"CORONOSOMIA": COVID-19 PANDEMIC AND ASSOCIATED SLEEP DISORDER AMONG HOSPITALIZED PATIENTS IN BASRAH CITY-SOUTHERN OF IRAQ

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Abstract

COVID-19 patients may develop sleep difficulties, and sleep issues are expected to become more common in 2020. This epidemic is linked to sleeplessness, nightmares, sleep apnea, fatigue, exhaustion, and rapid eye movement (REM) sleep behavior disorder. In Basrah, cross-sectional observational research was conducted. This study included (158) COVID-19-positive hospitalized patients chosen randomly from the intensive care unit and infectious disease ward. A total of 158 patients were enrolled in the trial, with (118) (74%) of them having a sleep disturbance. Frequent awakening during Sleep is the most common symptom, followed by insomnia. Furthermore, the sleep disorder is more common among the desaturated patient, the younger age group and the longer hospital stay , and there was a statistically significant difference from the older age, the saturated group, and the shorter duration of hospitalization. Still, the difference was not significant between the genders.

Key words

Sleep Disorder, COVID-19, Insomnia, Corona, Basrah.

Introduction

The COVID-19 pandemic was triggered by a modified coronavirus leading to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which quickly spread from China to all continents (Markku 2021). Surprisingly, as many as one-third of COVID-19 survivors may experience significant neurological and psychological effects (Elise 2021). Patients with COVID-19 may experience sleep disturbances and psychological burdens due to the uncertainties and worries surrounding COVID-19, as well as the societal repercussions of mass lockdown (Lin et al., 2021). Additionally, Sleep is critical for the control of psychological and physical functions. Furthermore, sleep deprivation and disturbances may interact with mental and physical issues to exacerbate health problems in populations (Zielinski 2016).

Several articles from other nations have also underlined the rising frequency of sleep problems in 2020. These researches looked at the impact of SARS-CoV-2 infection on Sleep, as well as variables such isolation, quarantine, anxiety, stress, and financial losses. Noticeably insomnia symptoms may be linked to psychosocial variables and confinement, according to a European task committee (Altena et al., 2020). Furthermore, in Italy, anxiety connected to COVID-19 was strongly linked to sleep disturbances (Casagrande et al., 2020). Moreover, various factors such as insomnia, nightmares, sleep apnea, weariness, exhaustion, and REM sleep behavior disorder are being investigated in multiple COVID-19 Sleep

Studies. These findings imply that tiredness, sleepiness, and REM sleep behavior disturbance are linked to SARS-CoV-2 infection, but insomnia is linked to confinement, anxiety, and other psychosocial factors (Partinen et al., 2020).

Our study aims to assess the prevalence of sleep disorder among hospitalized patients with COVID-19 and determine the manifestation of sleep disorder in COVID-19 patients, in addition, to recognize those patients who are at risk.

Methods

A cross-sectional observational study was conducted in Basrah city-southern of Iraq at Al-Basrah Teaching hospital, a specialized center for treating covid-19 patients. The data were collected from the 1st of march to the 30th of June. The study includes (158) hospitalized patients with covid-19 who were randomly selected from the intensive care unit and infectious ward. Along with this, consent was obtained from patients. Additionally, this study was approved, and informed consent was waived by the training and the human development center in the Basrah health directorate.

The clinical data were collected by direct interview with the patients and revising the medical records for the sociodemographic features. Simultaneously, all these pieces of information are plotted on an organized multi-sectional questionnaire. The first section includes certain information related to the patient characteristics, such as the sex (male or female), age, and admission site. Furthermore, any patient with pre-existing confusion or a disturbing level of consciousness is excluded from the study. In addition to the presence of family support, the second section contains some of the illness-related information as the duration, the severity of illness through the degree of desaturation, and the use of continuous positive airway pressure (CPAP) ventilator in addition to the use of anxiolytics and hypnotics. The third section contains information related to the sleep disorder, such as the presence or absence of insomnia, frequent awakening, excessive sleepiness, other related sleep disorders and the duration of sleep by hours.

The statistical analysis was done by using SPSS (Statistical Package for the social sciences) version 20, count and percentage expressed the categorized variables, the results were expressed in the form of tables, and the association between the variables was assessed by using Qi square test, and the significance threshold was set at a P value less than 0.05.

Results

A total of (158) patients were involved in the study; their characteristics concerning the age, sex, and the degree of COVID-19 severity, in addition to the use of anxiolytics, CPAP ventilator, and the presence of family support, are summarized in table (1) below.

Table (1): The Characteristics of the Patients

The Age		The sex		Severity			Use anxiolytics/ hypnotics	Family support
Mean	SD	Male	Female	Desaturated	Well saturated	On CPAP		
53.6	13.9	72 (45.6%)	86 (54.4%)	138 (87.3%)	20 (12.7%)	14 (8.9%)	4 (2.5%)	152 (96.2%)

The site and duration of admission are shown in table (2) below.

Table (2): The Site and Duration of Admission

Duration			Site	
< 1 week	1 – 2 weeks	> 2 weeks	Intensive care unit	Infectious ward
38 (24.1%)	92 (58.2%)	28 (17.7%)	76 (48.1%)	82 (51.9%)

From the total number of the patients who enrolled in the study (118)(74%) were documented to have a sleep disorder. The most common reported symptom is the frequent awakening during sleep (96)(60.8%), followed by insomnia (80)(50.6%). The frequency of symptoms and the duration of sleeping hours are shown in table (3) below.

Table (3): The Manifestations of Sleep Disorders in Patients with COVID-19

The manifestation		The frequency	
		No.	%
Sleep hours	Less than 6 hours	67	48.1
	From 6 to 8 hours	60	38.0
	More than 8 hours	22	13.9
Sleep disorder	Insomnia	80	50.6
	Day time sleepiness	40	25.3
	Excessive sleepiness	20	12.7
	Nightmares and terrors	30	19.0
	Sleep apnea	Not reported	
	Frequent awaking during sleep	96	60.8
	Restless leg syndrome	Not reported	
	Sleep walking and/or talking	Not reported	

Moreover, the association between the presence of sleep disorder and the age, sex, site of admission and the severity of illness are shown in the tables (4,5,6,7) below.

Table (4): The Association Between the Presence of Sleep Disorder and the Age

Age Vs. Sleep disorder		Sleep disorder		Total
		Absent	Present	
Age	**Less than 35**	Zero	12 (100%)	12
	35 - 65	30 (28.3%)	76 (71.7%)	106
	More than 65	10 (25.0%)	30 (75.0%)	40
Total		40	118	158
Statistical numbers		**P value: 0.024**		

Table (5): The Association Between the Presence of Sleep Disorder and the Sex

Sex Vs. Sleep disorder		Sleep disorder		Total
		Absent	Present	
Sex	**Male**	18 (25.4%)	54 (74.6%)	72
	Female	22 (25.6%)	64 (74.4%)	86
Total		40	118	158
Statistical numbers		**P value: 0.746**		

Table (6): The Association Between the Presence of Sleep Disorder and the Site

Site Vs. Sleep disorder		Sleep disorder		Total
		Absent	Present	
Site of admission	**ICU**	24 (31.6%)	52 (68.4%)	76
	Ward	16 (19.5%)	66 (80.5%)	82
Total		40	118	158
Statistical numbers		**P value: 0.081**		

Table (7): The Association Between the Presence of Sleep Disorder and the Severity

Severity Vs. Sleep disorder		Sleep disorder		Total
		Absent	Present	
Severity of illness	Well saturated	15 (50%)	10 (50%)	20
	desaturated	30 (21.7%)	108 (78.3%)	138
Total		40	118	158
Statistical numbers		P value: 0.010		

Table (8): The Association Between the Presence of Sleep Disorder and Duration

Duration Vs. Sleep disorder		Sleep disorder		Total
		Absent	Present	
Duration of hospitalization	Less than 1 week	10 (26.3%)	28 (73.7%)	38
	1 – 2 weeks	28 (30.4%)	74 (69.6%)	92
	More than 2 weeks	2 (7.1%)	26 (92.9%)	28
Total		40	118	158
Statistical numbers		P value: 0.023		

Table (9): The Association Between the Presence of Sleep Disorder and CPAP

CPAP Vs. Sleep disorder		Sleep disorder		Total
		Absent	Present	
Use of CPAP ventilator	Not used	38 (26.4%)	106 (73.6%)	144
	Used	2 (14.3%)	12 (85.7%)	14
Total		40	118	158
Statistical numbers		P value: 0.501		

Discussion

This study sheds light on the sleep-related disorder among hospitalized patients with COVID-19 as a part of the psychological manifestation of this disastrous disease. Approximately three-quarters of Basrah patients' study sample suffers from sleep disorders during their illness and hospital stay. Noticeably the percentage of sleep disorder is located within the reference range of the prevalence of sleep disturbance (ranging from 33.3% to 84.7%) in hospitalized COVID-19 patients that were reported in 6 studies (Zhang et al., Dai et al., Hao et al., Liguori et al., Yue et al., and Iqbal et al., 2020).

As mentioned earlier in the results, the frequent awakening during sleep and insomnia are the most common manifestations of sleep disorders in hospitalized COVID-19 patients. The percentage is higher than that of a retrospective study of 329 COVID-19 patients' medical records revealed that 25.5 percent had psychiatric consultations, 33 percent had sleep disorders (insomnia, early awakening, difficulty falling asleep), and 22.6 percent and 54.8 percent were prescribed benzodiazepines and non-benzodiazepine sedative-hypnotics (zolpidem), respectively (Hao et al., 2020). Furthermore, the findings of this study are more similar to those of an Italian university hospital, which found that 49.51 percent of 103 COVID-19 patients admitted to the hospital complained of sleep disturbances, including insomnia, decreased sleeping hours, or frequent awakenings, with no significant gender differences (Zhang et al. 2020).

The effects of age on sleep during the COVID-19 epidemic appear to be debatable. According to two research studies, people over the age of 30 are more prone to experience sleep disturbances during the COVID-19 outbreak (Czeisler et al. 1992 and Kim et al. 2021). In contrast, data from The Coconel Group revealed that young people aged 18–34 years have a higher rate of sleep disturbance than older people (Beck 2020). Obviously, the latter is of closer similarity to our results that argued about the higher prevalence of sleep disorder among the younger age group with statistically significant association.

COVID-19-related stress is a significant contributor to sleep disturbance, possibly through a change in an emotional state and post-traumatic stress as a result of the high mortality of COVID-19 and the unexpected death of a close relative, as well as loneliness as a result of social isolation or quarantine (Casagrande et al. 2020). All of the above increased psychological burden and making people prone to sleep disturbance (Rossi et al. 2020). Moreover, as shown in our results, the percentage of sleep disorders is higher in the infectious ward than in the intensive care unit. This might be explained by the anxiety that affects the patient early during admission despite their better respiratory status in comparison with that in the intensive care unit.

Yang and colleagues recently found that sleep disorder was increased with increased severity of pneumonia, and improve insomnia is positively related to improvement from COVID-19 (Yang et al. 2020). As we noticed from our results, sleep disorders are higher among those with desaturation and severe lung injury, and this result was statistically significant. Moreover, our study argued that the longer duration of hospitalization associated with high prevalence of sleep disorder and this association was of statistical significance. On the other hand, we were noticed that the manifestation of sleep disorder was higher among CPAP ventilator user in compare with non-user, but the difference was of no statistical significance.

Finally, from the pathological point of view, in COVID-19 patients, the neuronal damage caused by SARS-CoV-2 infection, both directly and indirectly, contributes to sleep disruption. The olfactory nerves or retrograde trans-synaptic propagation from the lung to the medullary cardiorespiratory center could allow SARS-CoV-2 to infect the brain. SARS-CoV-2 then moved quickly to specific brain locations, such as the thalamus and brain stem, which are essential for sleep control and respiratory regulation, respectively (Li et al. 2020).

Conclusions and Recommendations

To sum up, the covid-19 pandemic causes an increase in the prevalence of sleep disorders and could negatively affect the hospitalized patient. It is recommended to give the patient anxiolytics or hypnotics and support them psychologically to prevent these manifestations. On the other hand, this study is only cross-sectional. A further longitudinal study is required to follow up the patients and monitor the sleep disorder after discharge because they may need additional psychological support.

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