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NOCTURNAL CATHETERIZATION IN PATIENTS WITH CLEAN INTERMITTENT CATHETERIZATION IMPAIRS THEIR QUALITY OF LIFE AND IS ASSOCIATED WITH SLEEP DISORDER

Hypothesis / aims of study

Nocturia affects the quality of life (QOL) of patients. Recent advances in the studies on nocturia and sleep disorder have shown that the occurrence of nocturnal awakening and the time to the first nocturnal awakening play important roles in the QOL of the patient [1]. However, to date, no such study has been performed in patients receiving clean intermittent catheterization (CIC). The objectives of this study were to elucidate the correlation between CIC and QOL and to determine the extent of the effect of nocturnal catheterization on the state of sleep in patients with CIC.

Study design, materials and methods

The study was performed in patients receiving CIC and followed-up at the outpatient our hospital. QOL was assessed using the QOL score (QOL-S) of the International Prostate Symptom Score (IPSS). Patients were divided into 2 groups, the favorable QOL group (Group A) and the unfavorable QOL group (Group B), on the basis of the QOL score, and the baseline characteristics of the 2 groups were examined. Furthermore, patients requiring nocturnal urethral catheterization in both groups were comparatively evaluated for the state of sleep and psychological conditions using the nocturia QOL (N-QOL) questionnaire. The total score of N-QOL and subscale scores were converted into 100-point scale scores (0, poor; 100, full points) and evaluated.

Results

A total of 83 patients (22 men and 61 women) participated in the study. The mean frequency of urinary catheterization was 5.8 ± 2.1 times, mean frequency of nocturnal catheterization was 1.0 ± 1.0 times, and mean IPSS QOL-S was 2.3 ± 0.7 points. No patient had an IPSS QOL-S score of 5 points or more. Thus, patients with QOL-S of 1 to 2 points were defined as Group A and those with 3 to 4 points as Group B. Comparison between the 2 groups showed no significant difference in the male/female ratio, age, or the total number of urinary catheterizations; however, a significant difference was noted in the frequency of nocturnal catheterization (Group A, 0.82 ± 1.0 vs Group B, 1.4 ± 1.1; $p = 0.021$) (Table 1). Nocturnal catheterization was required in 29 (52.7%) patients in Group A and in 23 (82.1%) in Group B ($p = 0.017$). Time to the first nocturnal awakening was 4.3 ± 1.1 h in Group A, which was significantly different from that in Group B (3.2 ± 0.9 h; $p < 0.001$). When the N-QOL scores of the patients requiring nocturnal catheterization in the 2 groups were compared, the total scores, converted into a 100-point scale scores, were 59.4 ± 8.1 points in Group A and 64.6 ± 8.5 points in Group B ($p = 0.028$). Significant differences were observed between the 2 groups in the items concerning sleep/energy and bother/concern (Table 2).
We also investigated the correlations between nocturnal catheterization and the Q13, Q9, and Q12 scores of N-QOL. Our results showed that Q9 and Q12 scores were positively correlated (Q9, $r = 0.48$, $p < 0.001$; Q12, $r = 0.38$, $p = 0.004$).
Furthermore, we investigated the correlations among nocturnal catheterization, IPSS QOL-S, and Q9 and Q12 scores. Our results showed that Q9 and Q12 scores were positively correlated (Q9, $r = 0.31$, $p = 0.022$; Q12, $r = 0.35$, $p = 0.0086$).

Interpretation of results

Many patients with unfavorable QOL were with nocturnal catheterization.
Thus, nocturnal catheterization may be a factor that impairs the QOL in patients with high IPSS QOL-S.
In addition, the time to the first nocturnal awakening was short in patients with unfavorable QOL. Thus, nocturnal catheterization may be responsible for sleep disorder and psychological burden.

Concluding message

Our results showed that nocturnal catheterization impairs the QOL in patients with neurogenic bladder and is a cause of sleep disorder.

Table1 Baseline Characteristics of Patients

	Group A	Group B	P value
Number of patients	55 (15 men, 40 women)	28 (7 men, 21 women)	
Age	58.3±17.4 years	56.1±14.2 years	P=0.57
Mean frequency of urethral catheterization per day	5.7±2.1	6.1±2.2	P=0.437
Mean frequency of nocturnal catheterization	0.8±1.0 [1)]	1.4±1.1 [2)]	P=0.021
Time to First Nocturnal Awakening	4.3±1.1	3.2±0.9	P<0.001
International Prostate Symptom Score-Quality of	1.84±0.37	3.1±0.4	P<0.001

life score (IPSS QOL-S)

1) N= 29, 2) N=23

Table 2. Comparison of Nocturia Quality of Life Questionnaire (N-QOL) Scores in Patients With Nocturnal Catheterization

	Group A N=29	Group B N=23	*P* value
Q1 (Concentration)	1.58±0.67	1.47±0.85	0.631
Q2 (Low in energy)	1.65±0.66	1.13±0.76	0.012
Q3 (Sleep during the day)	1.68±0.79	1.87±1.06	0.453
Q4 (Productiveness)	1.77±0.62	1.52±0.73	0.182
Q5 (Physical activities)	1.45±0.62	1.35±0.71	0.572
Q6 (Fluid restriction)	1.68±0.65	2.35±0.83	<0.01
Q7 (Inadequate sleep at night)	1.29±0.94	2.91±0.85	<0.001
Q8 (Disturbance of others)	1.58±0.67	1.13±1.01	0.073
Q9 (Preoccupation with waking at night)	1.29±0.53	1.83±0.83	0.011
Q10 (Worry over condition worsening)	1.19±0.53	1.39±0.72	0.335
Q11 (Worried over treatment options)	0.94±0.68	1.13±0.92	0.396
Q12 (Overall bother)	0.77±0.76	1.35±0.88	0.014
Q13 (Overall impact on everyday life)	1.32±1.01	2.70±1.29	<0.001
Conversed total score (Q1-12)	64.6±8.5	59.4±8.1	0.028
Subscale scores			
Sleep/Energy (Q1-5, Q7)	60.8.6±9.9	57.2±12.9	0.032
Bother/Concern (Q6, Q8-12)	69.0±11.0	61.8±8.6	0.027

References
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