urinary incontinence.

PATIENTS AND METHODS: 741 consecutive adult female patients presenting with urinary incontinence alone (group 1, n = 700) or urinary incontinence with fecal and/or gas incontinence (group 2, n = 41) were enrolled into the study. As potential risk factors for fecal and/or gas incontinence in this population, the following variables were investigated: age, body mass index, type of urinary incontinence, childbirth history, menopausal symptoms, history of pelvic surgery, neurological disease, diabetes mellitus, tobacco use, constipation, cystocele, rectocele. Quality of life was assessed with the Urogenital Distress Inventory-Short Form (UDI-6) and the Incontinence Impact Questionnaire (IIQ-7).

RESULTS: Of the women having urinary incontinence, 5.5% also had fecal and/or gas incontinence. Associated risk factors were history of difficult delivery, postmenopausal symptoms, history of pelvic surgery and constipation. Fecal and/or gas incontinence was also associated with a lower quality of life in terms of both questionnaires.

CONCLUSIONS: Women have urinary incontinence may have also fecal and/ or gas incontinence. Particularly if they have chronic constipation, postmenopausal symptoms or history of difficult delivery or pelvic surgery they must be evaluated for this additional symptom. So we can treat these patients appropriately and increase their quality of life.

Key Words:

Urinary incontinence, Fecal incontinence, Risk factors.

Note: The study was presented as a poster in “1. Ulusal Kadın ve İşlevsel Üroloji Kongresi”, 3-6 December 2009, Antalya, Turkey.

Introduction

Urinary incontinence, fecal incontinence and pelvic organ prolapse are three major syndromes

which are included in the term of pelvic floor diseases and commonly occur together. In women with other pelvic floor diseases, the incidence of anal incontinence and anal sphincter damage are higher¹. The etiology of fecal incontinence in these patients is still not clear, but usually neuropathic damage during vaginal labor or chronic tension during defecation in patients with constipation are assumed to be the reasons. The higher frequency of fecal and/or gas incontinence in patients with stress urinary incontinence makes us to think about the same etiologic factors for both diseases²⁻⁵.

The aim of our study was to analyze fecal and/or gas incontinence association in women with urinary incontinence; in terms of risk factors such as age, incontinence type, number and type of delivery (caesarian, vaginal), difficult delivery history, postmenopausal symptoms (PMS), postmenopausal duration, pelvic surgery history, body mass index (BMI), accompanying systemic disease, smoking and constipation.

Patients and Methods

Project authorization was given by the Ethics Committee of our faculty. The records of 792 women who administered to our female urology unit between September 2002 and September 2007 and were diagnosed as urinary incontinence have been examined and 741 of them with complete records enrolled into the study. For the diagnosis of incontinence, International Continence Society definitions were used. Group 1 consisted of 700 patients only with urinary incontinence and group 2 consisted of 41 patients with urinary incontinence also have fecal and/or gas incontinence.

Detailed information on type of incontinence, number and type of delivery (caesarian, vaginal), difficult delivery history, postmenopausal symp-

toms (PMS), and on postmenopausal duration, pelvic surgery history (myomectomy, hysterectomy, salpingo-oophorectomy etc.), body mass index (BMI), accompanying systemic disease (diabetes mellitus, Parkinson, Alzheimer, multiple sclerosis, etc.), smoking habit and constipation existence were recorded. Patients were also asked to complete the Urogenital Distress Inventory-Short Form (UDI-6) and Incontinence Impact Questionnaire (IIQ-7) as inventories which quantify the impact of incontinence distress on quality of life (QoL)⁶.

The fecal and/or gas incontinence was assumed according to the anamnesis of the patient as involuntarily release of gas and/or fecal matter.

Rectocele and cystocele detected by physical examination are recorded according to the Pelvic Organ Prolapse Quantification (POPQ) classification⁷. Patients with Grade 2-3 rectocele/cystocele were accepted to have significant disease.

Longer delivery duration, forceps or vacuum usage during delivery and delivering infant with birth weight greater than 4000 g were considered as difficult delivery.

Statistical Analysis

For statistical analysis, SPSS 11 (SPSS Inc., Chicago, IL, USA) software was used. The results were compared with Student's *t*-test and Chi-square tests. *p*-value smaller than 0.05 was accepted as statistically significant.

Results

Of 700 patients (Group 1) with urinary incontinence; 20.7% (145) have stress urinary incontinence, 20.7% (145) have urge urinary incontinence and 58.6% (410) have mixed urinary incontinence. Of 41 patients with urinary incontinence (Group 2) who have also fecal and/or gas incontinence; 39% (16) have urinary and gas incontinence, 41.5% (17) has urinary and fecal incontinence and 19.5% (8) have urinary + gas + fecal incontinence. Patients' characteristics were summarized in Table I. In group 1, although 32.8% (230) of 700 patients have a history of difficult delivery, in group 2, 58% (24) of 41 patients have this history ($p = 0.001$). Although 32.1% (225) of patients in group 1 have PMS, in group 2, the rate was 56% (23). In group 2, PMS were more frequent than group 1 ($p = 0.002$). In group 1, 107 (15.3%) patients have a pelvic surgery history, in group 2, 18 (43.9%) patients

have it. The difference between the groups was statistically significant ($p = 0.000$). Constipation history was also statistically higher in group 2 ($p = 0.012$). When we compared two groups in terms of BMI, number of delivery, postmenopausal duration, neurological disease, DM, smoking habits, cystocele and rectocele, no difference was found. UDI-6 and IIQ-7 values are both higher in group 2 than group 1 as an indicator for worse QoL and the differences are statistically significant ($p = 0.014$ and $p = 0.04$ respectively) (Table I).

Discussion

Fecal and/or gas incontinence has more negative effect to human life than urinary incontinence. In case of fecal and/or gas incontinence association with urinary incontinence, life quality gets deteriorated. Fecal incontinence is closely related with sphincter injury and pelvic floor diseases¹. It is more frequent in patients with pelvic floor disease when compared with patients without pelvic abnormalities⁸. In a study of Abramov et al⁹, major risk factors for fecal and/or gas incontinence were determined as age, menopause, obesity, delivery and presence of stress urinary incontinence. Since UDI-6 and IIQ-7 gives us an idea about the patients' quality of life affected with incontinence, the higher values found for group 2 could also indicate decreased QoL when fecal incontinence was added to the situation.

Anal functions get significantly decreased and risk of incontinence gets higher due to increasing age. Although in most of studies¹⁰⁻¹³ it's reported that anal sphincter pressure in rest and maximum squeezing pressure decreases with age, there are studies that don't support these findings. In a systematic review of 29 previous studies, Pretlove et al¹⁴ stated that risk of fecal incontinence increases by age, and has no relationship with gender. In the present study, in terms of age we didn't find any significance between our study groups. Our patients mean age was about 50 years and they were younger than the patients of current literature whose mean age was 60 years old. So the results might be effected by age factor^{10,15}. However, equal age distribution of our study might have provided us an evaluation chance of other risk factors independent of age factor.

Factors led to early menopause development like; genetic tendency, metabolic problems, autoimmune diseases, previous surgeries can play a role in

Table 1. Comparison of group 1 (urinary incontinence) and group 2 (urinary and fecal and/or gas incontinence together) in term of possible risk factors.

	Group 1	Group 2	p value
Age*	50.0 ± 12.8	51.4 ± 13.4	0.904
Body Mass Index*	27.8 ± 5.4	29.0 ± 5.4	0.164
Delivery*	2.9 ± 2.0	3.0 ± 2.0	0.993
Type of delivery†			
Vaginal	618 (89.3)	37 (90.2)	0.924
Caesarian	25 (3.6)	1 (2.4)	0.916
Difficulty in delivery†	230 (32)	24 (58)	0.001
Menopausal symptoms†	225 (32)	23 (56)	0.002
Postmenopausal duration*	6.8 ± 8.1	10.0 ± 11.8	0.179
Pelvic surgery history†	107 (15.3)	18 (43.9)	0.000
Hysterectomy†	99 (14)	8 (19)	0.342
Neurological disease†	64 (9.1)	6 (14.6)	0.244
Diabetes mellitus†	88 (12.6)	6 (14.6)	0.700
Smoking†	115 (16.4)	10 (24.4)	0.189
Constipation history†	241 (34.4)	22 (53.7)	0.012
UDI-6*	9.96 ± 4.14	12.17 ± 3.8	0.014
IIQ-7*	11.01 ± 8.43	14.61 ± 10.11	0.04
Cystocele (Grade 2-3)†	114 (23.4)	6 (18.2)	0.494
Rectocele (Grade 2-3)†	72 (14.8)	7 (21.2)	0.325

*Data are mean ± standard deviation. †Data are n (%). UDI-6 Urogenital Distress Inventory-Short Form. IIQ-7 Incontinence Impact Questionnaire.

common etiopathology with incontinence¹⁶. We determined that the rate of postmenopausal syndrome in patients with urinary and fecal and/or gas incontinence together, is significantly much more than patients with only urinary incontinence. Although there is no difference in age distribution between the groups, menopause was more seen in the group of fecal and/or gas incontinence, which made us to think that menopause or early menopause might be etiologically a facilitative cause.

There are a number of reports indicating a common cause of fecal incontinence, urinary incontinence and development of pelvic organ prolapse. Conditions which were considered as harmful for pelvic support mechanisms include vaginal delivery, connective tissue disease, pelvic neuropathy and pelvic surgery. One of the most significant factors on SUI development is pelvic floor damage during vaginal delivery. The relationship between pelvic floor damage and higher delivery weights as well as longer second period of delivery, was shown with electromyographical studies and it's reported that 80% of pelvic floor denervation occurs during first delivery. It can be concluded that in stress urinary incontinence development, difficulty of delivery plays a more important role than the number of delivery².

Meschia et al⁷ found a significant relationship between bigger delivery weight (≥ 3800 g) and

fecal incontinence as a risk factor. We assumed; deliveries bigger than 4000 g, vacuum/forceps usage on delivery and prolonged delivery processes as difficult delivery and we found a significant relationship between difficult delivery and fecal incontinence ($p = 0.001$). Difficult delivery may be a reason for fecal and/or gas incontinence as well as urinary incontinence. Long-termed excessive pelvic relaxation may lead to urinary incontinence as well as fecal and/or gas incontinence.

Sultan et al¹⁸ have used endosonography to evaluate antenatal and postnatal anal sphincter anatomy and in terms of anal sphincter damage, in this study it has been stated that caesarian delivery is more protective for anal sphincter damage. However, in another study Borello et al¹⁹ evaluated women with vaginal delivery and caesarian at 6th week and 6th month after delivery in terms of urinary incontinence and fecal incontinence, and found no statistically significant difference.

McKinnie et al²⁰ have found that it is the pregnancy that makes urinary and fecal and/or gas incontinence risk increased, not the type of delivery. Nygaard et al²¹ surprisingly have found fecal incontinence more frequent in mid-aged women regardless to delivery type. It's difficult for us to interpret on this issue, because in our data the

number of caesarian delivery is only one in the group with fecal and/or gas incontinence. In light of information above, we think that long-term follow-up is important in term of preservative effect of caesarian.

Although Ryhammer et al²² suggest that parity has a minor negative effect on anal functions, Pollak et al²³ indicates that with repetitive deliveries, the risk of fecal incontinence increases significantly. In this work it is also stated that anal incontinence symptoms in primiparas worsens rather than getting better in time after delivery. In our study, average number of delivery was similar in both groups and there was no statistically significant difference between them. The most significant factor here is probably the damage rather than number of delivery. In literature, it's considered that most of the damage to pelvic floor occurs during the first delivery. During pregnancy, pelvic floor is subjected to continuous chronic pressure. Latter vaginal deliveries may be easier than first delivery, but chronic pressure on pelvic floor remains. First delivery age may be also important. Pelvic floor may be less damaged if first delivery age is smaller, since aging degenerates the pelvic floor more.

Meschia et al¹⁷ have studied on 881 female patients with urinary incontinence and/or genital prolapsed. In this study, fecal incontinence frequency (24%) in patients with urinary incontinence was significantly higher than patients without urinary incontinence (15%). Moreover, in this study a significant relationship was found between severe rectocele and anal incontinence. In our research fecal incontinence frequency was 5.5% in women with urinary incontinence and we couldn't show any relationship between rectocele and anal incontinence ($p = 0.325$).

Patients referred to us had actually urinary incontinence complaints. The rate of anal incontinence is lower in our study, because we determined it during medical inquiry. Also our younger patient population might have affected the results.

Varma et al¹⁵ have stated in their 2016 women aged over 40 that fecal incontinence prevalence increases significantly in cases of obesity (20 percent greater for each 5-unit increase in BMI), chronic obstructive pulmonary (COPD) disease, irritable colon syndrome, urinary incontinence and colectomy. They also have stated that fecal incontinence is more frequent among white race than Latins. In the same study it has been stated that obesity damages pelvic floor structures by

increasing intra-abdominal pressure. We couldn't find any relationship between BMI and fecal and/or gas incontinence²⁰. Our patients' mean BMI was 27.8 ± 5.4 in Group 1 and 29.0 ± 5.4 in Group 2 and there was no statistically difference between groups ($p = 0.164$). There are also studies that state obesity doesn't have any negative effect on both type of incontinence.

It's being suggested that smoking disrupts pelvic floor indirectly by increasing intra-abdominal pressure because of increased number of illnesses such as COPD and of chronic coughing¹⁵. We found that smoking does not have any negative effect on fecal and/or gas incontinence.

Bharucha et al²⁴ had demonstrated that constipation was a risk factor for fecal and/or gas incontinence. Chronic constipation causes more pelvic floor relaxation increased by intra-abdominal pressure and consequently neuropathy is developed by stretched pudental nerve. As a result, fecal and/or gas incontinence gets increased. Similar to Bharucha's study we found that fecal and/or gas incontinence is more common in patients with constipation ($p = 0.012$). Constipation seems to be a risk factor for fecal and/or gas incontinence.

In the paper of Varma et al¹⁵ more fecal and/or gas incontinence was found in patients with pelvic surgery and pelvic organ prolapse treatment. In our study, pelvic surgery history was found as a major risk factor for fecal and/or gas incontinence too ($p = 0.0000$).

Increased incontinence rates in these patients may be related to the underlying pelvic floor defect which is already present and an additional surgery stress may aggravate the incontinence. Pelvic surgery alone may also increase urinary and fecal and/or gas incontinence in short- and long-term because of its damages on organs during the procedures.

Conclusions

The diagnosis and treatment of urinary and fecal and/or gas incontinence which both have a multifactorial etiology are not always easy. Shyness of patients as well as insufficient examination may be the reason of undetermined problems. Because in number of studies it's being shown that the risk of anal incontinence gets increased in patients with urinary incontinence and pelvic organ prolapse, all women referred for complaints of urinary incontinence and/or genital organ prolapse, must be examined about anal in-

continence and other anorectal symptoms routinely. Understanding of neurophysiologic bases of urination and defecation dysfunction will help us for the appropriate treatment of women with urinary and fecal and/or gas incontinence in addition to increase their quality of life. Urologists should play a more active role in this situation which requires a multidisciplinary approach by evaluating the pelvic organ diseases as a whole.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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