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Urologists' Approach to Nocturia: Routine vs. Standardized Approach

Ürologların Noktüriye Yaklaşımı: Rutin veya Standardize Yaklaşım

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ÖZET

Amaç: Noktüri şikayeti olan hastalarda ürologların rutin yaklaşımı ile standardize yaklaşımının hastalık yönetimi ve tedavi sonuçlarına etkisini karşılaştırmayı amaçladık.

Gereç ve Yöntem: Çalışma, Mart-Temmuz 2023 tarihleri arasında randomize olmayan prospektif kohort çalışması olarak tasarlandı. İlk aşamada 6 üroloji uzmanının rutin klinik yaklaşımı değerlendirildi. Hastaların demografik verileri, komorbiditeleri, başlangıçtaki noktüri sayısı, yaşam kalitesi ve multidisipliner yaklaşım tercihleri kaydedildi (Grup-1). İkinci aşamada hastaların demografik verileri, komorbiditeleri ve ayrıca işeme günlüğü ve "Sonuçlara Yönelik Bireyin Noktüri Etiyolojisinin Hedeflenmesi" (TANGO) anketi sorgulandı (Grup-2). Verilen tedavilerin/önerilerin ardından tüm hastalar ilk ayda tekrar değerlendirildi. İki yaklaşım arasında multidisipliner yaklaşımdaki fark ile hastaların noktüri sayısı ve yaşam kalitesindeki değişim karşılaştırıldı.

Bulgular: Her gruba 47 hasta dahil edildi. Her iki gruptaki hastaların demografik ve klinik özellikleri istatistiksel olarak benzerdi. Charlson komorbidite indeksi Grup-2'de daha yüksekti (p=0,01). Multidisipliner tedavi yaklaşımı Grup-2'de daha yüksek düzeydeydi (%59,6 vs %8,5, p=0,001). Grup-1'de ortalama noktüri sayısı 4,6'dan 2,19'a düşerken, grup-2'de 5,15'ten 1,21'e düştü. Birinci ayda noktüri sayısı ve yaşam kalitesi skorları grup-2'de daha düşüktü. Grup-2'de ortalama noktüri sayısı ve yaşam kalitesindeki azalma grup-1'e göre istatistiksel olarak anlamlı derecede daha yüksekti.

Sonuç: Noktüriye yaklaşımda komorbiditelerin sorgulanması ve multidisipliner yönetimin uygulanması noktüri tedavisinde daha anlamlı sonuçlar sağlamakta ve yaşam kalitesini arttırmaktadır.

Anahtar Kelimeler: alt üriner sistem semptomları, multidisipliner, noktüri, sorgulama formu, yaşam kalitesi

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ABSTRACT

Objective: We aimed to compare the effect of urologists' routine approach and standardized approach on disease management and treatment results in patients suffering from nocturia.

Material and Methods: The study was designed as a non-randomized prospective cohort study between March and July 2023. In the first stage, the routine clinical approach of 6 urology specialists was evaluated. Demographic data, comorbidities, baseline nocturia number, quality of life, and multidisciplinary approach preference of the patients were recorded (Group 1). In the second stage, the patients' demographic data, comorbidities, and additionally the voiding diary and "Targeting the individual's Aetiology of Nocturia to Guide Outcomes" (TANGO) questionnaire were questioned (Group 2). All patients were re-evaluated in the first month of the treatments/recommendations given. The difference in the multidisciplinary approach and the change in the number of nocturia and the quality of life of the patients were compared between the two approaches.

Results: Forty-seven patients were included in each group. The demographic and clinical characteristics of the patients in both groups were statistically similar. Charlson's comorbidity index was higher in Group 2 (p=0.01). The multidisciplinary treatment approach was at a higher level in Group 2 (59.6% vs 8.5%, p=0.001). While the average number of nocturia decreased from 4.6 to 2.19 in group 1, it decreased from 5.15 to 1.21 in group 2. In the first month, the number of nocturia and quality of life scores were lower in group 2. The decrease in the average number of nocturia and quality of life in group 2 was statistically significantly higher than in group 1.

Conclusion: In the approach to nocturia, questioning comorbidities and applying multidisciplinary management provides more meaningful results in nocturia treatment and increase the quality of life.

Keywords: lower urinary tract symptoms, multidisciplinary, nocturia, questionnaire, quality of life

INTRODUCTION

Nocturia is defined as the complaint of waking up from sleep at least once to urinate (1). Nocturia is a condition that significantly reduces the quality of life and is difficult to manage because nocturia does not only occur as a result of urological diseases. European Urology Guidelines recommend a multidisciplinary approach and emphasize a shared care pathway to nocturia (2). Nocturia may be caused by urological diseases such as benign prostatic hyperplasia (BPH), overactive bladder, chronic pelvic pain syndrome, or due to non-urological conditions such as behavioral, systemic, and sleep disorders (3).

In the routine clinical approach to nocturia management, investigation of non-urological diseases is often overlooked by urologists due to patient load and lack of a specific approach. For this reason, patients are mostly treated with alpha-blockers or anticholinergic drugs, and the response to treatment is low. It is important to mainly evaluate cardiometabolic disorders, sleep disorders, urological conditions, and general patient health to better benefit disease management. The TANGO questionnaire was proposed to evaluate these situations and promote the multidisciplinary approach. TANGO is the abbreviation of "Targeting the individual's Aetiology of Nocturia to Guide Outcomes" and is a form consisting of 22 questions that question the causes of nocturia such as cardiometabolic, sleep, urinary tract, and general well-being (4,5). International Continence Society also suggests using validated questionnaires, bladder diaries, and finally multidisciplinary approach (6).

In this study, we aimed to investigate the effect of urologists' routine approach to nocturia and the effect of a standardized approach using the validated TANGO questionnaire and bladder diaries on the improvement in nocturia and quality of life.

MATERIAL AND METHODS

This study was conducted according to the ethical guidelines outlined by our institution's local ethical committee. Local ethical board approval was also granted (Ethics committee number: 2023/03-25).

The study was designed as a non-randomized prospective cohort study between March and July 2023. It was designed as a two-stage study. In the first stage, the routine clinical approach of 6 urology specialists was evaluated. The urologists' routine approach included no intervention and the content of the study was not mentioned. Demographic data, comorbidities, baseline nocturia number, quality of life, and multidisciplinary approach preference of the patients were recorded (Group 1). In the second phase, the same urologists were given a standardized nocturia questionnaire and a bladder diary. In the second stage, the patients' demographic data, comorbidities, and additionally the voiding diary and "TANGO" questionnaire were questioned (Group 2). All patients were re-evaluated in the first month of the treatments/recommendations given. The difference in the multidisciplinary approach and the change in the number of nocturia and the quality of life of the patients were compared between the two approaches. Quality of life was evaluated using a Likert form for urinary symptoms, ranging from 0 to 6, from best to worst.

Patients in need of any invasive treatment due to bladder outlet obstruction were excluded from the study. Patients with active urinary tract infection and patients who did not want to participate in the study and had no follow-up were also excluded.

Statistical Analysis

Statistics of the study were done using the Statistical Package for Social Sciences (SPSS) version 26 (SPSS Inc, Chicago, IL, USA). In statistical analysis, the chi-square test was used to compare categorical variables, and the independent sample t-test to compare numerical data. The dependent variable t-test was used to compare the effectiveness within two groups and repeated measures ANOVA was used to compare both groups with each other. Statistical significance was defined as $p<0.05$.

RESULTS

A total of 94 patients and 47 patients in each group were included in the study. Gender, age, body mass index, and accompanying comorbidities were similar between the two groups. The average Charlson comorbidity index in Group 2 was higher than the other group (3.23 vs. 2.53, $p=0.010$). There was a similar level of diuretic drug use in both groups. Uroflow parameters and medical treatments administered to the patients were also similar between the two groups. The rate of the multidisciplinary approach in group 2 was significantly higher than in group 1 (59.6% vs. 8.5%, $p = 0.001$) (Table 1). In the TANGO questionnaire assessed through Group 2, the majority of patients had urinary tract problems (11/47), followed by sleep (10/47) and cardiometabolic problems (6/47).

While the average number of nocturia decreased from 4.6 to 2.19 in group 1, it decreased from 5.15 to 1.21 in group 2 (Figure 1). The average quality of life score decreased from 3.7 to 2.17 in group 1 and it decreased from 5.0 to 1.34 in group-2 (Figure-2). At the first month evaluation, both the average number of nocturia and the quality of life score of the patients in group 2 were lower (Table 2). The decrease in both the number of nocturia and the quality of life score was significantly higher in group 2 ($p<0.001$).

Table 1. Demographic and clinical characteristics between groups

	Group-1 N=47	Group-2 N=47	p
Gender			
-Female	8 (17.0%)	11 (23.4%)	
-Male	39 (83.0%)	36 (76.6%)	0.441
Age, mean±SD	64.7 ±10.3	65.7 ±8.5	0.595
BMI, mean±SD	29.03 ±2.96	29.8 ±4.6	0.330
Charlson Comorbidity Index, mean±SD	2.53 ±1.3	3.23 ±1.27	0.010*
Hypertension			
-No	22 (46.8%)	14 (29.8%)	
-Yes	25 (53.2%)	33 (70.2%)	0.090
Diabetes			
-No	31 (66.0%)	28 (59.6%)	
-Yes	16 (34.0%)	19 (40.4%)	0.522
Congestive heart failure			
-No	40 (85.1%)	36 (76.6%)	
-Yes	7 (14.9%)	11 (23.4%)	0.294
Diuretic drug use			
-No	30 (63.8%)	24 (51.1%)	
-Yes	17 (36.2%)	23 (48.9%)	0.211
Qmax	12.5 ±7.4	12.6 ±5.6	0.328
Qort	8.5 ±7.3	6.3 ±2.8	0.330
Volume	192.1 ±98.3	220.1 ±84.8	0.204
Treatment given			
-Lifestyle recommendation	2 (4.3%)	3 (6.4%)	
- Anticholinergic	14 (29.8%)	16 (34.0%)	
-Alpha blocker	27 (57.4%)	24 (51.1%)	
-Combination	4 (8.5%)	4 (8.5%)	0.917
Multidisciplinary approach			
-No	43 (91.5%)	19 (40.4%)	
-Yes	4 (8.5%)	28 (59.6%)	0.001*

BMI: Body mass index, SD: Standard deviation
Chi-square test
Independent samples t-test
*Statistically significant p<0.05

Table 2. Nocturia, Quality of Life changes between groups before and after treatment

	Group 1	Group 2	p
Baseline nocturia, mean±SD	4.62 ±1.87	5.15 ±1.60	0.142
First month number of nocturia, mean±SD	2.19 ±1.81	1.21 ±1.18	0.003*
Basal quality of life, mean±SD	3.70 ±1.32	5.0 ±0.83	0.001*
First month quality of life, mean±SD	2.17 ±1.56	1.34 ±1.09	0.003*

SD: Standard deviation
Dependent variable t-test
*Statistically significant p<0.05

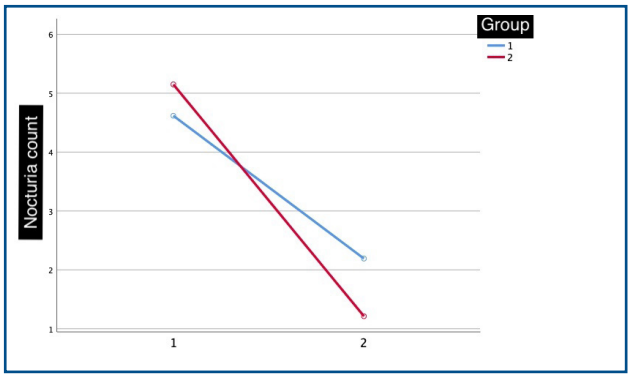

Figure 1. Comparison of nocturia number between basal and 1st month

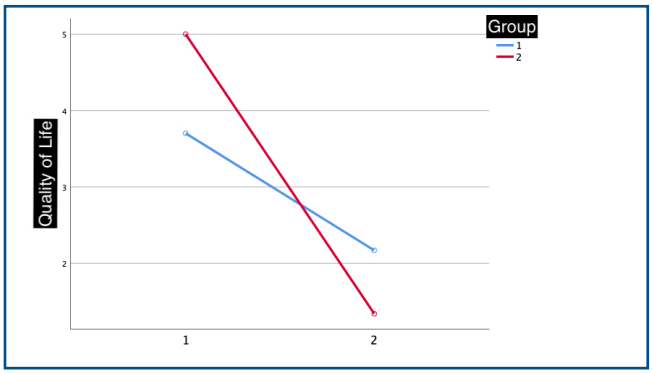

Figure 2. Comparison of quality of life between basal and 1st month

DISCUSSION

While the underlying causes of nocturia may be urological diseases, most of them are caused by non-urological conditions. Causes of nocturia include behavioral reasons (inappropriate fluid intake), systemic diseases (diseases related to nephrology such as tubular dysfunction, renal failure, cardiovascular diseases, endocrine diseases such as diabetes mellitus/insipidus causing diuresis, pituitary interventions, neurological diseases such as autonomic dysfunction, obstructive apnea syndrome. and sleep disorders (7). In this study, we investigated the effect of urologists' routine approach to nocturia management and the standardized approach created using validated questionnaires and bladder diaries investigating multifactorial etiologies on treatment success. Accordingly, it was determined that a multidisciplinary approach was preferred more frequently in patients evaluated within a standardized framework, a greater reduction in the number of nocturia was achieved in the first month, and the quality of life of the patients increased more.

Nocturia management begins with a detailed differential diagnosis and continues with lifestyle changes, fluid intake, sleep, and toilet habit modifications. Medical treatment of nocturia includes mostly alpha-blockers, antimuscarinic drugs, β3-Adrenergic agonists, or desmopressins in the urology outpatient clinics (8). In this study, alfa blockers were also the most preferred drug against nocturia (57.4% in group 1, 51.1% in group 2). It is known that alpha-blockers are useful in reducing the number of nocturia and improving the quality of life (9). However, it should not be forgotten that nocturia is a multifactorial disease and often requires a multidisciplinary approach.

A multidisciplinary approach is very important in the management of nocturia, and a detailed differential diagnosis of the disease should be made and it should be determined which factors the patient complains of nocturia. In our study, the standardized management increased the multidisciplinary approach significantly (59.6% vs. 8.5%). Likely, higher success in disease management is also associated with this. Therefore, evaluation of nocturia by a team including a urologist, geriatrician, cardiologist, nephrologist, and gynecologist when necessary will ensure that patients benefit more from the treatment (10).

In the group where the standardized approach was preferred, a significantly higher improvement was detected in the number of nocturia and quality of life of the patients at the first-month follow-up after treatment compared to the other group. Nocturia is a condition that negatively affects the quality of life, and each increase in the number of nocturia further deteriorates the quality of life (11) waking at night to void. It has been shown that it causes sleep disorders, and sleep disorders cause daytime fatigue and reluctance in the patient (12,13).

Although all patients in the second group were given a 3-day voiding diary, some patients were not able to complete

them optimally. Although patients who cannot fill optimally are a minor group, they can be considered a limitation. The small number of patients can also be considered a limitation. Although the evaluation of patients by 6 specialist urologists was preferred in terms of being adaptable to general urology outpatient clinics, the clinician's experience, level of knowledge about nocturia, or time per patient in the outpatient clinic can be seen as other factors affecting disease management. Conducting similar studies in specific outpatient clinics where lower urinary tract symptoms are evaluated may lead to different results.

CONCLUSION

In the management of nocturia, a standardized approach with multifactorial questionnaire forms for etiology will provide a significant improvement in the number of nocturia and quality of life of patients.

Conflict of interest: The authors declare that they have no conflict of interest.

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Ethics Committee Approval: Kütahya Health Scıences Unıversıty Non-invasive Clinical Research Ethics Committee approval was received. The study protocol followed the ethical guidelines of the Declaration of Helsinki (Ethics committee number: 2023/03-25).

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