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Association Between Frequent Urination and Prolonged Staying at Home

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ABSTRACT

Background: Due to the coronavirus 2019 (COVID-19) pandemic, many activities have stopped and individuals have been forced to stay at home for prolonged periods, which can have a negative impact on overall health and trigger stress and psychological disorders such as depression and anxiety. The objective of this study was to highlight 25 cases of unusual frequent urination associated with abnormal sleep and their relation to staying at home for a prolonged period due to the COVID-19 crisis.

Methods: This retrospective cross-sectional study included 25 patients who complained of frequent urination (> 3 times/hour) and abnormal sleep during the last 4 months (January–April 2020). These patients were evaluated for all possible differential diagnoses.

Results: All of the patients had frequent urination > 10 times/day and abnormal sleep but had normal kidney function tests and other investigations. None of the patients had been doing any physical activity at home. All of the patients said that both sleep and urination frequency improved after leaving home for a while (eg, to visit friends, walk, or play sports). This improvement occurred within 2 nights of leaving the home; however, the majority of patients improved after the first night.

Conclusions: “Home staying syndrome” is an undefined syndrome of unusual symptoms of abnormal sleep (altering sleep time and duration) and frequent urination > 3 times/hour. This syndrome is associated with staying at home for a long period of time and is easily resolved by doing any activity such as sports or visiting friends. While this syndrome is rare, it may be more prevalent now due to the COVID-19 pandemic, which forces people to stay home for infection prevention.

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Prolonged staying at home for longer than usual has a negative impact on the mind and overall health¹ and can trigger psychological disorders such as depression, anxiety, and stress.² Prolonged staying at home also produces insomnia and loss of interest in life and activities that the person used to engage in, as it hinders thinking and interaction.³

Frequent urination is one of the most significant signs of urinary system disease and can also be an indicator for metabolic diseases such as diabetes mellitus, as well as stress and brain tumors.^{4–6} Two hormones in the body that control urination are aldosterone, which is secreted from the adrenal gland, and the antidiuretic hormone (ADH), which is secreted from the pituitary gland.⁷ Any abnormality with these 2 hormones will cause irregularity in the frequency of urination, and many blood pressure medications, such as angiotensin converting enzyme inhibitors and angiotensin II receptor blockers, work by acting on the receptor of these hormones.^{8,9}

Here, 25 cases of unusual frequent urination associated with abnormal sleep and their relationship to prolonged staying at home during the coronavirus disease 2019 (COVID-19) pandemic are reported.

METHODS

This retrospective cross-sectional study included 25 patients who presented to the clinic with complaints of frequent urination (> 3 times/hour) and abnormal sleep during the last 4 months (from January–April 2020). A full history was taken from the patients, and medical records (if available) were reviewed carefully. Demographic data, physical examination results, and clinical outcomes were assessed. Sleep quality was evaluated according to the recorded sleep history (time of sleep, time of wake up, and number of sleep interruptions during the night).

The following tests were conducted to exclude other causes of frequent urination and sleep abnormalities:

- Diabetes mellitus was tested by glucometer.
- Blood pressure was tested by electronic device.
- Renal system was tested by x-ray, and kidney function tests were conducted in addition to urinalysis.
- Blood tests were done to obtain levels of ADH and aldosterone and to assess pituitary and adrenal gland function.

All patients provided informed consent to share medical data related to their case. Ethical approval was obtained from the ethics committee of the University of Baghdad–College of Medicine, Baghdad, Iraq. The data were analyzed with SPSS version 25 (IBM Corp, Armonk, New York). Significance was assessed with *t* test and χ^2 ; *P* < .05 was considered statistically significant with a confidence interval of 95%.

Clinical Points

- Frequent urination with no significant cause in individuals staying home for a prolonged period of time suggests a new syndrome of symptoms predominated by abnormal sleep quality.
- Home staying syndrome can be easily resolved by doing sports, visiting friends, and getting out of the home.
- Home staying syndrome is rare but may be more prevalent due to the COVID-19 pandemic, which forces people to stay home for infection prevention.

Figure 1. Duration of Staying Home of the Patients

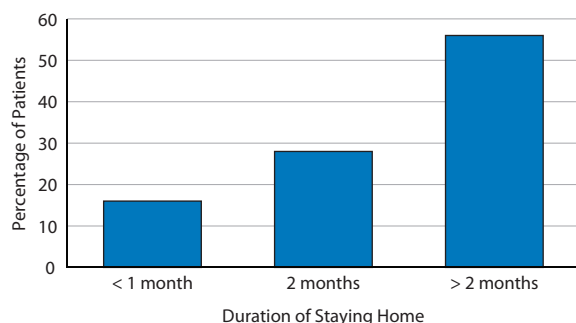
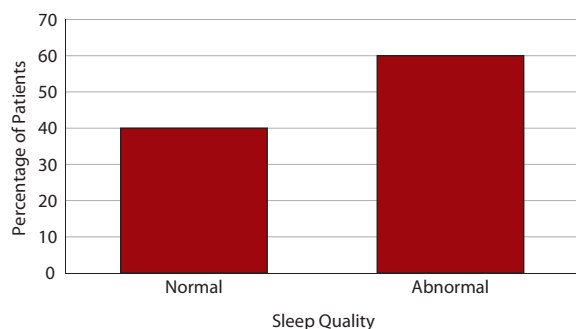


Figure 2. Sleep Quality of the Patients



RESULTS

The mean \pm SD age of the patients was 28.24 ± 7.38 years (range, 20–45 years). Of the participants, 76% were male (19 cases) and 24% were female (6 cases). All patients had blood pressure and blood glucose (109.27 ± 8.99 mmol/L) levels within normal limits, as well as normal blood tests. None of the participants had significant renal disease or impairment. All of the patients had frequent urination > 10 times/day, and the amount of urination was small to moderate depending on the patient's assessment.

Figures 1 and 2 illustrate the duration of staying home and sleep quality among the patients. Staying home for a duration > 2 months and abnormal sleep were predominant. Tables 1–3 show the relationship between duration of staying home and sleep quality, sex and sleep quality, and sex and

Table 1. Relationship Between Duration of Staying Home and Sleep Quality

		Sleep		Total
		Normal	Abnormal	
Duration of staying home	< 1 month	1	3	4
	2 months	2	5	7
	> 2 months	7	7	14
Total		10	15	25

Table 2. Relationship Between Sex and Sleep Quality

Variable	Sleep		Total
	Normal	Abnormal	
Sex			
Male	8	11	19
Female	2	4	6
Total	10	15	25

Table 3. Relationship Between Sex and Duration of Staying Home

Variable	Duration of Staying Home			Total
	< 1 Month	2 Months	> 2 Months	
Sex				
Male	3	4	12	19
Female	1	3	2	6
Total	4	7	14	25

Table 4. Significant Differences Between Variables

First Variable	Second Variable	P Value	Significance
Age	Sleep quality	.645	Not significant
Age	Duration of staying home	.628	Not significant
Sex	Sleep quality	.545	Not significant
Duration of staying home	Sleep quality	.512	Not significant
Duration of staying home	Sex	.351	Not significant
Duration of staying home	Glucose level	.79	Not significant

duration of staying home, respectively. Abnormal sleep quality was high in those who stayed home > 2 months, and men were more affected than women. Table 4 shows differences between variables.

All of the patients reported that their condition improved after leaving home for a while (eg, visiting friends, walking, or playing sports). This improvement occurred within 2 nights of leaving the home; however, the majority of patients improved after the first night. None of the patients had been doing any sports or physical activity at home.

DISCUSSION

Frequency of urination with no significant cause found in this study suggests a new syndrome of symptoms predominated by abnormal sleep quality or sleep problems. Given that diabetes mellitus, high blood pressure, and other conditions were excluded, the cause of frequent urination in these patients appears to be psychological. Staying at home for long periods of time can evoke anxiety and depression, and secretion of ADH will stop as a result; however, ADH

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levels were within normal limits in all the cases presented here. In this study, 100% of the patients' symptoms resolved after getting out of the home to walk, visit friends, or play sports. There was no significant difference between any 2 variables among the 25 cases, which indicates that this process is not a result of any cause or factor that could be controlled. Disruption of sleep and being up too late during the night can alter the circadian rhythm, which can alter the normal physiology of many bodily functions including the urination process. Therefore, "home staying syndrome" is an undefined disorder of unusual symptoms of abnormal sleep (altering sleep time and duration) and frequent urination > 3 times in 1 hour that results from staying at home for a long period of time with no activity.

CONCLUSION

Home staying syndrome can be easily resolved by doing sports, visiting friends, and getting out of the home. This syndrome is rare but may be more prevalent now due to the COVID-19 pandemic, which forces people to stay home for infection prevention.

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