

Urinary Incontinence in Patients with Chronic Obstructive Pulmonary Disease

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Abstract: Charging the bladder depends on the elasticity of the bladder wall that allows the bladder to be filled with urine to a pressure lower than that at the level of the neck of the bladder and the urethra. Incontinence is urinary release that can be proven and represents social and hygienic problem and affects people of all ages. UI is a unique problem in people living with COPD. It presents a symptom that occurs when a sudden increase in intra-abdominal pressure (dyspnoea, chronic cough, vomiting) occurs where pressure is transferred to the urinary bladder and urinary release of the urine. Although rarely life-threatening, incontinence can seriously affect the physical, psychological and social condition of patients with COPD, which significantly affects the quality of life of the diseased. Although UI is usually observed as a condition that occurs in elderly women who are born, it is also often found in young women who were not born especially during energetic activities that require effort. The identified risk factors are age, gender and number of natural births, these factors partially explain the increased incidence of this disorder in women. The problem of UI in patients with COPD has not been sufficiently investigated given the prevalence of this problem and disturbing the quality of life that arises from it.

Keywords: Urinary incontinence (UI), chronic obstructive pulmonary disease (COPD), exacerbation, quality of life, smoking.

1. INTRODUCTION

Charging the bladder depends on the elasticity of the bladder wall that allows the bladder to be filled with urine to a pressure lower than that at the level of the bladder and urethra (otherwise incontinence occurs). In case of provocation such as cough, bladder contractions do not occur. Emptying of the bladder depends on the preservation of the complex neuromuscular network, which causes relaxation of the urethra sfiktera several milliseconds before the contraction of the muscle of the detrusor of the bladder. When detrusor contraction is normal, the bladder is completely emptied. The bladder that is filled and emptied in this way has a normal detrusor and is described as stable. Willful control of the urination depends on the neuronal relationship with the cerebral cortex and the brainstem. When disrupting this pathway (brain tumors, stroke, head trauma, Parkinson's disease), the control of bladder contraction also occurs. When the instability of the bladder and detergent is of neurogenic

origin, this is called detrusor hyperreflexia. When detrusor contraction occurs during urination, a disorder called a non-contractile detrusor is created, and when the detrusor does not respond to nerve stimulation due to the injuries of the sacral part of the cerebrum or the pelvic nerves, an asphile detrusor (1) is formed. Contrary to the general opinion, the mosquito control center is not located in the sacral part of the brain, but in the brainstem. Coordination (synergy) between detrusor and sphincter in the urethra requires intact neural linkage (autonomic and vegetative nervous system) between the bladder and the urethra. Disease of the upper part of the brain can cause disorder in synergy (disinergy) between the bladder and the urethra, resulting in urgent incontinence, residual urinary retention, and changes in the wall of the bladder (trabeculation and fibrosis), which can cause renal insufficiency.

The simplest way to classify disorders in urination is to determine whether it is primarily about poor urinary collection or weakness in

discharge, and this is achieved by asking two questions:

- Whether the urinary tract is a consequence of a bladder or lower bone disease (urinary bladder or urethra) or urinary retention, or
- Is there a neurogenic dysfunction (weakness in discharge)?

2. MATERIAL AND METHODS

General objective of the study: To investigate the incidence of urinary incontinence in patients with COPD.

Specific objective: To evaluate the impact of urinary incontinence on the quality of life of patients with COPD diagnosis.

The obtained data is processed and displayed on tables and graphs with accompanying discussion of the same and depending on the nature of the observed variable.

The descriptions of numerical features in our work have been made using the classic descriptive statistics methods, arithmetic mean and median of mean values, and measure of variability by standard deviation, variation coefficient and standard error, as well as minimum and maximum values. Relative numbers are used in all tables.

The distribution of numerical variables in our work was checked by the Kolmogorov Smirnov test, and normal distribution was tested. In the variables that met this criterion, i.e, they had a normal distribution, in their further analysis, parametric methods were used.

In the analysis of the results, depending on the nature of the variables themselves, Pearson's Quadratic Tests were used, in the form of matching tests and contingency tables, to compare the difference between the frequency in non-parametric features, for one or two features.

For the comparison of the average values of parametric features, we used the Student's T test for two groups of data. As nonparametric supplements in independent samples, a ranking sum test was applied and for dependent tests of equivalent pairs.

When analyzing the relationship between our characteristics, the methods of single parametric correlation and regression were used, as well as nonparametric correlation, of course, depending on the distribution of data. In all applied

analytical methods, the significance level was 0.05.

In the statistical methodological part of the diploma paper, the data obtained from three questionnaires were answered by 100 patients with COPD, 44 of whom were men (44.0%) and 56 women (56.0%), where this difference was not statistically significant ($p > 0.05$). The average age of our respondents was 64.6 years (in men 64.7 and in women 64.6). The study included 45 (45%) outpatient and 55 (55%) hospitalized patients at the Clinic for pulmonology at the Clinical Center of Serbia (January-June 2015).

3. DISCUSSION

The problem of urinary incontinence in patients with COPD has not been sufficiently investigated given the prevalence of this problem and the impairment of the quality of life resulting from it. Urinary incontinence affects people of all ages, and is especially prevalent among older people. Although urinary incontinence is not a common consequence of aging, changes in the urinary tract that are associated with aging increase the likelihood of elderly people suffering from incontinence. Numerous possible mechanisms of their association, and confirmed risk factors are: sex, aging and number of natural births in women. Therefore, the increased incidence of this disorder in women can be partly explained by the number of births.

COPD is associated with chronic cough which leads to the manifestation of stress-incontinence or to the deterioration of this symptom if it already exists. Other symptoms of COPD, such as fatigue and difficulty breathing, can reduce the mobility of patients, and thus make it easier for less physical effort to induce an episode of incontinence. Cigarette smoking often provokes coughing that increases pressure on the bladder and small pelvis, and thus increases the likelihood of this symptom.

The results of our work pointed to a significant prevalence of urinary incontinence in patients following COPD deterioration (78%), greater than in other authors. Such frequent urinary incontinence in COPD exacerbations could be explained by provocation of the bladder contraction by muscle strain during cough. In a study by Schnell and associates, 34.9% of patients with HOBP treated with primary health care had incontinence, as opposed to 27.3% of

patients who do not have COPD, but are treated for another illness in primary health care [14].

The paper did not show a statistically significant difference in the prevalence of urinary incontinence between men and women, although in view of the female anatomy of the female organs and the weakening of the muscle as a consequence of the fetus, a higher percentage would be expected in women (65.9% of respondents noted the problem of urinary incontinence after give birth). In a study by D. Newman and associates, 49.6% of women and 30.3% of men with COPD induced incontinence. [9] A study done in Japan showed the prevalence of urinary incontinence in males with COPD of 10%. [17]

The Dutch authors conducted a survey in which the analysis of all medical electronic records from 2001 to 2008 examined in which diseases more often occurs with a urinary incontinence symptom. It has been shown that this symptom is more common in men if they suffer from cardiac insufficiency, while in women it is more common if they have diabetes, genitourinary prolapse, asthma, and COPD. [15] Urinary tract infections, osteoporosis and depression are associated with urinary incontinence in half of respondents.

The average response of our respondents to the question "To round off the number from 0 to 10 that best suits your urination leak in your everyday life (0 - I do not mind at all, 10 - much affects my quality of life)" on average they assess the problem 6, 11%. which indicates that the occurrence of urinary incontinence further disturbed their quality of life. An analysis of all three questionnaires on the impact of urinary incontinence on the quality of life of patients with COPD shows a poorer quality of life, especially during the exacerbation phase. The results of the latest studies suggest that all health professionals involved in the treatment of patients with COPD should be aware of the importance of quality of life when assessing the overall impact of the disease on patients and decide in therapy [6]

In a study of Hrisanfowe and Hagglund, a study of 2109 patients aged 40 to 69 years confirmed a significant correlation between the condition of urine continuity with COPD, but not with other comorbidities. The incontinence risk is higher if it's about women who are awkward smokers, regardless of whether they are active or ex-smokers. Also, detailed statistical analysis

showed that the risk of postpartum urinary incontinence may be reduced by smoking abstinence [4].

The quality of life reported by patients should be taken into account when assessing the health status since FEV1 is not sufficient to assess the clinical severity of COPD. New studies have confirmed this view, showing that patients at all stages of this disease, even those with light bronchoplasty, have significantly impaired quality of life, which negatively affects the daily activities [6].

In the study of Hrisanfowe and Hagglund, the quality of life in women was examined. It has been shown that women with incontinence have a lower score for their physical condition ($37 \pm 6 \pm 10 \cdot 4$ vs. $41 \cdot 4 \pm 9 \cdot 9$; $p < 0 \cdot 001$), al ii for mental status ($44 \cdot 3 \pm 10 \cdot 2$ vs. $47 \cdot 1 \pm 10 \cdot 5$; $p < 0 \cdot 007$) [4]. In men with COPD and incontinence, a greater score of symptoms of COPD and mental state ($46 \pm 0 \pm 9 \cdot 7$ vs. $49 \cdot 8 \pm 9 \cdot 7$; $p < 0 \cdot 001$) is greater than in men with COPD but are continental.

4. CONCLUSION

The results of our research follow the conclusions:

1. Urinary incontinence accounts for 78% of patients with COPD exacerbation.
2. In patients with COPD and urinary incontinence, the quality of life is poorer than in those with COPD, but have no incontinence.

Therefore, the great influence of urinary incontinence on overall health, as well as the quality of life of patients with HOBP, it is necessary that health workers actively seek the existence of this symptom, especially if it is a patient with chronic cough and an active smoker.

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